COPY

CONSTRUCTION PERMIT MODIFICATION REQUEST
FOR ADDITIONAL INFORMATION
AIRS ID No. 1090013
Project No. 005

VAW OF AMERICA, INC.
200 Riviera Blvd.
St. Augustine, FL 32086

RECEIVED
AUG 13 2001
BUREAU OF AIR REGULATION

Submitted to:

Mr. Christopher L. Kirts, P.E.
District Air Program Administrator
Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256-7590

'01 AUG 9 PM 1 04
STATE OF FLORIDA
DEP - NE DISTRICT
JACKSONVILLE

Prepared by:
LAN Associates Engineering, Planning, Architecture, Surveying, Inc.
66 Cuna Street
St. Augustine, FL 32084

LAN Ref. #2.392.41
August 9, 2001

LAN
LAN ASSOCIATES
ENGINEERING • PLANNING • ARCHITECTURE • SURVEYING, INC.
66 CUNA STREET ■ ST. AUGUSTINE, FL 32084-3619
904-824-6999 FAX ■ 904-824-0726

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August 9, 2001

BY HAND DELIVERY

Mr. Christopher L. Kirts, P.E.
District Air Program Administrator
Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256-7590

Subject: Construction Permit
Modification Request
VAW of America, Inc.
Permit No.: 1090013-003-AV
AIRS ID No. 1090013
Project No. 005
LAN Ref. #2.392.41

Dear Mr. Kirts:

On behalf of VAW of America, Inc. (VAW), LAN Associates Engineering, Planning, Architecture, Surveying, Inc. (LAN) has prepared responses to your letter dated May 1, 2001 (Attachment 1), requesting additional information to supplement the Title V air permit modification application for VAW. Pursuant to that letter, the application was being held in abeyance until August 10, 2001, to allow time for the submission of additional information. At issue was the status of the classification of VAW as a secondary aluminum production plant and thereby subject to PSD determination. Our responses to your requests for information are provided in the same numerical sequence as your letter of May 1, as follows:

1. <u>Secondary Metal Facility Issues /PSD/Process Operations</u>

As can be seen by the various SIC Codes under which the VAW facility operates (See Paragraph 2 below), there are several types of facility process operations that take place at the VAW facility. VAW's finished product is sold under SIC Code 3354 and 3355, and consists of aluminum tubes and shapes, which are drawn and extruded. The tubes and shapes are extruded and drawn from billets sawed from aluminum logs that are cast on site in the VAW casting operations. Raw materials arrive at the VAW facility in the form of aluminum prime and various hardening agents including copper, manganese, chromium, iron, titanium, and silicon metal. The facility has two melting furnaces that are charged with

the raw materials according to the type of aluminum being cast. Scrap from the extrusion operations is recycled at the facility by being remelted in the furnaces. The molten aluminum is cast into an underground casting pit and allowed to harden into logs. The logs are 246" in length and range from 7" to 10" in diameter. The logs are then placed into the homogenizers that create the necessary hardness and strengths, which is necessary for further processing. After the logs are sawed into billets, they are extruded and drawn into various shapes. The tubes and shapes undergo solvent cleaning and/or undergo painting and other fabrication prior to being shipped to VAW's customers.

NESHAP? secondary aluminum production facility

As for VAW being classified as a secondary metal facility - in short - the "jury is still out." As discussed in various meetings with DEP and also with EPA and industry representatives, the secondary NESHAP for facilities such as VAW is currently in an "applicability stay" status. EPA has stated in rulemaking that a separate NESHAP will be promulgated for facilities such as VAW. LAN has been in touch with the stakeholder organizations who are currently in negotiations with EPA on this matter.

Secondary metal production facility? PSD

As originally drafted in proposed rulemaking, the Secondary NESHAP was designed to affect facilities operating under SIC Code 3341, facilities which recycle post-consumer scrap and dross to manufacture aluminum ingot. However, during the rulemaking process, EPA changed the final rule, and consequently was sued by the Aluminum Association for SIC Code 3341 and the American Foundrymen Society on behalf of SIC Codes 3354 and 3365, which are applicable to VAW. The Foundrymen representative has informed LAN that they have submitted language to EPA that will "get everybody out except those facilities that have scrap dryers." We have no way of knowing how EPA will react to this proposed language, but it will not be resolved until the early fall. VAW is, therefore, taking the position that they are not a secondary metal facility, as such, considering that the current NESHAP is subject to change at any time, and also considering EPA's current published guidance on what a secondary metal facility is.

VAW's current Title V permit will expire on December 28, 2003, with an application for re-issue due on June 28, 2002, approximately nine (9) months from the present time. By then, EPA will surely have re-issued the rulemaking on the Secondary Aluminum NESHAP. If it is acceptable to the Department, the application may be a good opportunity to discuss both the PSD issues in light of new rulemaking by EPA. Subjecting VAW to PSD review at this time, if it is finally excepted from the NESHAP, will cause undue hardship to the facility. The Department should also consider that the Secondary Aluminum NESHAP was promulgated listing PM as the surrogate for metal HAPS. VOC emissions are not addressed in the NESHAP, and are not HAPS. PSD review for a regulated pollutant does not appear to be appropriate, in light of the fact that VAW has not exceeded the PSD regulatory limit (250 TPY).

SIC/NAICS Codes

The applicable SIC and NAICS Codes for the VAW facility are provided in the table below:

SIC	NAICS	Description
3354	331316	Aluminum Extrusions
3355	331319	Aluminum Drawing/Rolling
3365	331524	Aluminum Foundries
3398	332811	Metal Heat Treatment

The primary SIC Code for the VAW facility is 3354 in that the extrusions of aluminum are the primary product produced at the facilities. The other operations are secondary operations producing the raw material for the final product - aluminum shapes and extrusions.

2. Company Supplier Specification/Protocol

VAW has specification protocols in place, which are applicable to raw materials, including prime and additives, as well as purchased scrap. A sample of the quality specification/protocols is included in Attachment 2.

3. Criteria Pollutant PTE

The potential to emit (TPY) for each criteria pollutant at the VAW facility was originally provided in Table 4, Attachment 6 of the Construction Air Permit Application package submitted April 4, 2001. Table 4 represented the summary of calculations (Attachment 5 in the previous submission) for the maximum annual processing or use capacities of materials and chemicals used at the facility. Attachment 3 contains a revised table showing the potential to emit for all criteria pollutants.

In addition, the list of insignificant or exempt activities for the facility has been revised. Locations of all the insignificant/exempt sources and regulated emission sources are included in the site plans provided in Attachment 4. Total potential emissions of criteria pollutants from all the insignificant activities are: PM, 20.3 TPY; NOx, 27.8 TPY; VOC, 1.9 TPY; and CO, 4.9 TPY. Attachment 5 contains a table containing all necessary information for the insignificant/exempt activities

4. VOC Emissions Cap

The emission sources that have potential to emit significant amounts of VOC include the Paintline, OPC Tube Mill, and 140-solvent tank located in the Main Plant. The application in April 2001 only requested an increase in 140-solvent usage in the Main Plant. However, for the other two sources, the existing permitted emission capacities are much higher than the actual emissions, and are not expected to exceed the existing permit conditions over the next few years.

VAW has put tremendous effort in reducing hazardous pollutants and VOC usage in the Paintline. The usage of xylene and MEK as solvents in the Paintline has been discontinued in favor of non-toxic organic solvent resulting in much lower emissions of these chemicals. The company is also working on a project to replace liquid paints with powder paints, for all

customers who will accept such a product change. As a result, the potential emissions of VOC, xylene, and MEK from the Paintline are expected to reduce accordingly.

VAW requests an emission cap for facility-wide emissions for the following pollutants: VOC, at 245 TPY and xylene, at 7 TPY. Consumption of MEK has been reduced to 3 TPY. Therefore, a cap for MEK will not be required as it is less than 50% of the major source category for that listed HAP. Attachment 6 contains the appropriate pages from the air permit application to request this emissions cap.

5. VOC vs. HAP Emissions

The VOC emission limit of 31.43 TPY in the Paintline in the existing permit was adopted from the old permit for the Paintline, which include xylene and MEK (Permit No. A055-141777, issued February 1, 1998). Both xylene and MEK have been used in the Paintline since the beginning of operations even though they were not limited individually in the permit. Therefore, the total VOC emission limit for the painting operation is correctly listed at 31.43 TPY, not 48.85 TPY. HAPs were listed for information purposes only as Title V application instructions and regulations specify that each pollutant should be identified.

6. EU's 008 & 009 Surrogate Information and Emission Factors

There are two melting furnaces in the VAW facility. Only the No. 1 Furnace has a wet scrubber designed to control pollutants when the furnace is processing painted aluminum scrap. Scrubber control is not required when clean aluminum scrap is processed. The No. 2 furnace is only allowed to process clean aluminum raw material and, therefore, scrubber control is not required. The pressure drop at the No. 1 Remelting Furnace is an indication of proper operating conditions of the scrubber for the furnace, and could be used as a surrogate periodic monitoring parameter when the scrubber is operated. It is important to note here that VAW has a current specification protocol in place, pursuant to which outside purchased scrap must contain less than 10% painted surfaces. Normal production operations utilize less than 5% purchased scrap on an annual basis. Most of the scrap melted in the furnace is internal runaround. The scrubber operation pressure drop cannot be a surrogate for the No. 2 Furnace in particulate monitoring because it does not have a scrubber. Furnace designed temperature for both furnaces will be the proper indicator of normal operation condition when the scrubber is not in use. The proper furnace temperature ranges from 1340 to 1360°F once aluminum is in a molten state. The VOC destruction efficiency will be sufficient at this temperature range.

7. Clean Charge

The definition of "clean charge" is currently under review by EPA and is one of the targeted issues in the lawsuit brought by the American Foundrymen Society. When the definition is re-promulgated by EPA, VAW will be in a better position to define this term. The stakeholders currently in negotiation with EPA have informed LAN that this definition will be revised in the re-promulgated NESHAP. The final definition is not known at this time.

At the present time, VAW periodically purchases scrap from off-site which, by company specifications, must be less than 10% painted scrap. The definition of clean scrap, as promulgated by EPA on March 23, 2000, at 65 FR Page 15711 for secondary aluminum facilities is attached as Attachment 7. VAW disputes this definition in collaboration with the other stakeholders in the industry.

8. Melting Furnace Stack Tests and Application Information

The application forms for the stack parameters for the furnaces are revised to reflect the stack test findings. The revised pages for both furnaces are in Attachment 8.

9. Fluxing Information

VAW does not anticipate using flux in the foreseeable future, and has not yet used any flux as addressed in the permit application. Flux is only required for usage when "dirty" scrap is melted in the furnace. The 5% usage of minimally painted (less than 10%) scrap does not warrant the use of flux. If market conditions change, VAW will need the flexibility to use flux when needed. Based on the permit application submitted, the proposed flux annual usage is 23 tons per year and aluminum melting capacity is 23,040 tons per year for each furnace. Therefore, the proposed flux use rate is less than 0.1 percent by weight.

10. Powder Paint MSDS and Information

No VOCs exist in the powder paint materials. Therefore, please change this source to an insignificant source as discussed between the representatives of LAN and Florida DEP, Northeast District. The requested MSDS, along with a table outlining the various chemical constituents of the paints, and a representative letter from a paint supplier is provided in Attachment 9.

11. Alumibond and Alodine 47 Usage Information

Both Alumibond and Alodine 47 contain hydrogen fluoride (HF), which are used as pretreatment chemicals for aluminum surface etching in the Paintline. They contain no more than 25 and 30 percent HF, respectively. Less than 10 lbs HF in the chemicals is diluted in 5000 gallons of water in a pretreatment tank daily resulting in dilute HF concentration. Most of HF will react with aluminum forming Al-F precipitate during the pretreatment process, resulting in negligible HF emissions. The facility consumed 2,400 lbs HF in 2000. Total HF consumption from the chemical usage will not exceed 3,000 lbs. per year. A maximum HF emission rate is no more than 10% of HF used, so the annual HF emission will be less than 300 lbs, with the current operation schedule of 8760 hours per year. Therefore, the hourly HF emission is less than 0.034 lb or 15 grams. MSDS for the two chemicals are in Attachment 10.

12. Responsible Official Letter of Authorization

Attachment 11 is provided as the Letter of Authorization, authorizing Mr. Robert Keathley to perform as the responsible official for VAW of America, Inc., as to air permitting issues.

13. Certification by Professional Engineer

The appropriate certification has been executed and is included as Attachment 12.

Thank you for your review of this information. If you have any questions regarding this letter or the pending application, please do not hesitate to contact Ms. Judy Van Houten, Dr. Handi Wang, or me at (904) 824-6999.

Sincerely,

Guy D. Van Doren, P.E.
CEO

GDVD:jw
2.392.41-L-FLDEP-Kirts-010809-gvd

Copies to: Mr. Wayne LaPierre/VAW

Attachment:
#1–FLDEP letter, dated May 1, 2001
#2–Sample of the quality specification/protocols
#3-Criteria Pollutant Emission Summary
#4-Updated VAW of America, Inc. site plan with emission source locations
#5–Updated list of insignificant activities
#6–Facility & Emission Unit 1 pollutant detail information
#7–Federal Register page 15711 (March 23, 2000)
#8–Melting Furnace Stack Parameter Application Pages
#9–MSDS for Powder Paint/Letter from Paint Company
#10–MSDS for Alumibond 2 and Alodine 47
#11–VAW Letter of Authorization
#12–P.E. certification/LAN Associates, Inc.

Attachment 1

FDEP Letter, dated May 1, 2001

Department of Environmental Protection

Jeb Bush
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

David B. Struhs
Secretary

May 01, 2001

CERTIFIED - RETURN RECEIPT

Mr. Robert Keathley
Vice President of Operation
VAW of America, Inc.
Post Office Box 3887
St. Augustine, Florida 32086

Re: Construction Permit Modification Request for Additional Information
AIRS ID No. 1090013
Project No. 005
St. Johns County

Dear Mr. Keathley:

In accordance with Rule 62-4.055(1), Florida Administrative Code (F.A.C.) and Chapter 120, Florida Statutes (F.S.), the Department has reviewed the subject application and has determined that the following information and questions need to be answered before the application can be further processed.

Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

1. The issue concerning whether VAW of America, Inc. should be classified as a secondary metal production plant, and therefore subject to a PSD (Prevention of Significant Deterioration) applicability threshold of 100 TPY, must be resolved prior to the continued processing of this permit modification request or the processing of any other air permit application. It is therefore requested that the facility provide a complete and detailed process description of the operations. Should it be concluded that a PSD permit application is indeed necessary, it should be submitted, along with the correct processing fee, to the attention of Clair Fancy, P.E., Bureau Chief at the Tallahassee Office. For issues concerning PSD applicability determinations and the required information for application submittal, please contact Teresa Heron at (850) 488-0114, extension 284.

2. Please provide the 4 digit Standard Industrial Classification Code (SIC) for the facility. For reference in technical literature, you may consult the SIC Manual, Industry Group Codes 334 and 335; the McGraw-Hill Encyclopedia of Science and Technology and the Compilation of Air Pollution Emission Factors, Fifth Edition (AP-42) section 12.8.

3. Please submit the company's protocol with the supplier that specifies and guarantees the quality and purity of the feedstock.

4. Please estimate the potential to emit in tons per year (TPY) for each criteria pollutant at your facility.

5. In this construction permit modification application, you have requested the increase of the production rates, the operating hours and fuel usage at several permitted Emission Units. Therefore, it appears that the Actual, as well as the future Potential Emissions will also increase. Although it may not be necessary to increase the permitted emissions units limits except at the 140 Solvent Tank, the facility-wide VOC annual emissions cap will provide a reasonable assurance. Given the above, please provide a detailed explanation as to why it is believed that it is not necessary to increase the emission limits for the associated Emission Units. Please also provide the facility-wide VOC annual emissions cap and the supporting documentation indicating how the facility plans to stay below this emissions cap.

6. It appears from the painting operation emissions calculations in Attachment 5, that 25% of Xylene and 5% of MEK emissions were omitted from the VOC emissions calculation. Shouldn't the VOC emissions from the painting operations be 48.85 TPY (7.7 +9.72+31.43) instead of 31.43 TPY?

7. It is stated in the application that VAW is proposing that the scrubber pressure drop at the No. 1 Remelt Furnace be used as a surrogate for the particulate matter continuous monitoring requirements at both Nos. 1 and No. 2 furnaces. It is the department's understanding that only No. 1 Remelt Furnace has a scrubber as a control device, and it is operated only during time periods when painted scrap is melted in the furnace. Please state if this understanding is correct, and if so, how the pressure drop at one scrubber can be used as a surrogate for both furnaces. Please also provide the documentation of the PM emission factor used for the two furnaces.

8. Currently, your Title V permit allows VAW to melt painted aluminum scrap. How does this meet the definition of "clean charge" as defined in 40 CFR part 63 Subpart RRR? If painted aluminum is used, is it stripped of paint before melting? How?

9. Please explain why the Emission Point Information for the Nos. 1 and 2 Remelt Furnaces appears to be significantly different from that provided with the results of the stack tests conducted on September 20, 2000 (specifically, Stack temperature, percent of water vapor, and actual flow rate).

10. Please clarify the application of flux in the Nos. 1 and 2 Remelt furnaces. It is the department's understanding that the furnaces currently do not use flux. However, information concerning flux is provided in several sections of the application, mainly the SEGMENT INFORMATION, PM EMISSIONS INFORMATION and the Flow Diagram for the Furnaces. Please also provide the fluxing rate (in terms of percent of the mass of the aluminum melted) if you do use it.

11. Please provide the VOC and HAP Content of the Powder Paint. In addition, please provide the MSDS for these materials.

12. Please provide the usage rates and emission estimations for Alumabond and Alodine 47. In addition, please also include the MSDS for these materials.

The subject application can not be processed until the above requested information is provided or corrected. The application will be held in abeyance until August 01 to allow for supplement or amendment.

All information requested must be submitted by the applicant and certified by the professional engineer named in the application. In addition, please submit a letter of authorization for the Responsible Official named in this application since he is not the person the department has listed in its records. Four copies of the requested information must be submitted.

If you should have any questions, please call Hui Liang at (904) 448-4310, extension 238.

Sincerely,

Christopher L. Kirts, P.E.
Air Program Administrator

CLK: HL

Copy to:
Guy D. Van Doren, P. E. – LAN Associates, Inc.
Teresa Heron, – BAR/DARM/NSR

permit flexibility, pursuant to EPA White Paper #3. VAW is currently keeping all of the recordkeeping as required in the current Title V permit. However, in order to certify compliance, the annual consumption rate of the various materials is sufficient to meet the burden of compliance certification. This will allow VAW operational flexibility and also the ability to certify compliance. Therefore, please remove all appropriate "lbs/hr" from the permit and show only the requested "lbs. or tons/yr" as set forth in the application.

2. Information as requested in your letter as to various issues in the construction permit application is as follows:

2.1 Emission Units 004, 011, 012, 014, 015, will be combined as EU004, which was the original emission unit "Paintline Facility" and will reflect the facility-wide VOC and HAP emissions.

2.2 As requested, the permitted PM rates for EU's 008 and 009 (Remelt Furnaces 1 & 2) have been reduced substantially pursuant to the performance test conducted on September 20, 2000. The scrubber pressure drop of "20-30 inches H_20" is shown in the application as the surrogate parameter/numerical value. At the present time, we do not have adequate support in terms of historical data as this compliance requirement has not been a part of VAW's current Title V permit. We also wish to state that the scrubber is operated only during times of melting painted scrap. Even so, the performance test shows that VAW has low PM emissions. We are presently studying the compliance assurance correlation between PM and VE and will advise you of our progress in the matter. You will note from the performance test that the highest opacity for the test of EU's 008 & 009, was "0%."

2.3 EU010 has been indicated as an insignificant activity.

2.4 Your letter mentions that we should convert the Powder Paint Booth VE to "facility-wide" VE, or the General Visible Emissions Standard. We contacted the Department to that regard and received some verbal indication that this may not be required or may be a misunderstanding. In any regard, if it is required, we welcome the opportunity to discuss the matter with you further, if you believe that this is still an issue.

2.5 At this time, we wish to apply a cap for only HAP emissions from the facility. This will accomplish the goal of being non-major or synthetic minor as to HAP issues. This is needed as to secondary aluminum issues discussed further below. However, we are studying the issue of a VOC cap further. In our previous letter, we mentioned EPA's White Paper #3. Emission caps were suggested in the White Paper as one method of permit flexibility, and hence, our request for emission caps as a way to establish compliance certification, absent other controls. The third white paper is relatively new and precedent may not yet be established. White Paper #3 also stated that current permitting strategies may be already in use to establish the needed permit flexibility. Since this permit modification may be held in abeyance until the PSD issue (discussed below), we request an additional two weeks to study this issue of VOC capping. The

Attachment 2

Sample of Quality Specification/Protocols

Scrap Receiving Inspection Report

Date 7-3-01 **Time** 9:40 **Inspector(s)** M. PHELPS

Scrap purchased from (Dealer) METAL EXCHANGE

Scrap generated from N/A

Contaminants

Material	Examples	Rejection Level	Amount Found
water	damp or wet scrap	reject for any moisture	☒ None
fertilizer	white powder	reject for any amount of any kind of whitish powder	☒ None
closed containers	cans, bottles, pinched end tubes, fire extinguishers, batteries	reject for any amount	☒ None
dirt	dirt	excessive	☒ None
wood	skids, boards	excessive	☒ None
plastic	sheets, Plexiglas, tanks, jugs, buckets	excessive	☒ None
glass	bottles	excessive	☒ None
steel	rebar, pipe, plate	reject for any amount	☒ None
steel	banding	excessive	☒ None
other metals	zinc, lead weights, magnesium	reject for any amount	☒ None
foil and sheet	foil and sheet	reject if more than 5% per bundle	☒ None
oils	oil, grease	excessive	☒ None
lacquers	coatings (sometimes clear)	reject for any amount	☒ None
paint	blue, red, orange paint	reject if more than 10% per bundle unless otherwise specified in the purchase order	☐ None 5%
anodized coatings	blue, red anodize finish	reject if more than 10% per bundle unless otherwise specified in the purchase order	☒ None
fines	saw chips, turnings, etcetera	reject if more than 5% per bundle	☒ None
compacted bales	may be small bricks or larger bales pressed into shape	reject for any amount	☒ None

For instructions on completing this form, see procedure CAST0325.

Scrap Receiving Inspection Report

Composition

Purchased Alloy 6063 Allowed Contaminants _____

Samples:

Sample	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Alloy
01	.436	.118	.022	.028	.384	<.001	.006	.010	6063
02	.407	.152	.001	.028	.522	<.001	<.001	.012	6063
03	.424	.209	.025	.018	.478	.012	.003	.014	6063
04	.429	.167	.005	<.001	.501	<.001	.007	.007	6063
05	.425	.163	.006	.003	.572	<.001	.002	.020	6063

Comments

Conclusion

☒ I certify that the load tested meets all the requirements outlined in procedure CAST0325 and in the specification CAST0300, and therefore approve the load for use.

☐ I certify that the load tested meets the requirements outlined in procedure CAST0325 and in the specification CAST0300 except for composition. Therefore, I conditionally approve the load for use as _____ alloy scrap.

☐ I recommend rejection of this load based on NON-hazardous contamination or off-grade composition.

☐ I reject this load based on hazardous contamination. IT IS NOT SAFE TO USE!

Signed

7-3-01
Date

For instructions on completing this form, see procedure CAST0325.

Scrap Receiving Inspection Report

Date 7-3-01 **Time** 8:45 **Inspector(s)** M. Phelps

Scrap purchased from (Dealer) Metal Exchange

Scrap generated from St Louis, Mo

Contaminants

Material	Examples	Rejection Level	Amount Found
water	damp or wet scrap	reject for any moisture	☒ None
fertilizer	white powder	reject for any amount of any kind of whitish powder	☐ None
closed containers	cans, bottles, pinched end tubes, fire extinguishers, batteries	reject for any amount	☒ None
dirt	dirt	excessive	☒ None
wood	skids, boards	excessive	☒ None
plastic	sheets, Plexiglas, tanks, jugs, buckets	excessive	☒ None
glass	bottles	excessive	☒ None
steel	rebar, pipe, plate	reject for any amount	☒ None
steel	banding	excessive	☒ None
other metals	zinc, lead weights, magnesium	reject for any amount	☒ None
foil and sheet	foil and sheet	reject if more than 5% per bundle	☐ None 2%
oils	oil, grease	excessive	☒ None
lacquers	coatings (sometimes clear)	reject for any amount	☒ None
paint	blue, red, orange paint	reject if more than 10% per bundle unless otherwise specified in the purchase order	☒ None
anodized coatings	blue, red anodize finish	reject if more than 10% per bundle unless otherwise specified in the purchase order	☒ None
fines	saw chips, turnings, etcetera	reject if more than 5% per bundle	☒ None
compacted bales	may be small bricks or larger bales pressed into shape	reject for any amount	☒ None

For instructions on completing this form, see procedure CAST0325.

Scrap Receiving Inspection Report

Composition

Purchased Alloy 6063 Allowed Contaminants _____

Samples:

Sample	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Alloy
01	.405	.255	.037	.042	.607	.015	.028	.009	6063
02	.432	.199	.018	.025	.537	<.001	.014	.013	6063
03	.445	.200	.005	.028	.510	<.001	.003	.010	6063
04	.457	.212	.040	.027	.558	.008	.013	.013	6063

Comments

Conclusion

☑ I certify that the load tested meets all the requirements outlined in procedure CAST0325 and in the specification CAST0300, and therefore approve the load for use.

☐ I certify that the load tested meets the requirements outlined in procedure CAST0325 and in the specification CAST0300 except for composition. Therefore, I conditionally approve the load for use as _____ alloy scrap.

☐ I recommend rejection of this load based on NON-hazardous contamination or off-grade composition.

☐ I reject this load based on hazardous contamination. IT IS NOT SAFE TO USE!

Signed _____ Date 7-3-01

For instructions on completing this form, see procedure CAST0325.

Scrap Receiving Inspection Report

Composition

Purchased Alloy 6063 Allowed Contaminants _____

Samples:

Sample	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Alloy
01	.402	.189	.002	.029	.490	<.001	.002	.011	6063
02	.444	.168	.008	.002	.501	<.001	.003	.025	6063
03	.435	.151	.002	.036	.495	<.001	.002	.012	6063

Comments

Conclusion

☒ I certify that the load tested meets all the requirements outlined in procedure CAST0325 and in the specification CAST0300, and therefore approve the load for use.

☐ I certify that the load tested meets the requirements outlined in procedure CAST0325 and in the specification CAST0300 except for composition. Therefore, I conditionally approve the load for use as _____ alloy scrap.

☐ I recommend rejection of this load based on NON-hazardous contamination or off-grade composition.

☐ I reject this load based on hazardous contamination. IT IS NOT SAFE TO USE!

Signed

7-3-01
Date

For instructions on completing this form, see procedure CAST0325.

Scrap Receiving Inspection Report

Date 7-3-01 **Time** 1:15P **Inspector(s)** M. PHELPS

Scrap purchased from (Dealer) METAL EXCHANGE

Scrap generated from N/A

Contaminants

Material	Examples	Rejection Level	Amount Found
water	damp or wet scrap	reject for any moisture	☒ None
fertilizer	white powder	reject for any amount of any kind of whitish powder	☒ None
closed containers	cans, bottles, pinched end tubes, fire extinguishers, batteries	reject for any amount	☒ None
dirt	dirt	excessive	☒ None
wood	skids, boards	excessive	☒ None
plastic	sheets, Plexiglas, tanks, jugs, buckets	excessive	☒ None
glass	bottles	excessive	☒ None
steel	rebar, pipe, plate	reject for any amount	☒ None
steel	banding	excessive	☒ None
other metals	zinc, lead weights, magnesium	reject for any amount	☒ None
foil and sheet	foil and sheet	reject if more than 5% per bundle	☒ None
oils	oil, grease	excessive	☒ None
lacquers	coatings (sometimes clear)	reject for any amount	☒ None
paint	blue, red, orange paint	reject if more than 10% per bundle unless otherwise specified in the purchase order	☒ None
anodized coatings	blue, red anodize finish	reject if more than 10% per bundle unless otherwise specified in the purchase order	☒ None
fines	saw chips, turnings, etcetera	reject if more than 5% per bundle	☒ None
compacted bales	may be small bricks or larger bales pressed into shape	reject for any amount	☒ None

For instructions on completing this form, see procedure CAST0325.

DATE 4/03/01
TIME 8:43:24
REPORT PO630A

V.A.W. OF AMERICA, INC.
V.A.W. - ST. AUGUSTINE
PURCHASE ORDER

CO 110
WHS 112

ORDER NUMBER 0028855 VER NO 001 STATUS O

VENDOR 48294
NB ALLOYS, INC
PO BOX 96666
CHICAGO, IL 60693
USA

SHIP TO
V.A.W. - ST. AUGUSTINE
200 RIVIERA BLVD.
ST. AUGUSTINE FL 32086

BILL TO
VAW OF AMERICA, INC.
P.O. BOX 3987
ST. AUGUSTINE FL 32085

BUYER SHELIA K. HOPFENSPERGER
PHONE 904/794-1500
FAX FX 904/794-1508

FOB DESTINATION
FREIGHT TERMS DEFAULT FREIGHT TERMS

SHIP INSTRUCTIONS BEST WAY
ACKNOWLEDGEMENT EXP

LIN NO	PART NUMBER/ DESCRIPTION	DUE DATE	ORDER QUANTITY	UNIT OF MEASURE	PCK TYP	TAX FLG	UNIT PRICE (CURRENCY: USD)	EXTENDED PRICE	ST
001	58002-TIBORSUPR TIBOR SUPER CLEAN MASTER 3% TI, 1% BORON, 3/8-ROD ACCOUNT 120130 CENTER		9000.000	PIECE	PC FP	N	1.6171000	14553.90	O

PAYMENT TYPE CK - CONTROL DISBURSE
CREDIT TERMS CODE .00 % IF PAID IN 30 EOM DSC N
NET 30 EOM NET N DEL DAYS

TOTAL PURCHASES	.00
TAX AMOUNT	.00
NET AMOUNT	.00

END OF ORDER

MATERIAL SAFETY DATA SHEETS ARE REQUIRED ON ALL APPLICABLE PRODUCTS. - PLEASE MAIL UNDER SEPARATE COVER TO:
WAYNE LAPIERRE

100% ON-TIME DELIVERY REQUIRED

PR007

...CED BY MT. HOLLY ALUMINUM FOR:

...S ORDER NO.:NONE
...OMER NO.:01149*000
...TO NO.:00863*004
...ITEM NO.:
...PART NO.:
...OMER ORDER NO.:
...00-55863-1152-P/01SUD4.10/162-
...5754-S/0023409/JUN01

GLENCORE LTD.
THREE STAMFORD PLAZA
301 TRESSER BOULEVARD
STAMFORD, CT 06901-3244

PAGE 1 OF 1
GLENCORE
C/O VAW OF AMERICA
C/O VAW - ST AUGUSTINE
200 RIVIERA BLVD
ST AUGUSTINE, FL 32086

VAW OF AMERICA
FLORIDA DIVISION
200 RIVIERA BLVD.
ST. AUGUSTINE, FL 32086
ATTN:ROGER PENN

SHIPPING MANIFEST

SHIPPING DATE:06/14/01
MANIFEST NO.:3110425
NET WEIGHT: 44,416
BNDLS/PCS: 30
RELEASE NO.:3310GT1017-04
PROD:UTEC14A000001500000000000000
CONTROL NO.:103T40118
CARRIER:COASTAL
CAR/TRUCK NO.:1309
ROUTING:

SEALS:
FROM STORAGE: YES
FRT CHARGES TO BE PAID BY:00023*000
GLENCORE LTD
301 TRESSER BOULEVARD
STAMFORD CT 069013244

...ED BALANCE SHIP TO:
...TE TO SHIP
...07 36,893
...ED AT MT. HOLLY PLANT

...CODE:

...T:PRIMARY ALUMINUM INGOT

SPEC ALLOY
C14A P1020A 1500# - 45"

CERTIFIED ANALYSIS IN PERCENTAGE BY WEIGHT

TOT BND	TOTAL PIECES	TOTAL WEIGHT	AL...	SI...	FE...	MN...	MG...	ZN...	TI...	V.....	PB...	SN...	BE...	NA...	CA...
	26	38472	99.83	.05	.09	.001	.001	.00	.01	.01	.001	.001	.0000	.0017	.0001
	4	5944	99.82	.05	.11	.001	.001	.00			.001	.001	.0000	.0017	.0001
	30	44416													

ANALYSIS CONTINUED ON NEXT PAGE

☑ Accept
☐ Reject
Init MAP
Date 6-21-01

ALYN POPE
Alyn Pope 06-15-01

Comments:

Received-VAW-Florida	
Receipt #:	22279
Date:	6-18-01
Received by:	RH
Notes:	

[redacted]

Consórcio de Alumínio do Maranhão
Consórcio Alumar - Billiton

BR - 135 Km 18 - Pedrinhas
Telefone - (098) 218-1510
64.154 São Luis - MA

Packing List - Analysis Certificate

Customer : BILLITON MARKETING AND TRADING BV

Product : PRIMARY ALUMINUM SOWS 99.70% MIN.

Identification: GREEN

Lot Nr. : B104D.01

Order 001574

Item	Melt/Bundle	Pieces	Gross weight KG	Net weight KG	Si+Fe %	Si %	Fe %	Ga %	V %	Ca %	Mn %	Cu %	Zn %	Ti %	Mg %	Na %	Ni %	Sr %	Al %	T.O. %
0026	50001/990737	1	377	377	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0027	50001/990742	1	348	348	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0028	50001/990743	1	331	331	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0029	50001/990745	1	318	318	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0030	50001/990748	1	341	341	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0031	50001/990750	1	367	367	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0032	50001/990751	1	347	347	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0033	50001/990752	1	358	358	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0034	50001/990753	1	365	365	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0035	50001/990754	1	350	350	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0036	50001/990755	1	330	330	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0037	50001/990757	1	346	346	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0038	50001/990787	1	352	352	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0039	50001/990788	1	306	306	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0040	50001/990789	1	370	370	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0041	50001/990790	1	372	372	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0042	50001/990791	1	392	392	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0043	50001/990792	1	379	379	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0044	50001/990793	1	310	310	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0045	50001/990794	1	358	358	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0046	50001/990795	1	383	383	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0047	50001/990796	1	347	347	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0048	50001/990797	1	361	361	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0049	50001/990798	1	363	363	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
0050	50001/990799	1	363	363	0.10	0.032	0.073	0.011	0.0120	0.0000	0.001	0.001	0.002	0.0050	0.000	0.0000	0.003	0.000	99.88	0.023
Tot. Page :		25,	8834,	8834,																

Note 1 - The results apply only to the samples analized in the laboratory.
2 - In conformance with aluminium association designations and chemical composition limits.
3 - Preheat the ingot before charging into molten metal

Clause..: 1 NOTE: V.A.W. SCALE WEIGHTS SHALL PREVAIL IN ALL

Clause Text
ASPECTS OF THIS PURCHASE AND SUBSEQUENT BILLINGS.
THE QUANTITY OF THIS ORDER IS LIMITED TO NO MORE THAN 5% ABO
VE OR BELOW THE ABOVE SPECIFIED QUANTITY.
ALL SCRAP MUST BE CUT TO A LENGTH OF FOUR FEET OR LESS. BAL
ED SCRAP WILL BE REC. ONLY WITH THE AGREEMENT OF V.A.W.
BALES MUST BE TAGGED W/NAME OF VENDOR, ALLOY, AND DATE. SCR
AP MUST NOT BE MORE THAN 10% PAINTED. SCRAP MUST CONFORM
TO THE ALUMINUM ASSOC. STANDARD FOR 6063 ALLOY EXCEPT FOR
ZINC WHICH MUST NOT BE GREATER THAN .05%
SCRAP MUST BE FREE OF CONTAMINANTS SUCH AS RUBBER, PLASTIC,
BOTTLES, CANS, IRON, ETC.
V.A.W. WILL INSPECT FOR CONTAMINATION. OFF GRADE WILL BE RE
JECTED.
V.A.W. REQUIRES 100% ON TIME DELIVERY

More...

F3=Exit F6=Add new Clause F10=Request new Clause

public stock company
VOLKHOV ALUMINIUM
187400, Russia, Leningrad region, Volkhov, Kirovsky prospect, 20

CERTIFICATE OF ANALYSIS AND WEIGHT 221

Date of issue: **September 16th ,1999**

To the Contract no. :	GSH-14/01/99-Al dd. January 12th, 99
Name of goods :	Primary Aluminium
Grade / Shape :	A8 / T-bars
Approximate measurements, mm :	600x600x1000
Marks :	two white stripes
Quality Standard to comply with :	TU 1712-99-001-96
Vagon no. / B/L at departure :	24501132 / 02340968
Net Weight (equal to Gross Weight), kg	24527 (Twenty four thousands five hundred twenty seven)
Number of parcels :	23 (Twenty three)
Number of ingots :	23 (Twenty three)

A8 grade standard percentage of impurities, max , %				
Fe	Si	Cu	Zn	Ti
0,12	0,10	0,01	0,04	0,01

		Actual percentage of impurities, %						
#	Heat no.	Fe	Si	Cu	Zn	Ti	Weight, kg	No of ingots
1	46523	0,10	0,05	0,0034	< 0,04	< 0,01	1101	1
2	36522	0,11	0,05	0,0036	< 0,04	< 0,01	1090	1
3	46560	0,11	0,05	0,0021	< 0,04	< 0,01	1096	1
4	46592	0,10	0,05	0,0011	< 0,04	< 0,01	1016	1
5	46652	0,11	0,05	0,0013	< 0,04	< 0,01	1041	1
6	36697	0,10	0,05	0,0024	< 0,04	< 0,01	1040	1
7	46698	0,09	0,05	0,0025	< 0,04	< 0,01	1041	1
8	46646	0,11	0,05	0,0009	< 0,04	< 0,01	1025	1
9	46746	0,09	0,05	0,0006	< 0,04	< 0,01	1030	1
10	46717	0,11	0,05	0,0007	< 0,04	< 0,01	1036	1
11	46849	0,11	0,05	0,0010	< 0,04	< 0,01	1062	1
12	46850	0,11	0,05	0,0010	< 0,04	< 0,01	1066	1
13	46883	0,10	0,05	0,0006	< 0,04	< 0,01	1029	1
14	46881	0,10	0,05	0,0006	< 0,04	< 0,01	1098	1
15	36882	0,10	0,05	0,0006	< 0,04	< 0,01	1098	1
16	36888	0,11	0,05	0,0005	< 0,04	< 0,01	1066	1
17	46907	0,11	0,05	0,0010	< 0,04	< 0,01	1070	1
18	46906	0,11	0,05	0,0011	< 0,04	< 0,01	1064	1
19	37087	0,10	0,05	0,0007	< 0,04	< 0,01	1068	1
20	47084	0,09	0,05	0,0008	< 0,04	< 0,01	1118	1
21	47083	0,11	0,05	0,0009	< 0,04	< 0,01	1086	1

Continued overleaf

#	Heat no.	Fe	Si	Cu	Zn	Ti	Weight,kg	No of ingots
22	47086	0,10	0,05	0,0008	< 0,04	< 0,01	1096	1
23	47085	0,09	0,06	0,0008	< 0,04	< 0,01	1090	1
						Total	24527	23

We hereby certify, that the above information on Goods is fully correct and complies with terms of the abovementioned Contract as well as with Goods grade and Quality Standards indicated above.

Quality Assurance Manager

Sales Manager

Attachment 3

Criteria Pollutant Emission Summary

Table 4

Annual Emission Summary

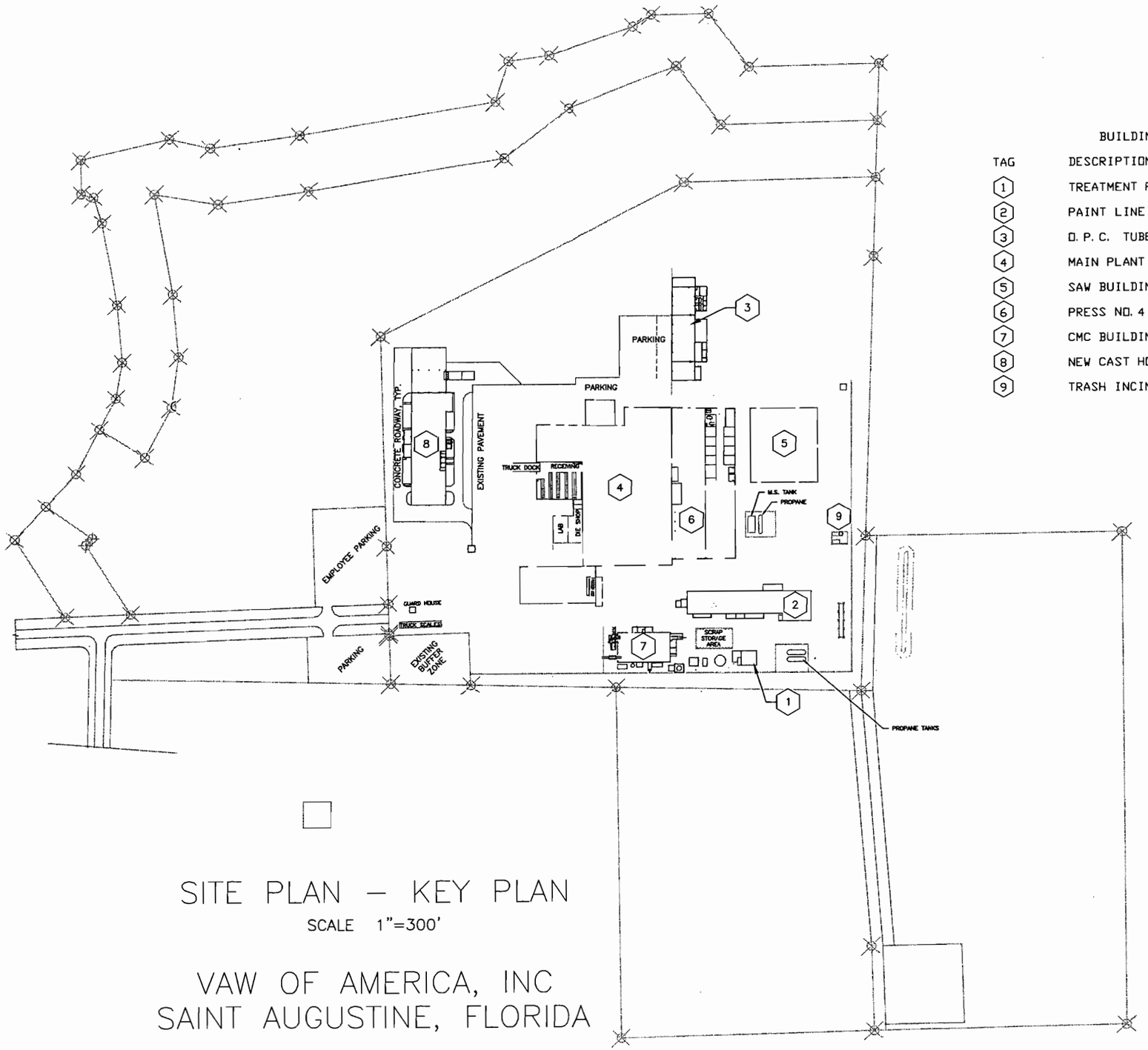
Air Construction Permit Application
VAW of America, Inc.
St. Augustine, FL

Emission Unit	Source	PM	PM10	NOx	VOC	MEK	Xylene	CO	SO_2
		Annual Emissions							
		tons/yr							
4	5 Wet Paint booths				31.43	3	7		
	Bake Oven & Pyrolysis	0.067	0.067	2.12	0.156			0.36	
	OPC Tube Mill				58.5				
	OPC Tube Mill Age Oven	0.015	0.015	0.475	0.013			0.08	
	140 Solvent Cleaning				153.32				
	Pretreatment								0
	SUM	**0.1**	**0.1**	**2.6**	**243.42**	**3.00**	**7.0**	**0.44**	**0**
5	Powder Booth	1.1	0.55			0	0	0	0
6	Incinerator	2.18	1.47	0.94	0.936	0	0	3.12	0.78
8	Remelter #1 LPG use	0.43	0.43	13.6	0.359	0	0	2.29	0
	Remelter #1 Al melting	7.67	3.84	0	0.067	0	0	4.50	0
	Remelter #1 Degassing	1.64	0.82	0	0	0	0	0	0
	Sum	**9.74**	**5.09**	**13.6**	**0.426**	**0**	**0**	**6.79**	**0**
9	Remelter #2 LPG use	0.43	0.43	13.6	0.359	0	0	2.29	0
	Remelter #2 Al melting	7.67	3.84	0	0	0	0	0	0
	Remelter #2 Degassing	1.64	0.82	0	0	0	0	0	0
	Sum	**9.74**	**5.09**	**13.6**	**0.359**	**0**	**0**	**2.29**	**0**
	Total	**22.8**	**12.3**	**30.7**	**245.1**	**3.0**	**7.0**	**12.6**	**0.78**
	Insignificant	20.3		27.8	1.9				

3/8/01
Revised: 7/25/01
LAN Ref. #2.392.41
Air-Const.Emission Summary

Attachment 4

Updated VAW of America Site Plan
with
Emission Source Locations



BUILDING SCHEDULE

TAG	DESCRIPTION	FIGURE NOS.
1	TREATMENT PLANT	S2
2	PAINT LINE	S3
3	D. P. C. TUBE MILL	S4
4	MAIN PLANT	S5
5	SAW BUILDING	S6
6	PRESS NO. 4 BUILDING	S7
7	CMC BUILDING	S10
8	NEW CAST HOUSE	S8
9	TRASH INCINERATOR	S9

SITE PLAN – KEY PLAN

SCALE 1"=300'

VAW OF AMERICA, INC
SAINT AUGUSTINE, FLORIDA

REVISION :
A –UPDATED
TJ 07/28/01

DATE : 03/01/01

CHECKED : HW

DRAWN : T JONES

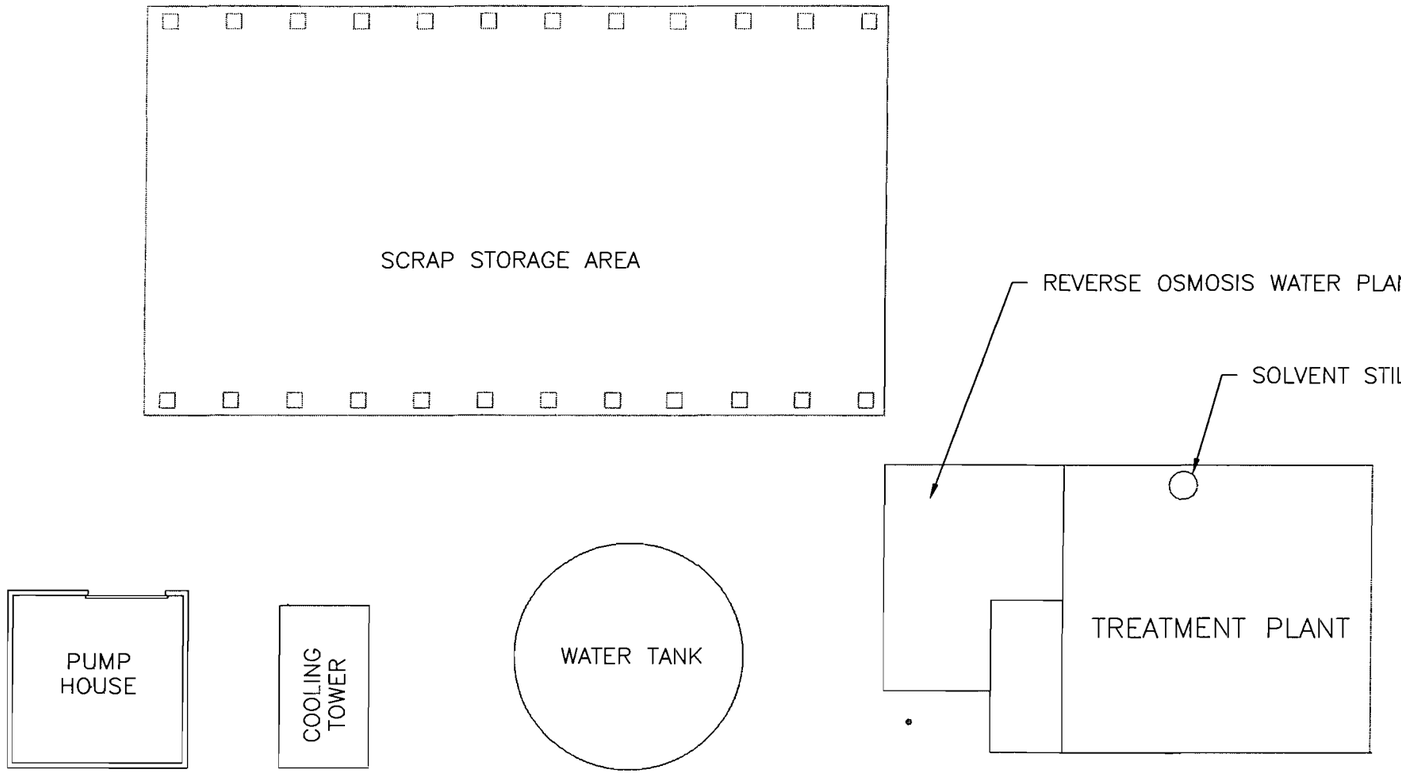
SCALE : AS NOTED

LAN ASSOCIATES INC
environmental and facilities engineering
66 CUNA STREET, ST. AUGUSTINE, FL 32084-3619 (904)824-6999

JOB NO. 2.392.41

DWG. FILE CODE 39241001

FIGURE NO. S1



SITE PLAN – TREATMENT PLANT

SCALE 1"=20'

VAW OF AMERICA, INC
SAINT AUGUSTINE, FLORIDA

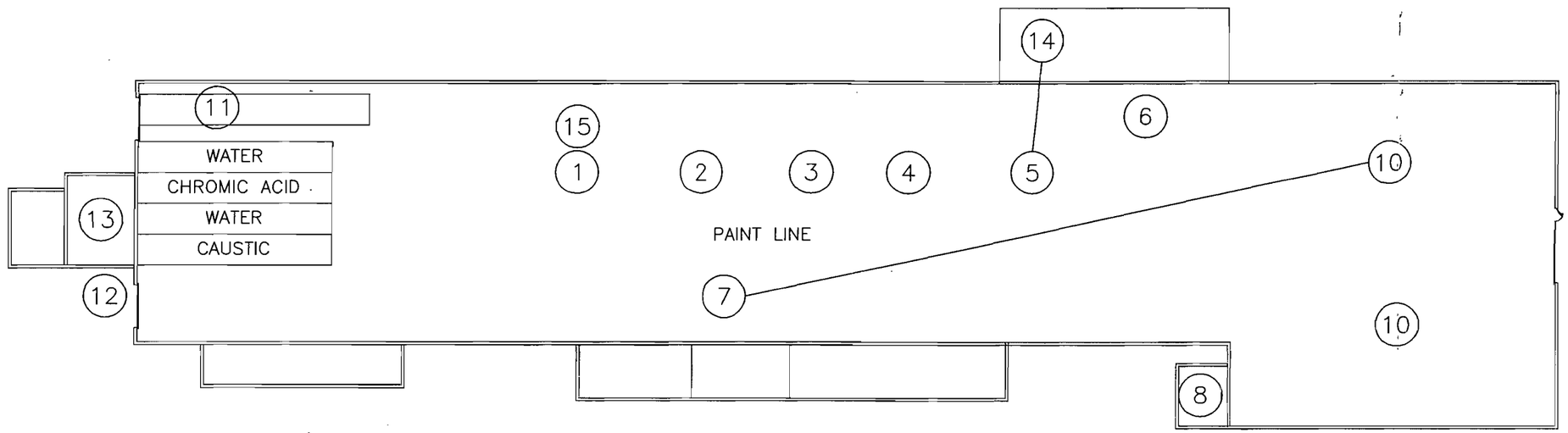
REVISION :
A – UPDATED
TJ 07/28/01

DATE : 03/01/01
CHECKED : HW
DRAWN : T JONES
SCALE : AS NOTED

LAN ASSOCIATES, INC.
environmental and facilities engineering
66 CUNA STREET, ST. AUGUSTINE, FL 32084-3619 (904)824-6999

JOB NO. 2.392.41
DWG. FILE CODE 39241002
FIGURE NO. S2

TAG	DESCRIPTION	STACK DIA.	HEIGHT
1	PRIME BOOTH	3'x3'	30'
2	HORIZONTAL BOOTH	2'x2'	30'
3	HORIZONTAL BOOTH	2'x2'	30'
4	TOUCH UP BOOTH	2'x2'	30'
5	POWDER BOOTH		
6	VERTICAL BOOTH	2'x2'	30'
7	BAKE OVEN	N/A	
8	PYROLYSIS FURNACE	1.2'	25'
9	VERTICAL PRETREATMENT OVEN DRY OFF OVEN	2.75'	30'
10	VERTICAL PRETREATMENT STACK		
11	HORIZONTAL PRETREATMENT DRY OFF OVEN	10"x10"	30'
12	CAUSTIC TANK STACK	2.5'x2.5'	30'
13	BOILER NO. 1 & 2	1'	25'
14	POWDER PAINT BAGHOUSE	.5'x.5'	3'
15	SAMPLE TRIAL PAINT BOOTH	2'	29'



SITE PLAN – PAINT LINE BUILDING

SCALE 1"=30'

VAW OF AMERICA, INC
SAINT AUGUSTINE, FLORIDA

REVISION :
A – REDRAWN
TJ 03/01/01
B – UPDATED
TJ 07/17/01

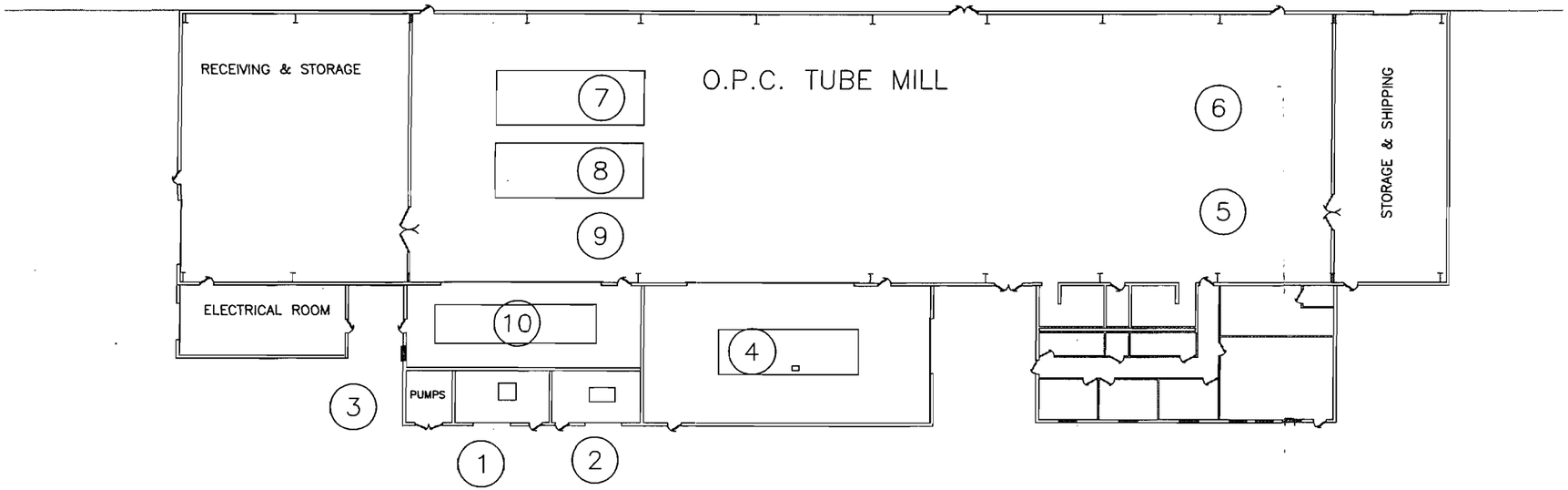
DATE : 06/05/96
CHECKED : HW
DRAWN : T JONES
SCALE : AS NOTED

LAN ASSOCIATES, INC.
environmental and facilities engineering
66 CUNA STREET, ST. AUGUSTINE, FL 32084-3619 (904)824-6999

JOB NO. 2.392.41
DWG. FILE CODE 39241003
FIGURE NO. S3
Sht. 3 of 10

STACK/EMISSION POINT SCHEDULE

TAG	DESCRIPTION	CONTROL	STACK DIA.	HEIGHT
1	VACUUM STILL			
2	BOILER STACK			
3	SOLVENT AREA WALL FAN			
4	AGE OVEN STACK		1'x1.5'	35'
5	OLIVER CUTTER	CYCLONE & BAGS		
6	METL SAW	CYCLONE & BAGS		
7	DRAWBENCH			
8	DRAWBENCH			
9	STRAIGHTENER			
10	SOLVENT TANK			



SITE PLAN – O.P.C. TUBE MILL

SCALE 1"=40'

VAW OF AMERICA, INC
SAINT AUGUSTINE, FLORIDA

REVISION :

A – REDRAWN
TJ 03/01/01
B – UPDATED
TJ 07/17/01

DATE : 03/01/01

CHECKED : HW

DRAWN : T JONES

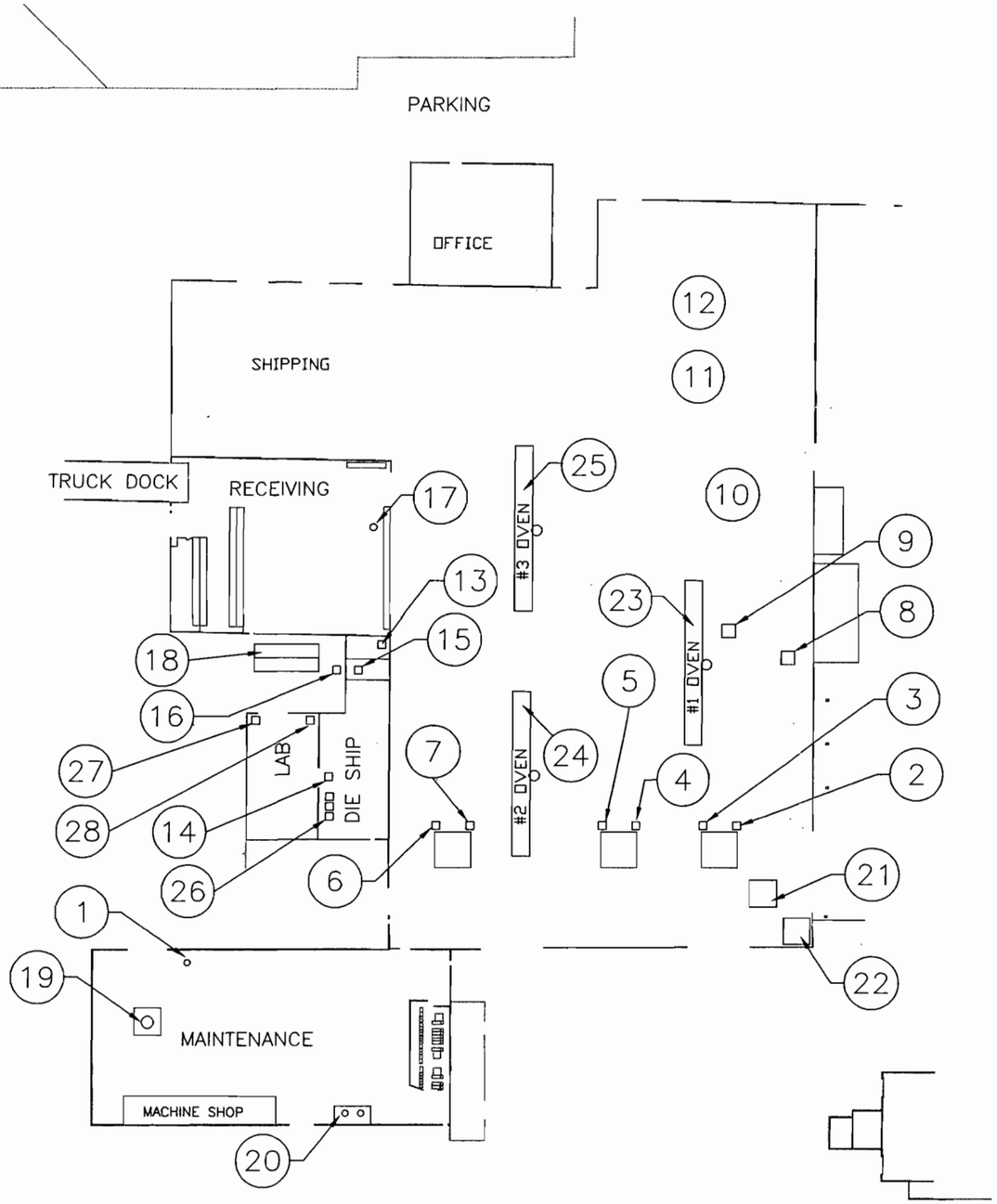
SCALE : AS NOTED

LAN ASSOCIATES INC.
environmental and facilities engineering
66 CUNA STREET, ST. AUGUSTINE, FL 32084-3619 (904)824-6999

JOB NO. 2.392.41

DWG. FILE CODE 39241004

FIGURE NO. S4



SITE PLAN – MAIN PLANT

SCALE 1"=80'

VAW OF AMERICA, INC
SAINT AUGUSTINE, FLORIDA

STACK/EMISSION POINT SCHEDULE

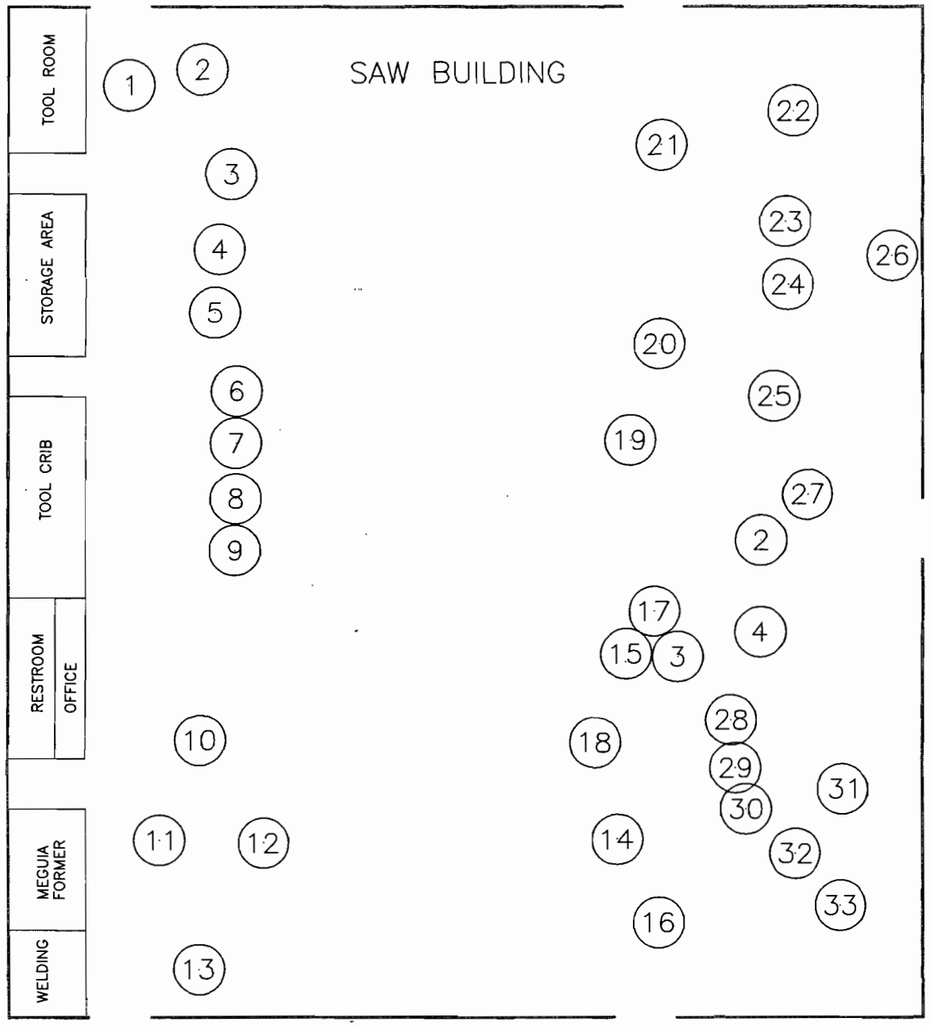
TAG	DESCRIPTION	CONTROL	STACK DIMENSIONS DIAMETER	HEIGHT
1	STEEL SAW	N/A		
2	PRESS #1 HOT SAW	CYCLONE & BAGS		
3	PRESS #1 COLD SAW	CYCLONE & BAGS		
4	PRESS #2 HOT SAW	CYCLONE & BAGS		
5	PRESS #2 COLD SAW	CYCLONE & BAGS		
6	PRESS #3 HOT SAW	CYCLONE & BAGS		
7	PRESS #3 COLD SAW	CYCLONE & BAGS		
8	BENCH TUBING SAW #1	CYCLONE & BAGS		
9	BENCH TUBING SAW #2			
10	BENCH TUBING SAW #3	CYCLONE & BAGS		
11	BENCH TUBING SAW #4	CYCLONE & BAGS		
12	BENCH SAW NO. 5	CYCLONE & BAGS		
13	CAUSTIC TANK	N/A		
14	NITRIDING FURNACE	N/A		
15	GRITSHOT	N/A		
16	DIE SHOP BOILER	N/A		
17	WOOD SAW	CYCLONE & BAGS		
18	SPENT CAUSTIC TANK	N/A		
19	WELDING	N/A		
20	SILK SCREENING	N/A		
21	140 SOLVENT TANK	N/A		
22	STILL	N/A		
23	#1 AGE OVEN			
24	#2 AGE OVEN			
25	#3 AGE OVEN			
26	(3) GRINDERS (1) LATHE MACHINE (1) MILLING MACHINE			
27	STEEL SAW			
28	SMALL OVEN FOR LAB			

REVISION :
A - REDRAWN
TJ 03/01/01
B - UPDATED
TJ 07/18/01

DATE : 03/01/01
CHECKED : HW
DRAWN : T JONES
SCALE : AS NOTED

LAN ASSOCIATES, INC.
environmental and facilities engineering
66 CUNA STREET, ST. AUGUSTINE, FL 32084-3619 (904)824-6999

JOB NO. 2.392.41
DWG. FILE CODE 39241005
FIGURE NO. S5



	STACK/EMISSION POINT SCHEDULE			
TAG	DESCRIPTION	CONTROL	STACK DIA.	HEIGHT
1	BOSCH FORMER			
2	EAST OVEN & WASHER			
3	ROBHI SAW & BRADEX			
4	MILL AREA MACHINES (4)			
5	OLD B&O SAW	CHIP COLLECTOR		
6	OLIVER SAW	CHIP COLLECTOR		
7	NEW B&O SAW	CHIP COLLECTOR		
8	WAGNER SAW	CHIP COLLECTOR		
9	ELVMATEC SAW	CHIP COLLECTOR		
10	METAL SAW	CHIP COLLECTOR		
11	DEBURR & WASH			
12	PUNCH & PRESS			
13	FORMER (NOSES)			
14	KALTENBACH SAW	DUST COLLECTOR		
15	BAND SAWS (MARVEL (2))			
16	OLIVER COUPLING SAW	DUST COLLECTOR		
17	PRESS AREA (4)			
18	AGE OVEN		0.75'	35'
19	TUMBLER AREA (3)			
20	DEBURR MACHINE			
21	RASAMAT DEBURR MACHINE			
22	BARDEX DEBURR MACHINE			
23	THREADING MACHINES (2)			
24	BIG BENDER MACHINES (2)			
25	SMALL BENDER MACHINE			
26	CONDUIT LINE			
27	CONDUIT OFFICE			
28	SPINNER			
29	BEND MACHINE			
30	BEMA SWAGE			
31	BIG THREADER			
32	EMT DEBURR MACHINE			
33	COUPLING MACHINES (5)			

SITE PLAN – SAW BUILDING

SCALE 1"=30'

VAW OF AMERICA, INC
SAINT AUGUSTINE, FLORIDA

REVISION :
A - REDRAWN
TJ 03/01/01
B - UPDATED
TJ 07/17/01

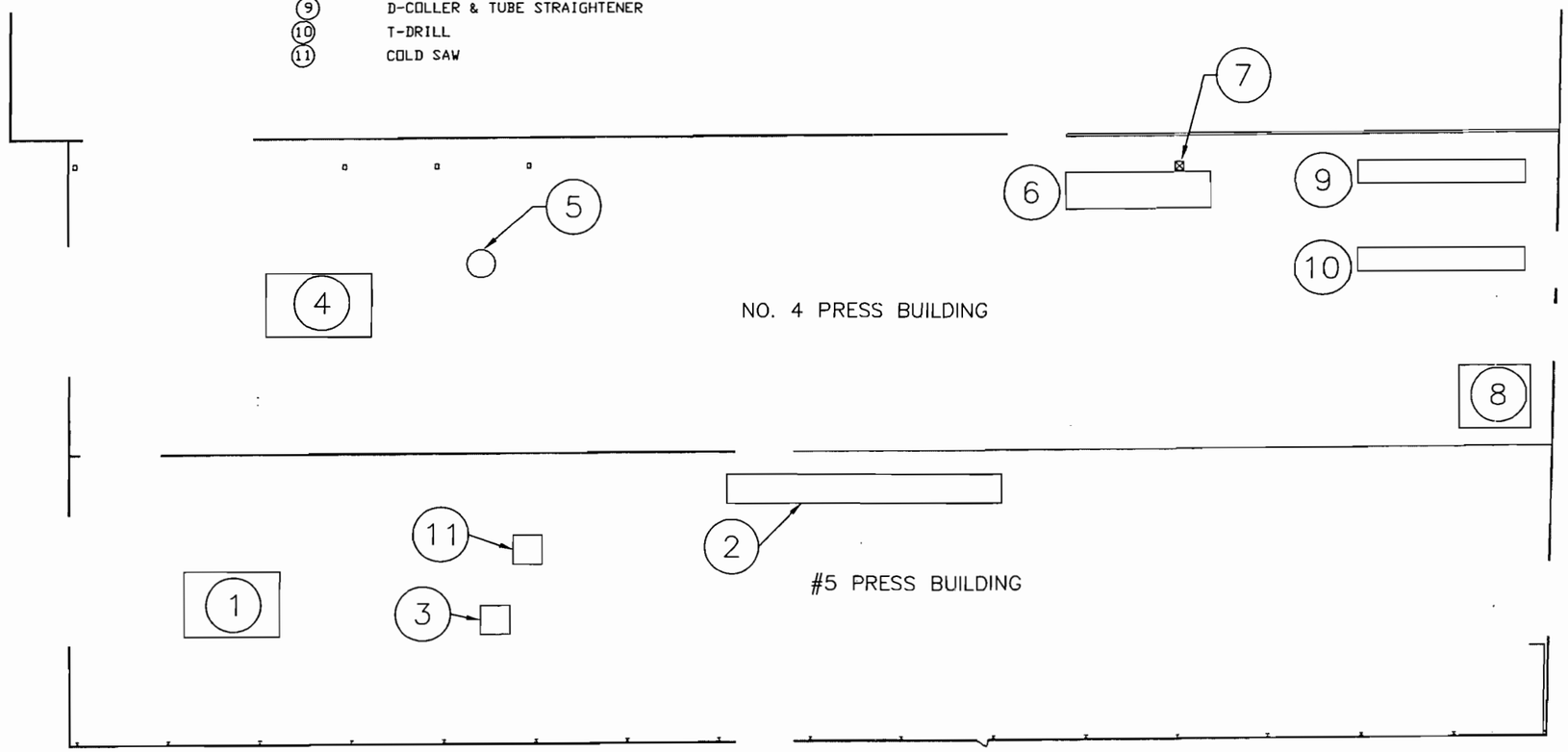
DATE : 06/05/96
CHECKED : HW
DRAWN : T JONES
SCALE : AS NOTED

LAN ASSOCIATES INC.
environmental and facilities engineering
66 CUNA STREET, ST. AUGUSTINE, FL 32084-3619 (904)824-6999

JOB NO. 2.392.41
DWG. FILE CODE 39241006
FIGURE NO. S6
Sht. 6 of 10

STACK/EMISSION POINT SCHEDULE

TAG	DESCRIPTION	STACK DIMENSIONS DIAMETER	HEIGHT
(1)	EXTRUSION FURNACE		
(2)	AGE OVEN		
(3)	HOT SAW		
(4)	COLD SAW		
(5)	COLD SAW DUST COLLECTOR		
(6)	NO. 4 AGE OVEN		
(7)	NO. 4 AGE OVEN STACK	1'x2'	37'
(8)	VAUGN		
(9)	D-COLLER & TUBE STRAIGHTENER		
(10)	T-DRILL		
(11)	COLD SAW		



SITE PLAN – NO.4 & NO. 5 PRESS BUILDING

SCALE 1"=40'

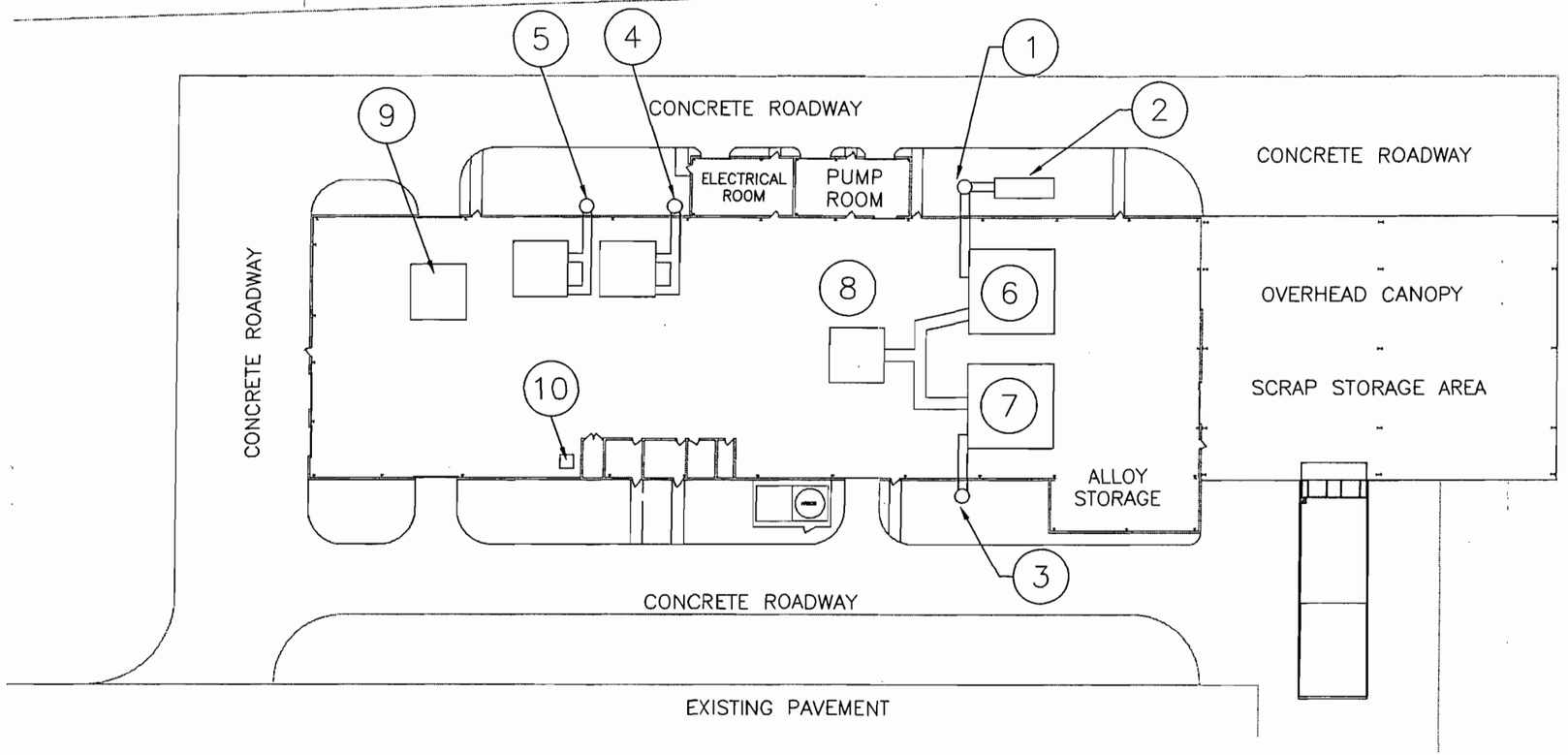
VAW OF AMERICA, INC
SAINT AUGUSTINE, FLORIDA

REVISION :
A - REDRAWN
TJ 03/01/01
B- UPDATED
TJ 07/19/01

DATE : 03/01/01
CHECKED : HW
DRAWN : T JONES
SCALE : AS NOTED

LAN ASSOCIATES, INC.
environmental and facilities engineering
66 CUNA STREET, ST. AUGUSTINE, FL 32084-3619 (904)824-6999

JOB NO. 2.392.41
DWG. FILE CODE 39241007
FIGURE NO. S7
Sht. 7 of 10



STACK/EMISSION POINT SCHEDULE

TAG	DESCRIPTION	CONTROL	STACK DIMENSIONS DIAMETER	HEIGHT
(1)	#1 MELTING FURNACE STACK			
(2)	#1 MELTING FURNACE	SCRUBBER		
(3)	#2 MELTING FURNACE STACK			
(4)	#1 HOMOGENIZER STACK			
(5)	#2 HOMOGINIZER STACK			
(6)	#1 MELTING/HOLDING NORTH FURNACE			
(7)	#2 MELTING/HOLDING SOUTH FURNACE			
(8)	CASTING			
(9)	AIR CHILLER			
(10)	LATHE MACHINE			

SITE PLAN – NEW CAST HOUSE BUILDING

SCALE 1"=50'

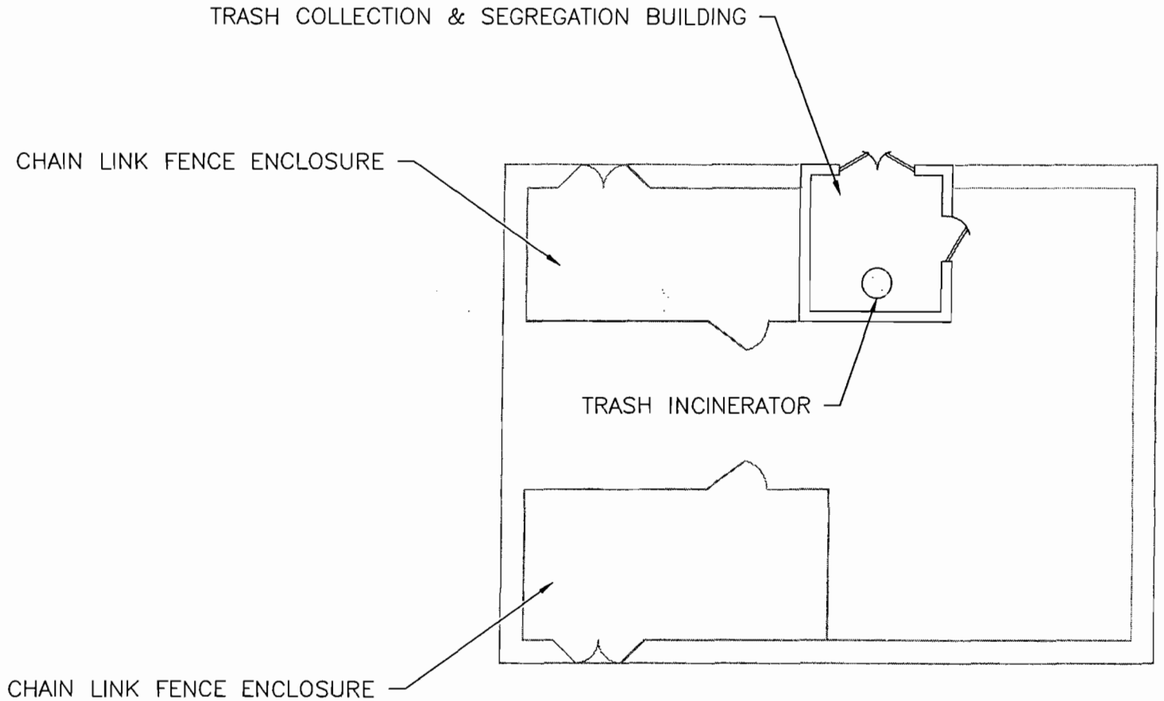
VAW OF AMERICA, INC
SAINT AUGUSTINE, FLORIDA

REVISION :
A – REDRAWN
TJ 03/01/01
B – UPDATED
TJ 07/18/01

DATE : 06/07/96
CHECKED : HW
DRAWN : T JONES
SCALE : AS NOTED

LAN ASSOCIATES INC.
environmental and facilities engineering
66 CUNA STREET, ST. AUGUSTINE, FL 32084-3619 (904)824-6999

JOB NO. 2.392.41
DWG. FILE CODE 39241008
FIGURE NO. S8



SITE PLAN – TRASH INCINERATOR

SCALE 1"=10'

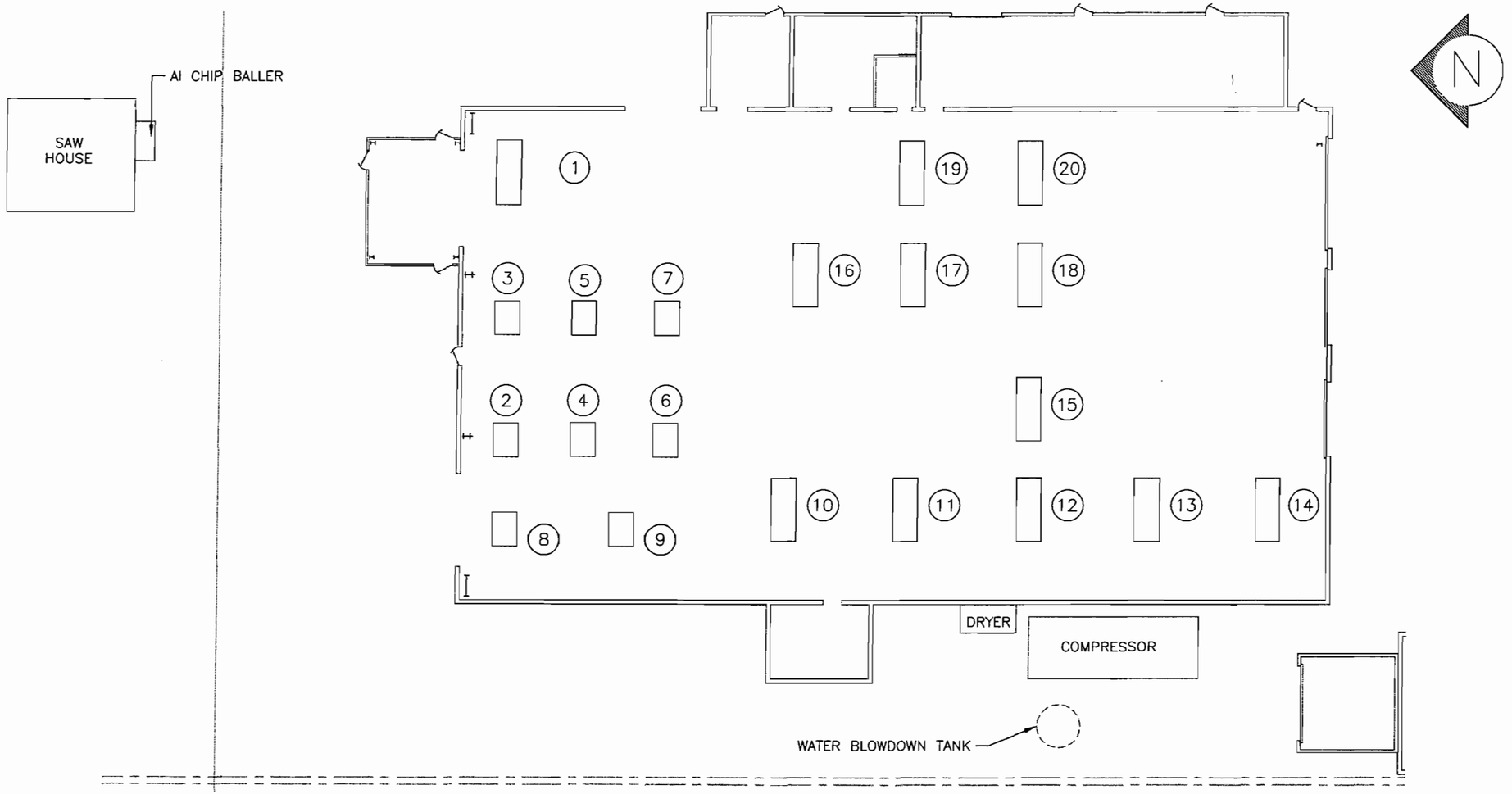
VAW OF AMERICA, INC
SAINT AUGUSTINE, FLORIDA

REVISION :
A – UPDATED
TJ 07/28/01

DATE : 03/01/01
CHECKED : HW
DRAWN : T JONES
SCALE : AS NOTED

LAN ASSOCIATES, INC
environmental and facilities engineering
66 CUNA STREET, ST. AUGUSTINE, FL 32084-3619 (904)824-6999

JOB NO. 2.392.41
DWG. FILE CODE 39241009
FIGURE NO. S9



TAG	DESCRIPTION
1	MILLING MACHINE
2	LATHE
3	LATHE
4	LATHE
5	LATHE
6	LATHE
7	LATHE
8	COORDINATE MEASURING MACHINE
9	COORDINATE MEASURING MACHINE
10	MILLING MACHINE
11	MILLING MACHINE
12	MILLING MACHINE
13	MILLING MACHINE
14	MILLING MACHINE
15	MILLING MACHINE
16	MILLING MACHINE
17	MILLING MACHINE
18	MILLING MACHINE
19	MILLING MACHINE
20	MILLING MACHINE

NOTE:
AIR FILTERED AND RECIRCULATED. THERE IS NO EMISSIONS FROM OPERATION FROM CMC BUILDING

SITE PLAN – CMC BUILDING

SCALE 1"=20'

VAW OF AMERICA, INC
SAINT AUGUSTINE, FLORIDA

REVISION :
A – REDRAWN
TJ 03/06/01
B– UPDATE
TJ 07/24/01

DATE : 06/07/96
CHECKED : HW
DRAWN : T JONES
SCALE : AS NOTED

LAN ASSOCIATES INC.
environmental and facilities engineering
66 CUNA STREET, ST. AUGUSTINE, FL 32084-3619 (904)824-6999

JOB NO. 2.392.41
DWG. FILE CODE 39241010
FIGURE NO. S10
Sht. 10 of 10

Attachment 5

Updated List of Insignificant Activities

List of Proposed Exempt Activities
VAW of America, Inc.
St. Augustine, FL

Part 1

Sources	Location	ID # in Plot Plan	Material Use	Throughput Rate	Heating Rate	Max LPG Input (2)	Equipment Manufacture	Equipment Model	Control Type	Control Efficiency	Emission Type	Flow Rate	Stack D	Stack H	Stack Type	Exit T	Operation Schedule	Annual Emissions ton/ yr					
						Gal/ yr					*%*	*ACFM*	*ft*	*ft*		*° F*	*hr/ yr*	PM	NOx	VOC	CO	NaOH	NH_3
Steel Saw*	Main Building	1	Fe	NA		NA	NA	NA	NA	0	Fugitive	NA	NA	NA	NA	NA	7488	(3)					
Hot Saw, Press #1		2	Al	(1)		NA	Oliver		Cy+Bag	95% Col	Fugitive	1000	NA	NA	NA	Ambient	7488	0.11					
Cold Saw, Press #1		3	Al	(1)		NA	Oliver		Cy+Bag	95% Col	Fugitive	1000	NA	NA	NA	Ambient	7488	0.075					
Hot Saw, Press #2		4	Al	(1)		NA	Oliver		Dust Collect	95% Col	Fugitive	1000	NA	NA	NA	Ambient	7488	0.088					
Cold Saw, Press #2		5	Al	(1)		NA	Oliver		Dust Collect	95% Col	Fugitive	1000	NA	NA	NA	Ambient	7488	1.6					
Hot Saw, Press #3		6	Al	(1)		NA	Oliver		Cy+Bag	95% Col	Fugitive	1000	NA	NA	NA	Ambient	7488	0.064					
Cold Saw, Press #3		7	Al	(1)		NA	Oliver		Cy+Bag	95% Col	Fugitive	1000	NA	NA	NA	Ambient	7488	0.367					
Tubing Saw 1		8	Al	(1)		NA	Oliver		Cy+Bag	95% Col	Fugitive	1000	NA	NA	NA	Ambient	7488	0.206					
Tubing Saw 2		9	Al	(1)		NA	Oliver		Cy+Bag	95% Col	Fugitive	1000	NA	NA	NA	Ambient	7488	0.599					
Tubing Saw 3		10	Al	(1)		NA	Oliver		Cy+Bag	95% Col	Fugitive	1000	NA	NA	NA	Ambient	7488	0.273					
Tubing Saw 4		11	Al	(1)		NA			Cy+Bag	95% Col	Fugitive	1000						0.49					
Bench Saw 5		12	Al	(1)		NA			Cy+Bag	95% Col	Fugitive												
Caustic Tank		13	Die/NaOH	NA		NA			NA		Point	2000	1x0.5	32	NA	180	7488					0.246	
Nitriding		14	NH4	150 lb/mon			K.H Huppert	Serial 144	NA	0	Point	200	0.3	32	Roof w/ cap	500	7488						0.9
Gritshot		15	Die Abrasive	2.4 lb/hr		NA	Trinco Dry Blast	48x488L/PG	Dust Collect	99%	Point	2000	8"x8"	32	Wall	Ambient	7488	0.15					
Die Shop Boiler		16	LPG			91600	York-Shipley	VTP3002ON	NA		Point	406	2.5	32	Roof w/ cap	400	7488	0.027	0.87	0.023	0.144		
Wood Saw		17	Wood	(1)				1200-5	Cyclone/bag	95% Col	Fugitive	800		NA	NA	Ambient	7488	0.2					
Spent Caustic Tanks (2 units)		18	Caustic	400 lb/day		NA			NA	NA	Fugitive	NA	NA	NA	NA	NA	8760					0.037	
Welding*		19	Alloy						NA	NA	Fugitive	NA	NA	NA	NA	NA	7488	(3)					
Silk Screen		20	MEK Black Ink Paste Paint Reducer	1 gal/wk 1 lb/wk lb/wk lb/wk		NA	NA	NA	NA	0	Point	1200	1x1	32	Wall	Ambient	3120			0.29			
Age/Anneal Oven #1		23	Al	16 tons/day	2.5 MMBtu/hr		Lanly		NA	0	Point	1200	3x2	32	Roof w/ cap	500	6240	0.01	0.311	0.008	0.052		
Age/Anneal Oven #2		24	Al	16 tons/day	3 MMBtu/hr	33.3	Lanly	6687A	NA	0	Point	1200	3x2	32	Roof w/ cap	500	6240	0.009	0.279	0.007	0.047		
Age/Anneal Oven #3		25	Al	16 tons/day	4.5 MMBtu/hr	50	Gerref Indust	468286	NA	0	Point	2738	3'x21"	32	Roof w/ cap	500	6240	0.013	0.41	0.011	0.069		
Grinding & Milling*		26	Al															(3)					
Steel Saw*		27	Fe	NA														(3)					
Small Age Oven*		28	Propane	NA		2100												0.0005	0.02	0.0002	0.003		
Fume Hood*		Shown	Misc	NA		NA			NA	NA	Point	2000	1	35	Roof w/ cap	Ambient	6240	(3)					
Homogenizer 1	Casthouse					340000												0.1	3.23	0.08	0.55		
Homogenizer 2						339000												0.1	3.22	0.09	0.54		
Small Lathe Machine						NA												(3)					
Total for Page (4)																		4.482	8.340	0.509	1.405	0.283	0.900

Note:
(1) Emissions are calculated based on collection efficiencies.
(2) Emission factors for LPG combustion: NOx: 19lbs/ 1000 gal; PM: 0.6lb/ 1000 gal; VOC: 0.5 lb/1000 gal; CO 3.2 lb/ 1000 gal
(3) *Traceable emission sources.
(4) See page 2 for continuation of totals

List of Proposed Exempt Activities
VAW of America, Inc.
St. Augustine, FL

Part 2

Source	Location	ID #	Material Use	Throughput Rate	Heating Rate	Max LPG Input	Equipment Manufacture	Equipment Model	Control Type	Control Efficiency	Emission Type	Flow Rate	Stack D	Stack H	Stack Type	Exit T	Annual Emissions					
					MMBtu/hr	*gal/yr*				*%*		*CFM*	*ft*	*ft*		*Deg. F*	*tons/yr*					
																	PM	NOx	VOC	CO	NaOH	Cr-Acid
#5 Extrusion Furnace		1	LPG		7.2	120,000			NA	NA	Point	3000	2	32	Roof w/ cap	200	0.036	1.14	0.03	0.192		
Age Oven, Press #5	Press #4	2	LPG		5	515,400			NA	NA	Point	2000	1.5	32	Roof w/ cap	200	0.15	4.9	0.129	0.9		
Hot Saw, Press #5	&	3	Al	(1)					Cycl+bags	95	Fugitive	1000	NA	NA	NA	Ambient	(3)					
Cold Saw, Press #4	Press #5	4	Al	(1)		NA	Oliver		Cycl+bags	95	Fugitive	1000	NA	NA	NA	Ambient	1.85					
Age Oven, Press #4	Building	6	LPG		4	412,320	Gerref Indust		NA	0	Point	5000	1x2	32	Roof w/ cap	500	0.12	3.92	0.1	0.72		
Cold Saw, Press #5		11	Al	(1)					Cycl+bags	95	Fugitive	1000	NA	NA	NA	Ambient	1.85					
Rosch Former		1	Parts				RSA Rasamat			NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Robhi Saw&Bradex		3	Parts							NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Mill Machines (4 units)		4	Parts							NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Old B&O Saw		5	Parts	(1)					Chip Collector	95	Fugitive	1000	NA	NA	NA	NA	1.87	-				
Oliver Saw		6	Parts	(1)					Chip Collector	NA	Fugitive	1000	NA	NA	NA	NA	(3)	-				
New B&O Saw		7	Parts	(1)				A466	Chip Collector	95	Fugitive	1000	NA	NA	NA	NA	1.87	-				
Wagner Saw	Saw Building	8	Parts	(1)					Chip Collector	95	Fugitive	1000	NA	NA	NA	NA	1.87	-				
Elvmatec Saw		9	Parts	(1)					Chip Collector	95	Fugitive	1000	NA	NA	NA	NA	1.87	-				
Metal saw		10	Parts	(1)					Chip Collector	NA	Fugitive	NA	NA	NA	NA	NA	(3)	-				
Deburr & Washer		11	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)	-				
Punch & Press		12	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)	-				
Former (NOSES)		13	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)	-				
Kaltenback Saw		14	Parts	(1)					Chip Collector	95	Fugitive	1000	NA	NA	NA	NA	1.87	-				
Band Saws(2 units)		15	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)	-				
Oliver Coupling Saw		16	Parts	(1)			Oliver		Chip Collector	95	Fugitive	1000	NA	NA	NA	NA	1.87	-				
Presses (4 units)		17	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)	-				
Age Oven #6		18	LPG		0.5	20,000	Despatch		NA	NA	Point	200	0.75	32	W	500	0.003	0.095	0.003	0.013		
Tumblers (3 units)		19	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Deburr Machine		20	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Rasamat Deburr Machine		21	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Bardex Deburr Machine		22	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Threading Machine (2 units)		23	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Big Tender Machines (2 units)		24	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Small Tender Machine		25	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Conduit Line		26	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Spinner		28	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Bend Machine		29	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Bema Swage Machine		30	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Big Threader		31	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
EMT Deburr Machine		32	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Coupling Machines (5 units)		33	Parts						NA	NA	Fugitive	NA	NA	NA	NA	NA	(3)					
Dry Off Oven		9	LPG			8.3			NA	0	Point	300	2.25	30	W	200	0.019	0.059	0.016	0.1		
Dry Off Oven		11	LPG			16.7	Gerrif	4683 85	NA	0	Point	600	10"x10"	30	W	200	0.038	1.19	0.032	0.2		
Boiler #1		13	LPG			46.5	York Shipley	HV 125 2 9-68	NA	0	Point	3000	1.2	20	W	400	0.137	4.35	0.11	0.73		
Boiler #2		13	LPG			37	York Shipley		NA	0	Point	2000	0.8	20	W	400	0.082	2.61	0.068	0.44		
Caustic Tank	Paintline	Shown	NaOH						NA	0	Point	5000	2.5x2.5	25	W	120					0.587	
Chromic Acid Tank		Shown	Cr-acid, HF						NA	0	Fugitive	2000	NA	NA	NA	120						0.152
Vertical Spray		10	Cr-acid, HF							0	Point	2000	30"x30"	30	W	120						0.26

List of Proposed Exempt Activities
VAW of America, Inc.
St. Augustine, FL

Part 2

Source	Location	ID #	Material Use	Throughput Rate	Heating Rate	Max LPG Input	Equipment Manufacture	Equipment Model	Control Type	Control Efficiency	Emission Type	Flow Rate	Stack D	Stack H	Stack Type	Exit T	Annual Emissions					
					MMBtu/hr	*gal/yr*				*%*		*CFM*	*ft*	*ft*		*Deg. F*	*tons/yr*					
																	PM	NOx	VOC	CO	NaOH	Cr-Acid
Solvent Still Boiler	Treatment Plant	Shown	LPG						NA		Point	406	2.5	32	Roof w/cap	400	0.027	0.87	0.023	0.144		
Boiler	OPC	2	LPG			12											0.0088	0.285	0.0075	0.048		
Oliver Cutter	Tube	5	Al	(1)		NA	Oliver		Cycl+Bags	95	Fugitive	1000	NA	NA	NA	Ambient	0.14					
Metal Saw	Mill	6	Al	(1)		NA	MetlSaw		Cycl+Bags	95	Fugitive	1000	NA	NA	NA	Ambient	0.14					
Saw Lubricant	Whole Plant		Lubricant	2.5 lb/hr		NA			NA	NA	Fugitive	NA	NA	NA	NA	Ambient			0.85			
Sum																	**15.821**	**19.419**	**1.369**	**3.487**	**0.587**	**0.412**
Total (4)																	**20.3**	**27.8**	**1.9**	**4.9**	**0.9**	

Note:
(1) Emissions are calculated based on collection efficiencies.
(2) Emission factors for LPG combustion: NOx: 19lbs/ 1000 gal; PM: 0.6lb/ 1000 gal; VOC: 0.5 lb/1000 gal; CO 3.2 lb/ 1000 gal
(3) *Traceable emission sources.
(4) Totals are brought forward from Page 1 as applicable, except for NH_3 and Chromic Acid, listed separately

Attachment 6

Facility and Emission Unit 1 Pollutant Detail Information

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Information Pollutant 1

1. Pollutant Emitted :	H120	
2. Requested Emissions Cap :	10.0000 (lbs/hour)	3.0000 (tons/year)
3. Basis for Emissions Cap Code :	OTHER	
4. Facility Pollutant Comment :		

The chemical is present in some paint products as a paint component. The pollutant, previously permitted as a synthetic minor for HAP, should be dropped from the limitation because it is now lower than 50% of a major pollutant threshold for HAP.

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Information Pollutant 2

1. Pollutant Emitted :	H186
2. Requested Emissions Cap :	13.7000 (lbs/hour) 7.0000 (tons/year)
3. Basis for Emissions Cap Code :	ESCTIII
4. Facility Pollutant Comment :	Xylene is a component of some liquid paint products.

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Information Pollutant 3

1. Pollutant Emitted :	VOC
2. Requested Emissions Cap :	138.9000 (lbs/hour) 245.0000 (tons/year)
3. Basis for Emissions Cap Code :	ESCPSD
4. Facility Pollutant Comment :	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 1

Al Tube Cleaning, Heat Treatment, and Painting Operations

Pollutant Potential/Estimated Emissions : Pollutant 1

1. Pollutant Emitted : **VOC**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : 137.5000000 lb/hour 243.3000000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor Units Reference :
7. Emissions Method Code :
8. Calculations of Emissions : Combined VOC emission rate = 137.5 lb/hr. Annual VOC emission from paint use = 31.43 ton/yr (same as existing permit). VOC emission from propane combustion & pyrolysis= 0.156 ton/yr. VOC emission = 58.5 ton/yr for OPC Tube Mill (Same as existing Permit). VOC emission = 153.32 tons/yr for 140 solvent (Main Plant). Total VOC emission capacity = 238.6 tons/yr.
9. Pollutant Potential/Estimated Emissions Comment :

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 1

A1 Tube Cleaning, Heat Treatment, and Painting Operations

The only increase in potential VOC emissions is 140 solvent in the Main Plant, where there is an increase in solvent use capacity of 39.7 tons per year.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 1

Al Tube Cleaning, Heat Treatment, and Painting Operations

Pollutant Potential/Estimated Emissions : Pollutant 2

1. Pollutant Emitted : **H120**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : 5.0000000 lb/hour 3.0000000 tons/year
4. Synthetically Limited? [X] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor Units Reference :
7. Emissions Method Code :
8. Calculations of Emissions : Maximum MEK use rate = 10 lbs/hr (for operation flexibility). MEK emission rate = MEK use rate = 10 lbs/hr. Annual MEK use capacity = 3 tons/yr (reduced from 9.72 tpy in existing permit). Annual MEK emission capcity = 3 tons/yr (same as use capacity).
9. Pollutant Potential/Estimated Emissions Comment :

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 1

A1 Tube Cleaning, Heat Treatment, and Painting Operations

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 1

Al Tube Cleaning, Heat Treatment, and Painting Operations

Pollutant Potential/Estimated Emissions : Pollutant 3

1. Pollutant Emitted : **H186**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : 13.7000000 lb/hour 7.0000000 tons/year
4. Synthetically Limited? [X] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor Units Reference :
7. Emissions Method Code : 2
8. Calculations of Emissions : Xylene use rate = emission rate = 13.7 lbs/hr (for operation flexibility) Xylene annual emission capacity = 7 tons/yr (Revised from 7.7 tpy in the existing permit).
9. Pollutant Potential/Estimated Emissions Comment :

Attachment 7

Federal Register Page 15711 (March 23, 2000)

"Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs) and 1989 Update" (EPA/625/3–89/016).

(b) The material incorporated by reference is available for inspection at the Office of the Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC; and at the Air and Radiation Docket and Information Center, U.S. EPA, 401 M Street SW, Washington, DC. The material is also available for purchase from the following addresses:

(1) Customer Service Department, American Conference of Governmental Industrial Hygienists (ACGIH), 1330 Kemper Meadow Drive, Cincinnati, OH 45240–1634, telephone number (513) 742–2020; and

(2) The National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA, NTIS no. PB 90–145756.

§ 63.1503 Definitions.

Terms used in this subpart are defined in the Clean Air Act as amended (CAA), in § 63.2, or in this section as follows:

Add-on air pollution control device means equipment installed on a process vent that reduces the quantity of a pollutant that is emitted to the air.

Afterburner means an air pollution control device that uses controlled flame combustion to convert combustible materials to noncombustible gases; also known as an incinerator or a thermal oxidizer.

Aluminum scrap shredder means a unit that crushes, grinds, or breaks aluminum scrap into a more uniform size prior to processing or charging to a *scrap dryer/delacquering kiln/decoating kiln*, or furnace. A bale breaker is not an *aluminum scrap shredder*.

Bag leak detection system means an instrument that is capable of monitoring particulate matter loadings in the exhaust of a fabric filter (*i.e.*, baghouse) in order to detect bag failures. A *bag leak detection system* includes, but is not limited to, an instrument that operates on triboelectric, light scattering, light transmittance, or other effect to monitor relative particulate matter loadings.

Chips means small, uniformly-sized, unpainted pieces of aluminum scrap, typically below 1¼ inches in any dimension, primarily generated by turning, milling, boring, and machining of aluminum parts.

Clean charge means furnace charge materials including molten aluminum; T-bar; sow; ingot; billet; pig; alloying elements; uncoated/unpainted thermally dried aluminum chips; aluminum scrap dried at 343 °C (650 °F) or higher; aluminum scrap delacquered/decoated at 482 °C (900 °F) or higher; other oil- and lubricant-free unpainted/uncoated gates and risers; oil-and lubricant-free unpainted/uncoated aluminum scrap, shapes, or products (*e.g.*, pistons) that have not undergone any process (*e.g.*, machining, coating, painting, etc.) that would cause contamination of the aluminum (with oils, lubricants, coatings, or paints); and internal runaround.

Cover flux means salt added to the surface of molten aluminum in a group 1 or group 2 furnace, without agitation of the molten aluminum, for the purpose of preventing oxidation.

D/F means dioxins and furans.

Dioxins and furans means tetra-, penta-, hexa-, and octachlorinated dibenzo dioxins and furans.

Dross means the slags and skimmings from aluminum melting and refining operations consisting of fluxing agent(s), impurities, and/or oxidized and non-oxidized aluminum, from scrap aluminum charged into the furnace.

Dross-only furnace means a furnace, typically of rotary barrel design, dedicated to the reclamation of aluminum from dross formed during melting, holding, fluxing, or alloying operations carried out in other process units. Dross and salt flux are the sole feedstocks to this type of furnace.

Emission unit means a *group 1 furnace* or *in-line fluxer* at a *secondary aluminum production facility*.

Fabric filter means an add-on air pollution control device used to capture particulate matter by filtering gas streams through filter media; also known as a baghouse.

Feed/charge means, for a furnace or other process unit that operates in batch mode, the total weight of material (including molten aluminum, T-bar, sow, ingot, etc.) and alloying agents that enter the furnace during an operating cycle. For a furnace or other process unit that operates continuously, *feed/charge* means the weight of material (including molten aluminum, T-bar, sow, ingot, etc.) and alloying agents that enter the process unit within a specified time period (*e.g.*, a time period equal to the performance test period). The *feed/charge* for a dross only furnace includes the total weight of dross and solid flux.

Fluxing means refining of molten aluminum to improve product quality, achieve product specifications, or reduce material loss, including the addition of solvents to remove impurities (solvent flux); and the injection of gases such as chlorine, or chlorine mixtures, to remove magnesium (demagging) or hydrogen bubbles (degassing). *Fluxing* may be performed in the furnace or outside the furnace by an *in-line fluxer*.

Furnace hearth means the combustion zone of a furnace in which the molten metal is contained.

Group 1 furnace means a furnace of any design that melts, holds, or processes aluminum that contains paint, lubricants, coatings, or other foreign materials with or without reactive fluxing, or processes *clean charge with reactive fluxing*.

Group 2 furnace means a furnace of any design that melts, holds, or processes only *clean charge* and that performs no *fluxing* or performs *fluxing* using only nonreactive, non-HAP-containing/non-HAP-generating gases or agents.

HCl means, for the purposes of this subpart, emissions of hydrogen chloride that serve as a surrogate measure of the total emissions of the HAPs hydrogen chloride, hydrogen fluoride and chlorine.

In-line fluxer means a device exterior to a furnace, located in a transfer line from a furnace, used to refine (flux) molten aluminum; also known as a flux box, degassing box, or demagging box.

Internal runaround means scrap material generated on-site by aluminum extruding, rolling, scalping, forging, forming/stamping, cutting, and trimming operations that do not contain paint or solid coatings. Aluminum chips generated by turning, boring, milling, and similar machining operations that have not been dried at 343 °C (650 °F) or higher, or by an equivalent non-thermal drying process, are not considered internal runaround.

Lime means calcium oxide or other alkaline reagent.

Lime-injection means the continuous addition of lime upstream of a *fabric filter*.

Melting/holding furnace, or melter/holder, means a *group 1 furnace* that processes only *clean charge*, performs melting, holding, and fluxing functions, and does not transfer molten aluminum to or from another furnace.

Operating cycle means for a batch process, the period beginning when the feed material is first charged to the operation and ending when all feed material charged to the operation has been processed. For a batch melting or holding furnace process, *operating cycle* means the period including the charging and melting of scrap aluminum and the fluxing, refining, alloying, and tapping of molten aluminum (the period from tap-to-tap).

Attachment 8

Melt Furnace Stack Parameter Application Pages

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type
004	Al Tube Cleaning, Heat Treatment, and Painting Operations	AC1B
005	Powder Paintbooth	AC1E
006	Incinerator	AC1F
008	Melt Furnace #1	AC1E
009	Melt Furnace #2	AC1E

III. EMISSIONS UNIT INFORMATION

A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 4

Melt Furnace #1

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Information Section 4

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section : Melt Furnace #1		
2. Emissions Unit Identification Number : 008 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 33
6. Emissions Unit Comment : There is no change for this emission unit from the existing permit conditions except to increase fuel use capacity.		

Emissions Unit Information Section 4

Melt Furnace #1

Emissions Unit Control Equipment 1

1. Description : Exhausted air is ducted to a venturi scrubber during the charging and melting of dealer scrap. PM and VOC will be removed via the scrubber at 90% efficiency. Scrubber data: Pressure drop: 20-30"
2. Control Device or Method Code : 2

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 4
Melt Furnace #1

Emissions Unit Details

1. Initial Startup Date :	01-Sep-1998
2. Long-term Reserve Shutdown Date :	
3. Package Unit : Manufacturer : Thorpe Technologies, Inc.	Model Number : NA
4. Generator Nameplate Rating :	MW
5. Incinerator Information :	
Dwell Temperature :	Degrees Fahrenheit
Dwell Time :	Seconds
Incinerator Afterburner Temperature :	Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	30	mmBtu/hr	
2. Maximum Incinerator Rate :		lb/hr	tons/day
3. Maximum Process or Throughput Rate :			11.4
4. Maximum Production Rate :			
5. Operating Capacity Comment : Aluminum melting rate = 11.4 tons/hr; Aluminum loading rate = 19.2 tons/hr. Furnace loading capacity is 32 tons/load. The entire processing cycle is 10 hr/load.			

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Emissions Unit Information Section 4
Melt Furnace #1

Rule Applicability Analysis

NA

List of Applicable Regulations

62-4.160 (2), FA.C.
62-210.200 (PTE), F.A.C.
62-296.310(1)(b)
62-297.310 F.A.C.

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 4

Melt Furnace #1

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	#1,2,6-S8, Attach. 3
2. Emission Point Type Code :	3
3. Descriptions of Emission Points Comprising this Emissions Unit : #1: Stack; #2: Venturi Scrubber.	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common : NA	
5. Discharge Type Code :	V
6. Stack Height :	52 feet
7. Exit Diameter :	5.00 feet
8. Exit Temperature :	150 °F
9. Actual Volumetric Flow Rate :	13,600 acfm
10. Percent Water Vapor :	20.00 %
11. Maximum Dry Standard Flow Rate :	9,495 dscfm
12. Nonstack Emission Point Height :	feet
13. Emission Point UTM Coordinates : Zone : 17 East (km) : 470.978 North (km) : 3,296.852	
14. Emission Point Comment : Information for the Wet Scrubber (used during painted scrap melting): F8: 150; F9:7900 acfm; F10:10%; F11:6000 dscfm; F13: Zone 17, East 470.987 km and North 3296.852 km.	

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 4

Melt Furnace #1

Segment Description and Rate : Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : *Liquid propane combustion*	
2. Source Classification Code (SCC) : 10201002	
3. SCC Units : Thousand Gallons Burned (all liquid fuels)	
4. Maximum Hourly Rate : 0.33	5. Maximum Annual Rate : 1,433.10
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit : 90	
10. Segment Comment :	

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 4

Melt Furnace #1

Segment Description and Rate : Segment 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Melting 3000 tons/yr of dealer aluminum scrap and 20040 tons/yr of clean aluminum scrap or T-bar. Dealer scrap will mixed with clean scrap at no more than 50% dealer scrap per load.	
2. Source Classification Code (SCC) : 30400103	
3. SCC Units : Tons Processed	
4. Maximum Hourly Rate : 19.20	5. Maximum Annual Rate : 23,040.00
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 4

Melt Furnace #1

Segment Description and Rate : Segment 3

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Aluminum liquid fluxing	
2. Source Classification Code (SCC) : 30400106	
3. SCC Units : Tons Used	
4. Maximum Hourly Rate : 0.01	5. Maximum Annual Rate : 23.00
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment : See. MSDS in Attach. 12	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 4
Melt Furnace #1

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - PM	002		EL
2 - PM10	002		EL
3 - NOX			WP
4 - CO			WP
5 - VOC	002		WP

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 4

Melt Furnace #1

Pollutant Potential/Estimated Emissions : Pollutant 1

1. Pollutant Emitted : **PM**
2. Total Percent Efficiency of Control : 90.00 %
3. Potential Emissions : 4.4500000 lb/hour 9.7500000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: 1 1.00 to 5.00 tons/year
6. Emissions Factor Units Reference :
7. Emissions Method Code : 3
8. Calculations of Emissions : PM emission rate for LPG combustion = 0.6 lb/1000 gal x 333 gal/hr = 0.2 lb/hr. PM emission rate for aluminum melting = 1.75 lb/hr. PM emission rate for fluxing fluxing = 2.5 lb/hr. Combine emission rate = 4.45 lb/hr (Table 3, Attach. 6). Annual PM emission capacity for LPG combustion = 0.43 ton/yr. Annual PM emission for Al melting = 7.67 tons/yr. Annual PM emission for fluxing = 1.64 ton/yr. Sum annual PM emissions = 9.74 tons/yr. See Attachment 5 and 6 for detail emission calculation.
9. Pollutant Potential/Estimated Emissions Comment :

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 4

Melt Furnace #1

Compliance for scrubber: monitor scrubber parameters daily.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 4

Melt Furnace #1

Pollutant Potential/Estimated Emissions : Pollutant 2

1. Pollutant Emitted : **PM10**
2. Total Percent Efficiency of Control : 90.00 %
3. Potential Emissions : 2.3300000 lb/hour 5.0900000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: 1 1.00 to 5.00 tons/year
6. Emissions Factor Units Reference :
7. Emissions Method Code :
8. Calculations of Emissions : See Attachment 5 and 6 for detail emissions calculation.
9. Pollutant Potential/Estimated Emissions Comment : We assume that 50% of PM emission for aluminum melting and fluxing is PM10.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 4

Melt Furnace #1

Pollutant Potential/Estimated Emissions : Pollutant 3

1. Pollutant Emitted : **NOX**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : 6.3300000 lb/hour 13.6000000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor 19 Units lb/1000 gal Reference : FIRE
7. Emissions Method Code : 3
8. Calculations of Emissions : NOx emisison rate = 333 gal/hr x 19 lb/1000 gal = 6.33 lb/hr. Annual NOx emission = 1433100 gal/yr x 19 lb/1000 gal/2000 lb/ton = 13.6 tons/yr.
9. Pollutant Potential/Estimated Emissions Comment :

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 4

Melt Furnace #1

Pollutant Potential/Estimated Emissions : Pollutant 4

1. Pollutant Emitted : **CO**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : 18.1700000 lb/hour 6.7900000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor Units Reference : FIRE
7. Emissions Method Code : 3
8. Calculations of Emissions : See Attachment 5 and 6 for detail calculation.
9. Pollutant Potential/Estimated Emissions Comment :

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 4

Melt Furnace #1

Pollutant Potential/Estimated Emissions : Pollutant 5

1. Pollutant Emitted : **VOC**
2. Total Percent Efficiency of Control : %
3. Potential Emissions : 0.5880000 lb/hour 0.4260000 tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor Units Reference :
7. Emissions Method Code :
8. Calculations of Emissions : See Attachment 5 and 6 for detail emission calculation.
9. Pollutant Potential/Estimated Emissions Comment :

Emissions Unit Information Section 4
Melt Furnace #1

Pollutant Information Section 1

Allowable Emissions 1

1. Basis for Allowable Emissions Code :
2. Future Effective Date of Allowable Emissions :
3. Requested Allowable Emissions and Units :
4. Equivalent Allowable Emissions : lb/hour tons/year
5. Method of Compliance :
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) : NA

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 4
Melt Furnace #1

Visible Emissions Limitation : Visible Emissions Limitation 1

1. Visible Emissions Subtype :	VE
2. Basis for Allowable Opacity :	RULE
3. Requested Allowable Opacity :	
Normal Conditions :	20 %
Exceptional Conditions :	%
Maximum Period of Excess Opacity Allowed :	min/hour
4. Method of Compliance :	
Visible emissions will be tested periodically as required.	
5. Visible Emissions Comment :	

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 4
Melt Furnace #1

Continuous Monitoring System Continuous Monitor 1

1. Parameter Code :	2. Pollutant(s):
3. CMS Requirement	
4. Monitor Information Manufacturer : Model Number : Serial Number :	
5. Installation Date :	
6. Performance Specification Test Date :	
7. Continuous Monitor Comment : NA	

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

Emissions Unit Information Section 4

Melt Furnace #1

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

[ ] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

[X] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

[ ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[X] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :		
PM : C	SO2 : C	NO2 : C
4. Baseline Emissions :		
PM :	lb/hour	tons/year
SO2 :	lb/hour	tons/year
NO2 :		tons/year
5. PSD Comment :		

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 4

Melt Furnace #1

Supplemental Requirements for All Applications

1. Process Flow Diagram :	Attach. 4F
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	Attach. 9&10
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	NA
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	Attach. 11
9. Other Information Required by Rule or Statue :	NA

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alterntive Modes of Operation (Emissions Trading) :

12. Identification of Additional Applicable Requirements :
13. Compliance Assurance Monitoring Plan :
14. Acid Rain Application (Hard-copy Required) : Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) New Unit Exemption (Form No. 62-210.900(1)(a)2.) Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

III. EMISSIONS UNIT INFORMATION

A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 5

Melt Furnace #2

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one :

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Information Section 5

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section : Melt Furnace #2		
2. Emissions Unit Identification Number : 009 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 33
6. Emissions Unit Comment : Only clean aluminum scrap and/or T-bar are processed in this furnace. There is no control equipment.		

Emissions Unit Information Section _____

Emissions Unit Control Equipment _____

1. Description :
2. Control Device or Method Code :

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 5
Melt Furnace #2

Emissions Unit Details

1. Initial Startup Date :	01-Sep-1996
2. Long-term Reserve Shutdown Date :	
3. Package Unit : Manufacturer : Thorpe Technologies, Inc.	Model Number :
4. Generator Nameplate Rating :	MW
5. Incinerator Information : Dwell Temperature : Dwell Time : Incinerator Afterburner Temperature :	 Degrees Fahrenheit Seconds Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	30	mmBtu/hr	
2. Maximum Incinerator Rate :		lb/hr	tons/day
3. Maximum Process or Throughput Rate :	12	tons/hr	
4. Maximum Production Rate :			
5. Operating Capacity Comment : Aluminum melting rate is 11.4 ton/hr. Aluminum loading rate for is 19.2 tons/hr, and furnace batch capacity is 30 tons.			

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Emissions Unit Information Section 5
Melt Furnace #2

Rule Applicability Analysis

NA

Emissions Unit Information Section _____

List of Applicable Regulations

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 5

Melt Furnace #2

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	#3&7-S8, Attach. 3	
2. Emission Point Type Code :	1	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking : (limit to 100 characters per point)		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :		
5. Discharge Type Code :	V	
6. Stack Height :	52	feet
7. Exit Diameter :	5.0	feet
8. Exit Temperature :	800	°F
9. Actual Volumetric Flow Rate :	27000	acfm
10. Percent Water Vapor :	11.00	%
11. Maximum Dry Standard Flow Rate :	10070	dscfm
12. Nonstack Emission Point Height :	0	feet
13. Emission Point UTM Coordinates :		

Zone : 17 East (km) : 470.978 North (km) : 3296.820

14. Emission Point Comment :

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section _____

Segment Description and Rate : Segment _____

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :	
2. Source Classification Code (SCC) :	
3. SCC Units :	
4. Maximum Hourly Rate :	5. Maximum Annual Rate :
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment :	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

Emissions Unit Information Section _____

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
-			

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section _____

Pollutant Potential/Estimated Emissions : Pollutant _____

1. Pollutant Emitted :
2. Total Percent Efficiency of Control : %
3. Potential Emissions : lb/hour tons/year
4. Synthetically Limited? [ ] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: to tons/year
6. Emissions Factor Units Reference :
7. Emissions Method Code :
8. Calculations of Emissions :
9. Pollutant Potential/Estimated Emissions Comment :

Emissions Unit Information Section _____

Pollutant Information Section _____

Allowable Emissions _____

1. Basis for Allowable Emissions Code :
2. Future Effective Date of Allowable Emissions :
3. Requested Allowable Emissions and Units :
4. Equivalent Allowable Emissions : lb/hour tons/year
5. Method of Compliance :
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section _____

Visible Emissions Limitation : Visible Emissions Limitation _____

1. Visible Emissions Subtype :
2. Basis for Allowable Opacity :
3. Requested Allowable Opacity : Normal Conditions : % Exceptional Conditions : % Maximum Period of Excess Opacity Allowed : min/hour
4. Method of Compliance :
5. Visible Emissions Comment :

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

Emissions Unit Information Section 5

Melt Furnace #2

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

[ ] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

[X] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

[ ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[X] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :		
PM : C	SO2 : C	NO2 : C
4. Baseline Emissions :		
PM :	lb/hour	tons/year
SO2 :	lb/hour	tons/year
NO2 :		tons/year
5. PSD Comment :		

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 5

Melt Furnace #2

Supplemental Requirements for All Applications

1. Process Flow Diagram :	Attach. 4G
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	NA
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	NA
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	Attach. 5,6,11
9. Other Information Required by Rule or Statue :	NA

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :
11. Alterntive Modes of Operation (Emissions Trading) :

12. Identification of Additional Applicable Requirements :
13. Compliance Assurance Monitoring Plan :
14. Acid Rain Application (Hard-copy Required) : Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) New Unit Exemption (Form No. 62-210.900(1)(a)2.) Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

Attachment 9

MSDSs for Powder Paint/Letter from Paint Company

VAW of America, Inc.
St. Augustine, FL
Powder Paint Coatings
Chemical Constituent Table

Manufacturing Company Product Name	Product Number	Chemical Constituents		
		Chemical Name	CAS Number	Percent
TCI Copper Vein	7334-0060	Epoxy Resins	25068-38-6	50-80
		Barium Sulfate	7727-43-7	10-20
		Copper	7440-50-8	3-6
		Carbon Black	1333-86-4	0.5-1.5
TCI Medium Gloss Clear	8710-0000	Blocked Polyisocyanate	NA	10-20
		Blocked Polyisocyanate 2	NA	10-20
TCI Pasta	9910-1045	Titanium Dioxide	13463-67-7	15-30
		Barium Sulfate	7727-43-7	2-10
		1,2,5-Triglycidyl Isocyanurate	2451-62-9	3-6
		Chrome Titanate	68186-90-3	0-5
TCI Alpine Silver II	8211-0338	Calcium Carbonate	471-34-1	15-30
		Blocked Polyisocyanate	NA	10-20
		Blocked Polyisocyanate 2	NA	2-10
		Aluminum Powder	7429-90-5	3-6
TCI BC White	9210-90083	Titanium Dioxide	13463-67-7	15-30
		1,3,5- Triglycidyl Isocyanurate	2451-62-9	2-10
		Blocked Polyisocyanate	NA	3-6
		Barium Sulfate	7727-43-7	0-5
TCI Conductive Black Poly	9012-9965	1,3,5-Triglycidyl Isocyanurate	2451-62-9	3-6
TCI Awning Brown	9610-8307	Barium Sulfate	7727-43-7	15-30
		1,2,5-Triglycidyl Isocyanurate	2451-62-9	3-6
		Carbon Black	1333-86-4	0-5
Tiger Drylac Sonar Brown Semigloss	49/65920	T.Glycid I Cyanurate	2451-69-9	0-5
Morton Corvel Flat Black Text	27-7001	Calcium Carbonate	471-34-1	30-40
		Blocked Polyisocyanate	NA	10-20
		Carbon Black	1333-86-4	1-5
		Quartz (crystalline silica)	14808-60-7	0-1
TCI Hunter Green	9910-6321	Barium Sulfate	7727-43-7	2-10
		1,2,5-Triglycidyl Isocyanurate	2451-62-9	2-10
		Titanium Dioxide	13463-67-7	0-5
		Carbon Black	1333-86-4	0-5
Morton Corvel Flat Black	10-7011	Barium Sulfate	7727-43-7	5-10
		Carbon Black	1333-86-4	1-5

VAW of America, Inc.
St. Augustine, FL
Powder Paint Coatings
Chemical Constituent Table

Manufacturing Company Product Name	Product Number	Chemical Constituents		
		Chemical Name	CAS Number	Percent
Tiger Drylac	49/11500	T. Glycid. I. Cyanurate	2451-69-9	0-5
		Barium Sulfate	7727-43-7	5-10
		Titanium Dioxide	13463-67-7	10-30
		Amorphous Silica	7631-86-9	0-5
Tiger Drylac	49/11340	T. Glycid. I. Cyanurate	2451-69-9	0-5
		Barium Sulfate	7727-43-7	5-10
Tiger Drylac	49/90500	Aluminum	7429-90-5	0-5
		Blocked Isocyanate	NA	5-10
		T-Glycid-Cyanurate	2451-62-9	0-5
		Calcium Carbonate	1317-65-3	10-30
Govesan Light Ivory	RPB-1150	Titanium Dioxide	13463-67-7	40
	RAL 1015	Barium Sulfate	7727-43-7	20
		TGIC		
		Iron Oxide	51274-00-1	1
		Carbon Black	1333-86-4	1
TCI WS Bronze II	7020-8355	Epoxy Resins	25068-38-6	30-60
		Titanium Dioxide	13463-67-7	10-20
		Carbon Black	1333-86-4	0-5
TCI Sky White II	9910-9897	Titanium Dioxide	13463-67-7	30-60
		1,2,5-Triglycidyl Isocyanurate	2451-62-9	3-6
Permalux Polyester Beige/Pearl	PR0725A90EW	Titanium White	013483-67-7	30-60
		TGIC-4	002451-62-9	1-5
		Barium Sulfate	007727-43-7	1-5
Morton Spartan Bronze	PFJ507A5	1,3,5-Triglycidyl Isocyanurate	002451-62-9	1-5
		Iron Oxide Yellow	051274-00-1	1-5
		Titanium Dioxide	013463-67-7	1-5
		Nuisance Dust	NA	100
Secura/Spraylat Pearlescent White	PU98902	Synthetic Resin Non		5-10
		Titanium Dioxide	13463-67-7	20-30
		Barium Sulfate	7727-43-7	1-2
		Mica Silicate Mica <1% Quartz	12001-26-2	1-2

LAN Associates, Inc.
Ref. #2.392.41
Powder Paint Coatings
July 2001

TCI POWDER COATINGS
610 Dixon Drive • P.O. Box 13 • Ellaville, GA 31806 • 912•937•5411 • FAX 912•937•2064

TECHNICAL INFORMATION

DATE	7/23/97
PRODUCT NUMBER	7334-0060
PRODUCT NAME	COPPER VEIN
PRODUCT DESCRIPTION	COPPER VEIN EPOXY

PRODUCT CHARACTERISTICS

SPECIFIC GRAVITY	1.35
STORAGE TEMPERATURE	<80 F

PARTICLE DISTRIBUTION

+44 MICRONS (325 MESH)	35-40%

FILM CHARACTERISTICS	ASTM METHODS	
CURE SCHEDULE (METAL TEMP)		6 MIN @ 400 F 10 MIN @ 375 F 15 MIN @ 350 F
FILM THICKNESS		3.0-5.0 MILS
GLOSS	ASTM D523	30-40%
PENCIL HARDNESS	ASTM D3363	2H
FLEXIBILITY	ASTM D522	1/8 IN
ADHESION	ASTM D3359	5B
DIRECT IMPACT	ASTM D2794	160 IN/LBS @1.5 MILS
REVERSE IMPACT	ASTM D2794	160 IN/LBS @1.5 MILS

PREPARED BY: JACK SLADE

MATERIAL SAFETY DATA SHEET

MSDS Name: COPPER VEIN
MSDS Number: 7334-0060
Version Number
MSDS Date: 022200
Page Number: 1 of 7

SECTION I - PRODUCT AND COMPANY INFORMATION

Product Name: COPPER VEIN
Hazard Rating: Health: Fire: Reactivity: PPI:

Company Identification: TCI POWDER COATINGS
4036 DIXON DR.
ELLAVILLE GA 31806

Contact: GEORGE TORBERT
Telephone/Fax: 800-533-9067 (912)937-2904
Emergency Phone (24 Hour): GEORGE TORBERT
888-904-0785

oduct Class
Trade Name
Product Code 7334-0060

SECTION II - INGREDIENT AND HAZARD INFORMATION

Ingredient Name	CAS Number	Percent
EPOXY RESINS	25068-38-6	50-80
HMIS Health: 1 Fire:1 Reactivity:0 PPI:X____		
BARIUM SULFATE	7727-43-7	10-20
HMIS Health: 1 Fire:0 Reactivity:0 PPI:E____		
COPPER	7440-50-8	3-6
HMIS Health: 2 Fire:1 Reactivity:1 PPI:X____		
CARBON BLACK	1333-86-4	.5-1.5
HMIS Health: 1 Fire:1 Reactivity:1 PPI:E____		

MATERIAL SAFETY DATA SHEET

MSDS Name: COPPER VEIN
MSDS Number: 7334-0060
Version Number
MSDS Date: 022200
Page Number: 2 of 7

EPOXY RESINS 25068-38-6 0-5
HMIS Health: 1 Fire:1 Reactivity:0 PPI:X____
*** ALL Ingredients in this product are listed in the T.S.C.A. Inventory

Product composition other than ingredients with established airborne exposure limits will be considered nuisance dust. All ingredients n this product are listed in the T.S.C.A. inventory.

SECTION III - HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eyes, Inhalation, Skin

Skin Contact: Incindental contact is not expected to cause irritation.

Eye Contact: May cause slight to mild redness and burning. May cause chanical irritation.

Inhalation: In the event this product does not contain ingredients with airborne exposure limits, it is considered a nuisance dust. No effects are expected when exposures are maintained below the exposure limits of section 8. Lung and respiratory conditions may be aggravated by exposure.

Ingestion: May cause pain and upset stomach.

SECTION IV - FIRST AID MEASURES

Eye Contact: Immeditaely flush eyes with cool water for 15 minutes, occaisionally lifting lids to ensure complete rinsing. Seek medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. Remove and wash clothing and shoes before reuse. Seek medical attention if irritation persists.

Inhalation: Remove to fresh air. If breathing difficulties develop,

MATERIAL SAFETY DATA SHEET

seek medical attention. If necessary, give artificial respiration.

Ingestion: Seek immediate medical attention. Wash out mouth with water followed by a cupful of water to drink. Repeat if vomiting occurs. Never give anything by mouth to an unconscious person.

SECTION V - FIRE-FIGHTING MEASURES

Flammability Class	IA
Flash Range:	
Explosive Range:	30 GM/M3
	70 GM/M3

Extinguishing Media:
Foam, CO2, dry chemical, water spray.

Fire and Explosion Hazards: The HMIS/NFPA rating changes from 1 to 4 when powder is transferred from a closed container to a process at concentrations reaching the explosive limit.

Firefighting Instructions:
Use fully protective equipment with self-contained breathing apparatus.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Sweep up carefully or use explosion-proof vacuum cleaner. Then dispose inaccordance with local, state, and federal regulations.

SECTION VII - HANDLING AND STORAGE

MATERIAL SAFETY DATA SHEET

MSDS Name: COPPER VEIN
MSDS Number: 7334-0060
Version Number
MSDS Date: 022200
Page Number: 4 of 7

Keep all equipment clean and work areas free from dust. Avoid excessive skin contact. Do not ingest or inhale. Personnel handling product should be trained in it's proper use. Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities.

Store in a cool, dry well ventillated area away from heat, ignition sources, and direct sunlight. Keep containers tightly closed.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

	ACGIH TLV	ACGIH TLV-C	ACGIH STEL	OSHA STEL	OSHA PEL
EPOXY RESINS	N/est	N/est	N/est	N/est	N/est
BARIUM SULFATE	10.00 mg/M3	N/est	N/est	N/est	5.00 mg/M3
COPPER	1.00 mg/M3	N/est	N/est	2.00 mg/M3	1.00 mg/M3
CARBON BLACK	3.50 mg/M3	N/est	N/est	N/est	3.50 mg/M3
EPOXY RESINS	N/est	N/est	N/est	N/est	N/est
Nuisance Dust	10 mg/m3	N/est	N/est	N/est	10 mg/m3

ENGINEERING CONTROLS: Provide ventilation to keep air contamination concentration below established airborne exposure limits (TLV's or PEL's). Explosion proof exhaust ventilation is recommended. Ventilation equipment, baghouse, and cyclone dust collection should be grounded. Curing ovens should be properly vented to prevent fumes from

MATERIAL SAFETY DATA SHEET

entering the workplace.

RESPIRATORS:
Use a properly fitted NIOSH/MSHA approved respirator to avoid breathing dust.

SKIN PROTECTION:
Protective gloves & clothing recommended.

EYE PROTECTION:
Goggles or safety glasses with side-shields recommended.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Form:	SOLID
Appearance/Color:	COPPER
or:	NEGIGIBLE
Solubility (in water):	INSOLUBLE
pH Value:	
Boiling Range:	
Vapor Pressure (mmHg):	
Melting Point:	230.°F
Evaporation Rate:	
Vapor Density:	
Partition Coefficient	
% Volatile Weight	
% Volatile	
Specific Gravity:	1.35
Molecular Weight:	
Heavy Elements (ppm)	0.

SECTION X - STABILITY AND REACTIVITY

Stability:	This product may be unstable
Hazardous Polymerization:	Hazardous polymerization will not occur

Hazardous decomposition products: Combustion biproducts may contain

MATERIAL SAFETY DATA SHEET

MSDS Name: COPPER VEIN
MSDS Number: 7334-0060
Version Number
MSDS Date: 022200
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CO, CO2, NO2, or other nitrogen compounds.

SECTION XI - TOXICOLOGICAL INFORMATION

Product: Extended inhalation of dust can lead to particulate deposition in the lungs.

COMPONENTS:

BARIUM SULFATE:
Inhalation of fine barite dust may cause irritationof the nose & throat by mechanical action. Prolonged or repeated inhalation may cause baritosis, a benign pneumoconiosis, with some signs of chronic bronchial irritation.

CARBON BLACK:
Carbon black has been evaluated by the International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans (Group 2B), however, epidemiological studies of workers in the carbon black producing industries of North America & Western Europe show no evidence of clinically significant adverse health effects due to occupational exposure to Carbon Black.

COPPER METAL IS SLIGHTLY TOXIC. INHALATION OF COPPER MAY CAUSE ACUTE IRRITATION OF THE NOSE AND TRACKEA; MAY PRODUCE ACUTE GASTROENTERIC SYMPTOMS, AND MAY CAUSE ACUTE METAL FUME FEVER. EXPOSURE TO THE SKIN MAY CAUSE ACUTE DERMATITIS.

MATERIAL SAFETY DATA SHEET

MSDS Name: COPPER VEIN
MSDS Number: 7334-0060
Version Number
MSDS Date: 022200
Page Number: 7 of 7

EPOXY RESINS:
Overexpoure to this product may cause eye and skin irritation and sensitization. Similar resins have shown mutagenic activity in vitro test, while others have not. All in vitro assays were negative.

SECTION XII - ECOLOGICAL INFORMATION

None known.

SECTION XIII - DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state, and federal regulations.

SECTION XIV - TRANSPORT INFORMATION

UN Number
UN Pack Group
UN Class
ICAO/IATA Class
Shipping Name

SECTION XV - REGULATORY INFORMATION

SARA TITLE III SECTION 313:
This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right to Know Act of 1986 and of 40 CFR 372:

Ingredient Name	CAS Number	Percent
COPPER	7440-50-8	3-6

SECTION XVI - OTHER INFORMATION

MATERIAL SAFETY DATA SHEET

MSDS Name: COPPER VEIN
MSDS Number: 7334-0060
Version Number
MSDS Date: 022200
Page Number: 8 of 7

The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof, we assume no responsibility for injury from the use of the product described herein.

TCI POWDER COATINGS
610 Dixon Drive • P.O. Box 13 • Ellaville, GA 31806 • 912•937•5411 • FAX 912•937•2064

TECHNICAL INFORMATION

DATE	8/12/97
PRODUCT NUMBER	8710-0000
PRODUCT NAME	MEDIUM GLOSS CLEAR
PRODUCT DESCRIPTION	MEDIUM GLOSS CLEAR URETHANE

PRODUCT CHARACTERISTICS

SPECIFIC GRAVITY	1.21
STORAGE TEMPERATURE	<80 F

PARTICLE DISTRIBUTION

+44 MICRONS (325 MESH)	28-34%

FILM CHARACTERISTICS	ASTM METHODS	
CURE SCHEDULE (METAL TEMP)		12 MIN @ 400 F 18 MIN @ 375 F 25 MIN @ 360 F
FILM THICKNESS		1.0-3.0 MILS
GLOSS	ASTM D523	75-95%
PENCIL HARDNESS	ASTM D3363	2H
FLEXIBILITY	ASTM D522	1/8 IN
ADHESION	ASTM D3359	5B
DIRECT IMPACT	ASTM D2794	100 IN/LBS @1.5 MILS
REVERSE IMPACT	ASTM D2794	80 IN/LBS @1.5 MILS

PREPARED BY: JACK SLADE

MATERIAL SAFETY DATA SHEET

MSDS Name: MEDIUM GLOSS CLEAR
MSDS Number: 8710-0000
Version Number
MSDS Date: 022200
Page Number: 1 of 6

SECTION I - PRODUCT AND COMPANY INFORMATION

Product Name:	MEDIUM GLOSS CLEAR
Hazard Rating:	Health: Fire: Reactivity: PPI:
Company Identification:	TCI POWDER COATINGS 4036 DIXON DR. ELLAVILLE GA 31806
Contact:	GEORGE TORBERT
Telephone/Fax:	800-533-9067 (912)937-2904
Emergency Phone (24 Hour):	GEORGE TORBERT 888-904-0785
Product Class	
Trade Name	
Product Code	8710-0000

SECTION II - INGREDIENT AND HAZARD INFORMATION

Ingredient Name	CAS Number	Percent
BLOCKED POLYISOCYANATE	NOT PROVIDED	10-20
HMIS Health: 1 Fire:1 Reactivity:0 PPI:E____		
BLOCKED POLYISOCYANATE 2	NOT PROVIDED	10-20
HMIS Health: 1 Fire:1 Reactivity:0 PPI:E____		

*** ALL Ingredients in this product are listed in the T.S.C.A. Inventory

Product composition other than ingredients with established airborne exposure limits will be considered nuisance dust. All ingredients n this product are listed in the T.S.C.A. inventory.

MATERIAL SAFETY DATA SHEET

MSDS Name: MEDIUM GLOSS CLEAR
MSDS Number: 8710-0000
Version Number
MSDS Date: 022200

SECTION III - HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eyes, Inhalation, Skin

Skin Contact: Incindental contact is not expected to cause irritation.

Eye Contact: May cause slight to mild redness and burning. May cause mechanical irritation.

Inhalation: In the event this product does not contain ingredients with airborne exposure limits, it is considered a nuisance dust. No effects are expected when exposures are maintained below the exposure limits of section 8. Lung and respiratory conditions may be aggravated by exposure.

Ingestion: May cause pain and upset stomach.

SECTION IV - FIRST AID MEASURES

Eye Contact: Immeditaely flush eyes with cool water for 15 minutes, occaisionally lifting lids to ensure complete rinsing. Seek medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. Remove and wash clothing and shoes before reuse. Seek medical attention if irritation persists.

Inhalation: Remove to fresh air. If breathing difficulties develop, seek medical attention. If necessary, give artificial respiration.

Ingestion: Seek immediate medical attention. Wash out mouth with water followed by a cupful of water to drink. Repeat if vomiting occurs. Never give anything by mouth to an unconscious person.

SECTION V - FIRE-FIGHTING MEASURES

Flammability Class IA

MATERIAL SAFETY DATA SHEET

MSDS Name: MEDIUM GLOSS CLEAR
MSDS Number: 8710-0000
Version Number
MSDS Date: 022200
Page Number: 3 of 6

Flash Range:
Explosive Range: 30 GM/M3
70 GM/M3

Extinguishing Media:
Foam, CO2, dry chemical, water spray.

Fire and Explosion Hazards: The HMIS/NFPA rating changes from 1 to 4 when powder is transferred from a closed container to a process at concentrations reaching the explosive limit.

Firefighting Instructions:
Use fully protective equipment with self-contained breathing apparatus.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Sweep up carefully or use explosion-proof vacuum cleaner. Then dispose inaccordance with local, state, and federal regulations.

SECTION VII - HANDLING AND STORAGE

Keep all equipment clean and work areas free from dust. Avoid excessive skin contact. Do not ingest or inhale. Personnel handling product should be trained in it's proper use. Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities.

Store in a cool, dry well ventillated area away from heat, ignition sources, and direct sunlight. Keep containers tightly closed.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

MATERIAL SAFETY DATA SHEET

MSDS Name: MEDIUM GLOSS CLEAR
MSDS Number: 8710-0000
Version Number
MSDS Date: 022200
Page Number: 4 of 6

Occupational Exposure Limits

	ACGIH TLV	ACGIH TLV-C	ACGIH STEL	OSHA STEL	OSHA PEL
BLOCKED POLYISOCYANATE	N/est	N/est	N/est	N/est	N/est
BLOCKED POLYISOCYANATE 2	N/est	N/est	N/est	N/est	N/est
Nuisance Dust	10 mg/m3	N/est	N/est	N/est	10 mg/m3

ENGINEERING CONTROLS: Provide ventilation to keep air contamination concentration below established airborne exposure limits (TLV's or PEL's). Explosion proof exhaust ventilation is recommended. Ventilation equipment, baghouse, and cyclone dust collection should be grounded. Curing ovens should be properly vented to prevent fumes from entering the workplace.

RESPIRATORS:
Use a properly fitted NIOSH/MSHA approved respirator to avoid breathing dust.

SKIN PROTECTION:
Protective gloves & clothing recommended.

EYE PROTECTION:
Goggles or safety glasses with side-shields recommended.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Form:	SOLID
Appearance/Color:	CLEAR
Odor:	NEGLIGIBLE
Solubility (in water):	INSOLUBLE
pH Value:	
Boiling Range:	

MATERIAL SAFETY DATA SHEET

MSDS Name: MEDIUM GLOSS CLEAR
MSDS Number: 8710-0000
Version Number
MSDS Date: 022200
Page Number: 5 of 6

Vapor Pressure (mmHg):
Melting Point: 230.°F
Evaporation Rate:
Vapor Density:
Partition Coefficient
% Volatile Weight
% Volatile
Specific Gravity: 1.21
Molecular Weight:
Heavy Elements (ppm) 0.

SECTION X - STABILITY AND REACTIVITY

Stability: This product may be unstable
Hazardous Polymerization: Hazardous polymerization will not occur

ardous decomposition products: Combustion biproducts may contain
Co, CO2, NO2, or other nitrogen compounds.

SECTION XI - TOXICOLOGICAL INFORMATION

Product: Extended inhalation of dust can lead to particulate deposition in the lungs.

COMPONENTS:

BLOCKED POLYISOCYANATE 2:
This product is practically non-toxic at room temperature. Volatile

MATERIAL SAFETY DATA SHEET

MSDS Name: MEDIUM GLOSS CLEAR
MSDS Number: 8710-0000
Version Number
MSDS Date: 022200
Page Number: 6 of 6

nomomeric isocyanates have been detected in low percentages in total oven volatile during powder cure. Inhalation of oven vapors should be avoided. Do not vent oven exhaust into workplace. Oven air exhaust should be sufficient to prevent vapors from entering work place. Exposure to Isocyanate vapors above the TLV may lead to bronchitis, bronchial spasms and pulmonary edema. For monomeric isocyanate vapor: OSHA-PEL 0.005 ppm, ACGIH-TLV 0.005 TWA. Dust: 0.02 mg/m3 TWA, 0.045 mg/m3 TWA.

BLOCKED POLYISOCYANATE:
This product is practically non-toxic at room temperature. Caprolactam is released dureng the curing process. Volatile monomeric isocyanates have been detected in low percentages in total volatiles during cure. Inhalation of oven vapors should be avoided. Do not vent curing oven exhaust into workplace. Oven air exhaust should be sufficient to prevent vapors from entering into the workplace. Prolonged exposue to high concentrations of caprolactam may cause nausea, vomiting, dizziness, headache and tremors. Exposure to isocyanate vapors above the TLV may lead to bronchitis, bronchial spasms and pulmonary edema. The following exposure limits for caprolactam have been established by ACGIH and OSHA: Vapor: 5 ppm TWA, 10 ppm STEL. Dust: 1mg/m3 TWA, 3 mg/m3 STEL. For monomeric isocyanate, vapor: OSHA PEL 0.005 ppm, ACGIH-TLV 0.005 TWA. Dust: 0.02 mg/m3 TWA, 0.045 mg/m3 TWA.

SECTION XII - ECOLOGICAL INFORMATION

None known.

SECTION XIII - DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state, and federal regulations.

SECTION XIV - TRANSPORT INFORMATION

UN Number
UN Pack Group

MATERIAL SAFETY DATA SHEET

MSDS Name: MEDIUM GLOSS CLEAR
MSDS Number: 8710-0000
Version Number
MSDS Date: 022200
Page Number: 7 of 6

UN Class
ICAO/IATA Class
Shipping Name

SECTION XV - REGULATORY INFORMATION

SECTION XVI - OTHER INFORMATION

The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof, we assume no responsibility for injury from the use of the product described herein.

SECTION I - PRODUCT AND COMPANY INFORMATION

Product Name:	PASTA
Hazard Rating:	Health: 2 Fire: 1 Reactivity: 0 PPI: E
Company Identification:	TCI POWDER COATINGS 610 DIXON DR. ELLAVILLE GA 31806
Contact:	MARK BLALOCK
Telephone/Fax:	800-533-9067 (912)937-2904
Emergency Phone (24 Hour):	MARK BLALOCK 800-533-9067
Product Class	
Trade Name	
Product Code	9910-1045

SECTION II - INGREDIENT AND HAZARD INFORMATION

Ingredient Name	CAS Number	Percent
TTIANIUM DIOXIDE	13463-67-7	15-30
HMIS Health: 0 Fire:0 Reactivity:0 PPI:E____		
BARIUM SULFATE	7727-43-7	2-10
HMIS Health: 1 Fire:0 Reactivity:0 PPI:E____		
1,2,5-TRIGLYCIDYL ISOCYANURATE	2451-62-9	3-6
HMIS Health: 2 Fire:1 Reactivity:0 PPI:X____		
CHROME TITANATE	68186-90-3	0-5
HMIS Health: 0 Fire:0 Reactivity:0 PPI:X____		

*** ALL Ingredients in this product are listed in the T.S.C.A. Inventory

Product composition other than ingredients with established airborne exposure limits will be considered nuisance dust. All ingredients n this product are listed in the T.S.C.A. inventory.

SECTION III - HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eyes, Inhalation, Skin

Skin Contact: Incindental contact is not expected to cause irritation.

Eye Contact: May cause slight to mild redness and burning. May cause mechanical irritation.

Inhalation: In the event this product does not contain ingredients with airborne exposure limits, it is considered a nuisance dust. No effects are expected when exposures are maintained below the exposure limits of section 8. Lung and respiratory conditions may be aggravated y exposure.

Ingestion: May cause pain and upset stomach.

SECTION IV - FIRST AID MEASURES

Eye Contact: Immeditaely flush eyes with cool water for 15 minutes, occaisionally lifting lids to ensure complete rinsing. Seek medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. Remove and wash clothing and shoes before reuse. Seek medical attention if irritation persists.

Inhalation: Remove to fresh air. If breathing difficulties develop, seek medical attention. If necessary, give artificial respiration.

Ingestion: Seek immediate medical attention. Wash out mouth with water followed by a cupful of water to drink. Repeat if vomiting occurs. Never give anything by mouth to an unconscious person.

SECTION V - FIRE-FIGHTING MEASURES

Flammability Class	IIIB
Flash Range:	Not Applicable
Explosive Range:	30 GM/M3
	70 GM/M3

Extinguishing Media:
Foam, CO2, dry chemical, water spray.

Fire and Explosion Hazards: The HMIS/NFPA rating changes from 1 to 4 when powder is transferred from a closed container to a process at concentrations reaching the explosive limit.

Firefighting Instructions:
Use fully protective equipment with self-contained breathing apparatus.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Sweep up carefully or use explosion-proof vacuum cleaner. Then dispose inaccordance with local, state, and federal regulations.

SECTION VII - HANDLING AND STORAGE

Keep all equipment clean and work areas free from dust. Avoid excessive skin contact. Do not ingest or inhale. Personnel handling product should be trained in it's proper use. Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities.

Store in a cool, dry well ventillated area away from heat, ignition sources, and direct sunlight. Keep containers tightly closed.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

	ACGIH TLV	ACGIH TLV-C	ACGIH STEL	OSHA STEL	OSHA PEL
TTIANIUM DIOXIDE	10.00 mg/M3	N/est	N/est	N/est	15.00 mg/M3
ARIUM SULFATE	10.00 mg/M3	N/est	N/est	N/est	5.00 mg/M3
1,2,5-TRIGLYCIDYL ISOCYANURATE	0.05 mg/M3	N/est	N/est	N/est	N/est
CHROME TITANATE	0.50 mg/M3	N/est	N/est	N/est	0.50 mg/M3
Nuisance Dust	10 mg/m3	N/est	N/est	N/est	10 mg/m3

ENGINEERING CONTROLS: Provide ventilation to keep air contamination concentration below established airborne exposure limits (TLV's or PEL's). Explosion proof exhaust ventilation is recommended. Ventilation equipment, baghouse, and cyclone dust collection should be grounded. Curing ovens should be properly vented to prevent fumes from entering the workplace.

RESPIRATORS:
Use a properly fitted NIOSH/MSHA approved respirator to avoid breathing dust.

SKIN PROTECTION:
Protective gloves & clothing recommended.

EYE PROTECTION:
Goggles or safety glasses with side-shields recommended.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Form:	SOLID
Appearance/Color:	OFF WHITE
Odor:	NEGLIGIBLE
Solubility (in water):	INSOLUBLE
H Value:	
Boiling Range:	Not Applicable
Vapor Pressure (mmHg):	Not Applicable
Melting Point:	230.°F
Evaporation Rate:	
Vapor Density:	
Partition Coefficient	
% Volatile Weight	Not Applicable
% Volatile	Not Applicable
Specific Gravity:	1.00
Molecular Weight:	
Heavy Elements (ppm)	0.

SECTION X - STABILITY AND REACTIVITY

Stability:	This product may be unstable
Hazardous Polymerization:	Hazardous polymerization will not occur

Hazardous decomposition products: Combustion biproducts may contain CO, CO2, NO2, or other nitrogen compounds.

SECTION XI - TOXICOLOGICAL INFORMATION

Product: Extended inhalation of dust can lead to particulate deposition in the lungs.

COMPONENTS:

BARIUM SULFATE:
Inhalation of fine barite dust may cause irritationof the nose & throat by mechanical action. Prolonged or repeated inhalation may cause baritosis, a benign pneumoconiosis, with some signs of chronic bronchial irritation.

CHROME TITANATE:
SOME COMPOUNDS OF THE METALS USED IN THE MANUFACTURING OF THIS PIGMENT, CHROMIUM AND ANTIMONY, HAVE DEMONSTRATED VARIOUS TOXIC PROPERTIES. HOWEVER, THERE IS NO EVIDENCE THAT THIS PIGMENT HAS THESE TOXIC CHARACTERISTICS.

TRIGLYCIDYL ISOCYANUNATE:
Overexposure to this product can cause irritation to eyes, skin, and respiratory tract; loss of appetite; may cause nosebleeds; toxic by ingestion and if absorbed through the skin. Prolonged or repeated contact may cause skin sensitization. Animal studies show that

overexposure can result in toxic effects to the testes, possible effects on liver and lungs, and possiblesdverse male reproductive effects.

Lethal Dose	Oral (LD50)	Skin (LD50)	Inhale (LC50)
1,3,5 Triglycidyl Iso.	440 mg/kg Rat	)2000mg/kg Rat	2000mg/cu.m/4hr Rat

With powder contamination 6% TGIC, no toxic effects in rats were observed after 2 weeks of exposure at concentrations of 70 mg/cu.m.; no respiratory lesions or systemic toxicity was producted. Using a restriction research exposure, mice exposed to 10 mg/m3 for 6hrs/day for 5 days did not have any observable effects on the animals overall health or spermatogonia.

TITANIUM DIOXIDE:
Inhalation of titanium Dioxide can cause lung irritation. In an inhalation study evidence of lung cancer was found in 1 out of 77 male rats and 13 out of 74 female rats after they were exposed to 250 mg/m3 titanuim dioxide dust for a two year period. The exposure level f 250mg/m3 is approximately 50 times that permitted in an occupational environment and is not expected to correlate to human exposure.

SECTION XII - ECOLOGICAL INFORMATION

None known.

SECTION XIII - DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state, and federal regulations.

SECTION XIV - TRANSPORT INFORMATION

UN Number
UN Pack Group
UN Class
ICAO/IATA Class
Shipping Name

SECTION XV - REGULATORY INFORMATION

SARA TITLE III SECTION 313:
This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right to Know Act of 1986 and of 40 CFR 372:

Ingredient Name	CAS Number	Percent
CHROME TITANATE	68186-90-3	0-5

SECTION XVI - OTHER INFORMATION

The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof, we assume no responsibility for injury from the use of the product described herein.

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TCI POWDER COATINGS
610 Dixon Drive • P.O. Box 13 • Ellaville, GA 31806 • 912•937•5411 • FAX 912•937•2064

TECHNICAL INFORMATION

DATE		12/23/99
PRODUCT NUMBER		8211-0338
PRODUCT NAME		ALPINE SILVER II
PRODUCT DESCRIPTION		GLOSS METALLIC
PRODUCT CHARACTERISTICS		
SPECIFIC GRAVITY		1.26-1.30
STORAGE TEMPERATURE		< 80F
PARTICLE DISTRIBUTION		
+ 44 MICRONS (325 MESH)		28-34 %

FILM CHARACTERISTICS	ASTM METHODS	
CURE SCHEDULE (METAL TEMP)		12 MIN @ 400F
FILM THICKNESS		2.0-3.0 MILS
GLOSS	ASTM D523	VISUAL
PENCIL HARDNESS	ASTM D3363	H-2H
FLEXIBILITY	ASTM D522	PASS 1/8 INCH
ADHESION	ASTM D3359	PASS
DIRECT IMPACT	ASTM D2794	140 IN/LBS @ 1.5 MILS
REVERSE IMPACT	ASTM D2794	120 IN/LBS @ 1.5 MILS

CLEAR TOPCOAT RECOMMENDED FOR EXTERIOR APPLICATIONS

PREPARED BY: RODNEY USRY

MSDS Name: ALPINE SILVER 2
OS Number: 8211-0338
ersion Number
MSDS Date: 071300
Page Number: 1 of 7

SECTION I - PRODUCT AND COMPANY INFORMATION

Product Name: ALPINE SILVER 2
Hazard Rating: Health: 1 Fire: 3 Reactivity: 3 PPI: E

Company Identification: TCI POWDER COATINGS
610 DIXON DR.
ELLAVILLE GA 31806

Contact: MARK BLALOCK
Telephone/Fax: 800-533-9067 (912)937-2904
Emergency Phone (24 Hour): MARK BLALOCK
800-533-9067

Product Class
Trade Name
Product Code 8211-0338

CTION II - INGREDIENT AND HAZARD INFORMATION

Ingredient Name	CAS Number	Percent
CALCIUM CARBONATE	471-34-1	15-30
HMIS Health: 1 Fire:0 Reactivity:0 PPI:E____		
BLOCKED POLYISOCYANATE	NOT PROVIDED	10-20
HMIS Health: 1 Fire:1 Reactivity:0 PPI:E____		
BLOCKED POLYISOCYANATE 2	NOT PROVIDED	2-10
HMIS Health: 1 Fire:1 Reactivity:0 PPI:E____		
ALUMINUM POWDER	7429-90-5	3-6
HMIS Health: 1 Fire:3 Reactivity:3 PPI:X____		

*** ALL Ingredients in this product are listed in the T.S.C.A. Inventory

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Product composition other than ingredients with established airborne exposure limits will be considered nuisance dust. All ingredients n this product are listed in the T.S.C.A. inventory.

SECTION III - HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eyes, Inhalation, Skin

Skin Contact: Incindental contact is not expected to cause irritation.

Eye Contact: May cause slight to mild redness and burning. May cause mechanical irritation.

Inhalation: In the event this product does not contain ingredients with airborne exposure limits, it is considered a nuisance dust. No effects are expected when exposures are maintained below the exposure limits of section 8. Lung and respiratory conditions may be aggravated by exposure.

Ingestion: May cause pain and upset stomach.

SECTION IV - FIRST AID MEASURES

Eye Contact: Immeditaely flush eyes with cool water for 15 minutes, occaisionally lifting lids to ensure complete rinsing. Seek medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. Remove and wash clothing and shoes before reuse. Seek medical attention if irritation persists.

Inhalation: Remove to fresh air. If breathing difficulties develop, seek medical attention. If necessary, give artificial respiration.

Ingestion: Seek immediate medical attention. Wash out mouth with water followed by a cupful of water to drink. Repeat if vomiting

occurs. Never give anything by mouth to an unconscious person.

SECTION V - FIRE-FIGHTING MEASURES

Flammability Class	IA
Flash Range:	Not Applicable
Explosive Range:	30 GM/M3
	70 GM/M3

Extinguishing Media:
Foam, CO2, dry chemical, water spray.

Fire and Explosion Hazards: The HMIS/NFPA rating changes from 1 to 4 when powder is transferred from a closed container to a process at concentrations reaching the explosive limit.

refighting Instructions:
e fully protective equipment with self-contained breathing apparatus.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Sweep up carefully or use explosion-proof vacuum cleaner. Then dispose inaccordance with local, state, and federal regulations.

SECTION VII - HANDLING AND STORAGE

Keep all equipment clean and work areas free from dust. Avoid excessive skin contact. Do not ingest or inhale. Personnel handling product should be trained in it's proper use. Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities.

Store in a cool, dry well ventillated area away from heat, ignition sources, and direct sunlight. Keep containers tightly closed.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

	ACGIH TLV	ACGIH TLV-C	ACGIH STEL	OSHA STEL	OSHA PEL
CALCIUM CARBONATE	10.00	N/est	N/est	N/est	15.00
BLOCKED POLYISOCYANATE	N/est	N/est	N/est	N/est	N/est
BLOCKED POLYISOCYANATE 2	N/est	N/est	N/est	N/est	N/est
ALUMINUM POWDER	N/est	N/est	N/est	15.00 mg/M3	15.00 mg/M3
Nuisance Dust	10 mg/m3	N/est	N/est	N/est	10 mg/m3

ENGINEERING CONTROLS: Provide ventilation to keep air contamination concentration below established airborne exposure limits (TLV's or PEL's). Explosion proof exhaust ventilation is recommended. Ventilation equipment, baghouse, and cyclone dust collection should be grounded. Curing ovens should be properly vented to prevent fumes from entering the workplace.

RESPIRATORS:
Use a properly fitted NIOSH/MSHA approved respirator to avoid breathing dust.

SKIN PROTECTION:
Protective gloves & clothing recommended.

EYE PROTECTION:
Goggles or safety glasses with side-shields recommended.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Form:	SOLID
Appearance/Color:	SILVER
Odor:	NEGLIGIBLE
Solubility (in water):	INSOLUBLE
pH Value:	Not Applicable
Boiling Range:	Not Applicable
Vapor Pressure (mmHg):	Not Applicable
Melting Point:	230.°F
Evaporation Rate:	
Vapor Density:	
Partition Coefficient	
% Volatile Weight	Not Applicable
% Volatile	Not Applicable
Specific Gravity:	1.00
olecular Weight:	
eavy Elements (ppm)	0.

SECTION X - STABILITY AND REACTIVITY

Stability:	This product may be unstable
Hazardous Polymerization:	Hazardous polymerization will not occur

Hazardous decomposition products: Combustion biproducts may contain CO, CO2, NO2, or other nitrogen compounds.

SECTION XI - TOXICOLOGICAL INFORMATION

Product: Extended inhalation of dust can lead to particulate deposition in the lungs.

COMPONENTS:

Aluminum Metal:
Aluminum Dust are considered nuisance particulates, which have little adverse effects on lungs and do not produce significant organic disease or toxic effects when exposures are kept under control.

BLOCKED POLYISOCYANATE 2:
This product is practically non-toxic at room temperature. Volatile nomomeric isocyanates have been detected in low percentages in total oven volatile during powder cure. Inhalation of oven vapors should be avoided. Do not vent oven exhaust into workplace. Oven air exhaust hould be sufficient to prevent vapors from entering work place. xposure to Isocyanate vapors above the TLV may lead to bronchitis, bronchial spasms and pulmonary edema. For monomeric isocyanate vapor: OSHA-PEL 0.005 ppm, ACGIH-TLV 0.005 TWA. Dust: 0.02 mg/m3 TWA, 0.045 mg/m3 TWA.

BLOCKED POLYISOCYANATE:
This product is practically non-toxic at room temperature. Caprolactam is released dureng the curing process. Volatile monomeric isocyanates have been detected in low percentages in total volatiles during cure. Inhalation of oven vapors should be avoided. Do not vent curing oven exhaust into workplace. Oven air exhaust should be sufficient to prevent vapors from entering into the workplace. Prolonged exposue to high concentrations of caprolactam may cause nausea, vomiting, dizziness, headache and tremors. Exposure to isocyanate vapors above the TLV may lead to bronchitis, bronchial spasms and pulmonary edema. The following exposure limits for caprolactam have been established by ACGIH and OSHA: Vapor: 5 ppm TWA, 10 ppm STEL. Dust: 1mg/m3 TWA, 3 mg/m3 STEL. For monomeric isocyanate, vapor: OSHA PEL 0.005 ppm,

MSDS Name: ALPINE SILVER 2
MSDS Number: 8211-0338
ersion Number
MSDS Date: 071300
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ACGIH-TLV 0.005 TWA. Dust: 0.02 mg/m3 TWA, 0.045 mg/m3 TWA.

CALCIUM CARBONATE:

CONTACT WITH EYES AND SKIN MAY CAUSE IRRITATION BY MECHANICAL ABRASION. LONG TERM EXPOSURE TO HIGH CONCENTRATIONS OF THIS DUST WITHOUT USE OF A DUST MASK MAY PRODUCE RESPIRATORY DYSFUNCTION.

SECTION XII - ECOLOGICAL INFORMATION

None known.

SECTION XIII - DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state, and federal regulations.

SECTION XIV - TRANSPORT INFORMATION

I Number
UN Pack Group
UN Class
ICAO/IATA Class
Shipping Name ALPINE SILVER 2

SECTION XV - REGULATORY INFORMATION

SARA TITLE III SECTION 313:
This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right to Know Act of 1986 and of 40 CFR 372:

Ingredient Name	CAS Number	Percent
ALUMINUM POWDER	7429-90-5	3-6

SECTION XVI - OTHER INFORMATION

The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof, we assume no responsibility for injury from the use of the product described herein.

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MATERIAL SAFETY DATA SHEET

MSDS Name: BC WHITE
MSDS Number: 9210-90083
Version Number
MSDS Date: 050701
Page Number: 1 of 8

SECTION I - PRODUCT AND COMPANY INFORMATION

Product Name:	BC WHITE
Hazard Rating:	Health: 2 Fire: 1 Reactivity: 0 PPI: E
Company Identification:	TCI POWDER COATINGS 4036 DIXON DR. ELLAVILLE GA 31806
Contact:	GEORGE TORBERT
Telephone/Fax:	800-533-9067 (912)937-2904
Emergency Phone (24 Hour):	GEORGE TORBERT 888-904-0785
Product Class	
Trade Name	
Product Code	9210-90083

SECTION II - INGREDIENT AND HAZARD INFORMATION

Ingredient Name	CAS Number	Percent
TTIANIUM DIOXIDE	13463-67-7	15-30
HMIS Health: 0 Fire:0 Reactivity:0 PPI:E____		
1,3,5-TRIGLYCIDYL ISOCYANURATE	2451-62-9	2-10
HMIS Health: 2 Fire:1 Reactivity:0 PPI:X____		
BLOCKED POLYISOCYANATE	NOT PROVIDED	3-6
HMIS Health: 1 Fire:1 Reactivity:0 PPI:E____		
BARIUM SULFATE	7727-43-7	0-5
HMIS Health: 1 Fire:0 Reactivity:0 PPI:E____		

*** All Ingredients in this product are listed in the T.S.C.A. Inventory

Product composition other than ingredients with established airborne exposure limits will be considered nuisance dust. All ingredients n this product are listed in the T.S.C.A. inventory.

SECTION III - HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eyes, Inhalation, Skin

Skin Contact: Incindental contact is not expected to cause irritation.

Eye Contact: May cause slight to mild redness and burning. May cause mechanical irritation.

Inhalation: In the event this product does not contain ingredients with airborne exposure limits, it is considered a nuisance dust. No effects are expected when exposures are maintained below the exposure limits of section 8. Lung and respiratory conditions may be aggravated by exposure.

Ingestion: May cause pain and upset stomach.

SECTION IV - FIRST AID MEASURES

Eye Contact: Immeditaely flush eyes with cool water for 15 minutes, occaisionally lifting lids to ensure complete rinsing. Seek medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. Remove and wash clothing and shoes before reuse. Seek medical attention if irritation persists.

Inhalation: Remove to fresh air. If breathing difficulties develop, seek medical attention. If necessary, give artificial respiration.

Ingestion: Seek immediate medical attention. Wash out mouth with water followed by a cupful of water to drink. Repeat if vomiting occurs. Never give anything by mouth to an unconscious person.

SECTION V - FIRE-FIGHTING MEASURES

Flammability Class	IIIB
Flash Range:	Not Applicable
Explosive Range:	30 GM/M3
	70 GM/M3

Extinguishing Media:
Foam, CO2, dry chemical, water spray.

Fire and Explosion Hazards: The HMIS/NFPA rating changes from 1 to 4 when powder is transferred from a closed container to a process at concentrations reaching the explosive limit.

Firefighting Instructions:
Use fully protective equipment with self-contained breathing apparatus.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Sweep up carefully or use explosion-proof vacuum cleaner. Then dispose inaccordance with local, state, and federal regulations.

SECTION VII - HANDLING AND STORAGE

Keep all equipment clean and work areas free from dust. Avoid excessive skin contact. Do not ingest or inhale. Personnel handling product should be trained in it's proper use. Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities.

Store in a cool, dry well ventillated area away from heat, ignition sources, and direct sunlight. Keep containers tightly closed.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

	ACGIH TLV	ACGIH TLV-C	ACGIH STEL	OSHA STEL	OSHA PEL
TTIANIUM DIOXIDE	10.00 mg/M3	N/est	N/est	N/est	15.00 mg/M3
1,3,5-TRIGLYCIDYL ISOCYANURATE	0.05 mg/M3	N/est	N/est	N/est	N/est
BLOCKED POLYISOCYANATE	N/est	N/est	N/est	N/est	N/est
BARIUM SULFATE	10.00 mg/M3	N/est	N/est	N/est	5.00 mg/M3
Nuisance Dust	10 mg/m3	N/est	N/est	N/est	10 mg/m3

ENGINEERING CONTROLS: Provide ventilation to keep air contamination concentration below established airborne exposure limits (TLV's or PEL's). Explosion proof exhaust ventilation is recommended. Ventilation equipment, baghouse, and cyclone dust collection should be grounded. Curing ovens should be properly vented to prevent fumes from entering the workplace.

RESPIRATORS:
Use a properly fitted NIOSH/MSHA approved respirator to avoid breathing dust.

SKIN PROTECTION:
Protective gloves & clothing recommended.

EYE PROTECTION:
Goggles or safety glasses with side-shields recommended.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Form:	SOLID
Appearance/Color:	WHITE
Odor:	NEGLIGIBLE
Solubility (in water):	INSOLUBLE
pH Value:	Not Applicable
Boiling Range:	Not Applicable
Vapor Pressure (mmHg):	Not Applicable
Melting Point:	230.°F
Evaporation Rate:	
Vapor Density:	
Partition Coefficient	
% Volatile Weight	Not Applicable
% Volatile	Not Applicable
Specific Gravity:	1.575
Molecular Weight:	
Heavy Elements (ppm)	0.

SECTION X - STABILITY AND REACTIVITY

Stability:	This product may be unstable
Hazardous Polymerization:	Hazardous polymerization will not occur

Hazardous decomposition products: Combustion biproducts may contain CO, CO2, NO2, or other nitrogen compounds.

SECTION XI - TOXICOLOGICAL INFORMATION

Product: Extended inhalation of dust can lead to particulate deposition in the lungs.

COMPONENTS:

BARIUM SULFATE:
Inhalation of fine barite dust may cause irritationof the nose & throat by mechanical action. Prolonged or repeated inhalation may cause baritosis, a benign pneumoconiosis, with some signs of chronic bronchial irritation.

BLOCKED POLYISOCYANATE:
This product is practically non-toxic at room temperature. Caprolactam is released dureng the curing process. Volatile monomeric isocyanates have been detected in low percentages in total volatiles during cure. Inhalation of oven vapors should be avoided. Do not vent curing oven exhaust into workplace. Oven air exhaust should be sufficient to prevent vapors from entering into the workplace. Prolonged exposue to high concentrations of caprolactam may cause nausea, vomiting, dizziness, headache and tremors. Exposure to isocyanate vapors above the TLV may lead to bronchitis, bronchial spasms and pulmonary edema. The following exposure limits for caprolactam have been established by

MATERIAL SAFETY DATA SHEET

MSDS Name: BC WHITE
MSDS Number: 9210-90083
Version Number
MSDS Date: 050701

ACGIH and OSHA: Vapor: 5 ppm TWA, 10 ppm STEL. Dust: 1mg/m3 TWA, 3 mg/m3 STEL. For monomeric isocyanate, vapor: OSHA PEL 0.005 ppm, ACGIH-TLV 0.005 TWA. Dust: 0.02 mg/m3 TWA, 0.045 mg/m3 TWA.

TRIGLYCIDYL ISOCYANUNATE:
Overexposure to this product can cause irritation to eyes, skin, and respiratory tract; loss of appetite; may cause nosebleeds; toxic by ingestion and if absorbed through the skin. Prolonged or repeated contact may cause skin sensitization. Animal studies show that overexposure can result in toxic effects to the testes, possible effects on liver and lungs, and possiblesdverse male reproductive effects.

Lethal Dose	Oral (LD50)	Skin (LD50)	Inhale (LC50)
1,3,5 Triglycidyl Iso.	440 mg/kg Rat	>2000mg/kg Rat	2000mg/cu.m/4hr Rat

With powder contamination 6% TGIC, no toxic effects in rats were observed after 2 weeks of exposure at concentrations of 70 mg/cu.m.; no respiratory lesions or systemic toxicity was producted. Using a restriction research exposure, mice exposed to 10 mg/m3 for 6hrs/day for 5 days did not have any observable effects on the animals overall health or spermatogonia.

TITANIUM DIOXIDE:
Inhalation of titanium Dioxide can cause lung irritation. In an inhalation study evidence of lung cancer was found in 1 out of 77 male rats and 13 out of 74 female rats after they were exposed to 250 mg/m3 titanuim dioxide dust for a two year period. The exposure level of 250mg/m3 is approximately 50 times that permitted in an occupational environment and is not expected to correlate to human exposure.

SECTION XII - ECOLOGICAL INFORMATION

None known.

MATERIAL SAFETY DATA SHEET

MSDS Name: BC WHITE
MSDS Number: 9210-90083
Version Number
MSDS Date: 050701
Page Number: 8 of 8

SECTION XIII – DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state, and federal regulations.

SECTION XIV – TRANSPORT INFORMATION

UN Number
UN Pack Group
UN Class
ICAO/IATA Class
Shipping Name BC WHITE

SECTION XV – REGULATORY INFORMATION

SECTION XVI – OTHER INFORMATION

The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof, we assume no responsibility for injury from the use of the product described herein.

Last Page

UN Number
UN Pack Group
UN Class
ICAO/IATA Class
Shipping Name CONDUCTIVE BLACK POLY

SECTION XV - REGULATORY INFORMATION

SECTION XVI - OTHER INFORMATION

The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof, we assume no responsibility for injury from the use of the product described herein.

MATERIAL SAFETY DATA SHEET

MSDS Name: CONDUCTIVE BLACK POLY
MSDS Number: 9012-9965
Version Number
MSDS Date: 012401

SECTION I - PRODUCT AND COMPANY INFORMATION

Product Name: CONDUCTIVE BLACK POLY
Hazard Rating: Health: 2 Fire: 1 Reactivity: 0 PPI: E

Company Identification: TCI POWDER COATINGS
610 DIXON DR.
ELLAVILLE GA 31806

Contact: MARK BLALOCK
Telephone/Fax: 800-533-9067 (912)937-2904
Emergency Phone (24 Hour): MARK BLALOCK
800-533-9067

Product Class
Trade Name
Product Code 9012-9965

SECTION II - INGREDIENT AND HAZARD INFORMATION

Ingredient Name	CAS Number	Percent
1,3,5-TRIGLYCIDYL ISOCYANURATE	2451-62-9	3-6

HMIS Health: 2 Fire:1 Reactivity:0 PPI:X____
*** ALL Ingredients in this product are listed in the T.S.C.A. Inventory

Product composition other than ingredients with established airborne exposure limits will be considered nuisance dust. All ingredients n this product are listed in the T.S.C.A. inventory.

SECTION III - HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eyes. Inhalation. Skin

Skin Contact: Incindental contact is not expected to cause irritation.

Eye Contact: May cause slight to mild redness and burning. May cause mechanical irritation.

Inhalation: In the event this product does not contain ingredients with airborne exposure limits, it is considered a nuisance dust. No effects are expected when exposures are maintained below the exposure limits of section 8. Lung and respiratory conditions may be aggravated by exposure.

Ingestion: May cause pain and upset stomach.

SECTION IV - FIRST AID MEASURES

e Contact: Immeditaely flush eyes with cool water for 15 minutes, ccaisionally lifting lids to ensure complete rinsing. Seek medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. Remove and wash clothing and shoes before reuse. Seek medical attention if irritation persists.

Inhalation: Remove to fresh air. If breathing difficulties develop, seek medical attention. If necessary, give artificial respiration.

Ingestion: Seek immediate medical attention. Wash out mouth with water followed by a cupful of water to drink. Repeat if vomiting occurs. Never give anything by mouth to an unconscious person.

SECTION V - FIRE-FIGHTING MEASURES

Flammability Class	IIIB
Flash Range:	Not Applicable
Explosive Range:	30 GM/M3
	70 GM/M3

Extinguishing Media:
Foam, CO2, dry chemical, water spray.

Fire and Explosion Hazards: The HMIS/NFPA rating changes from 1 to 4 when powder is transferred from a closed container to a process at concentrations reaching the explosive limit.

Firefighting Instructions:
Use fully protective equipment with self-contained breathing apparatus.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Sweep up carefully or use explosion-proof vacuum cleaner. Then dispose inaccordance with local, state, and federal regulations.

SECTION VII - HANDLING AND STORAGE

Keep all equipment clean and work areas free from dust. Avoid excessive skin contact. Do not ingest or inhale. Personnel handling product should be trained in it's proper use. Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities.

Store in a cool, dry well ventillated area away from heat, ignition sources, and direct sunlight. Keep containers tightly closed.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

	ACGIH TLV	ACGIH TLV-C	ACGIH STEL	OSHA STEL	OSHA PEL
1,3,5-TRIGLYCIDYL ISOCYANURATE	0.05 mg/M3	N/est	N/est	N/est	N/est
Nuisance Dust	10 mg/m3	N/est	N/est	N/est	10 mg/m3

ENGINEERING CONTROLS: Provide ventilation to keep air contamination concentration below established airborne exposure limits (TLV's or PEL's). Explosion proof exhaust ventilation is recommended. Ventilation equipment, baghouse, and cyclone dust collection should be grounded. Curing ovens should be properly vented to prevent fumes from entering the workplace.

RESPIRATORS:
Use a properly fitted NIOSH/MSHA approved respirator to avoid breathing dust.

SKIN PROTECTION:
Protective gloves & clothing recommended.

EYE PROTECTION:
Goggles or safety glasses with side-shields recommended.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Form: SOLID
Appearance/Color: BLACK

Odor:	NEGLIGIBLE
Solubility (in water):	INSOLUBLE
pH Value:	Not Applicable
Boiling Range:	Not Applicable
Vapor Pressure (mmHg):	Not Applicable
Melting Point:	230.°F
Evaporation Rate:	
Vapor Density:	
Partition Coefficient	
% Volatile Weight	Not Applicable
% Volatile	Not Applicable
Specific Gravity:	1.00
Molecular Weight:	
Heavy Elements (ppm)	0.

SECTION X - STABILITY AND REACTIVITY

Stability: This product may be unstable
Hazardous Polymerization: Hazardous polymerization will not occur

.azardous decomposition products: Combustion biproducts may contain CO, CO2, NO2, or other nitrogen compounds.

SECTION XI - TOXICOLOGICAL INFORMATION

Product: Extended inhalation of dust can lead to particulate deposition in the lungs.

COMPONENTS:

TRIGLYCIDYL ISOCYANUNATE:
Overexposure to this product can cause irritation to eyes, skin, and respiratory tract; loss of appetite; may cause nosebleeds; toxic by ingestion and if absorbed through the skin. Prolonged or repested contact may cause skin sensitization. Animal studies show that overexposure can result in toxic effects to the testes, possible effects on liver and lungs, and possiblesdverse male reproductive effects.

Lethal Dose	Oral (LD50)	Skin (LD50)	Inhale (LC50)
1,3.5 Triglycidyl Iso.	440 mg/kg Rat	>2000mg/kg Rat	2000mg/cu.m/4hr Rat

With powder contamination 6% TGIC, no toxic effects in rats were observed after 2 weeks of exposure at concentrations of 70 mg/cu.m.; no respiratory lesions or systemic toxicity was producted. Using a restriction research exposure, mice exposed to 10 mg/m3 for 6hrs/day for 5 days did not have any observable effects on the animals overall health or spermatogonia.

SECTION XII - ECOLOGICAL INFORMATION

None Known.

SECTION XIII - DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state, and federal regulations.

SECTION XIV - TRANSPORT INFORMATION

UN Number
UN Pack Group
UN Class
ICAO/IATA Class
Shipping Name CONDUCTIVE BLACK POLY

SECTION XV - REGULATORY INFORMATION

SECTION XVI - OTHER INFORMATION

The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof, we assume no responsibility for injury from the use of the product described herein.

DS Name: AWNING BROWN
DS Number: 9610-8307
Version Number
MSDS Date: 100400
Page Number: 1 of 7

9610-8307

SECTION I - PRODUCT AND COMPANY INFORMATION

Product Name:	AWNING BROWN
Hazard Rating:	Health: 2 Fire: 1 Reactivity: 1 PPI: E
Company Identification:	TCI POWDER COATINGS 610 DIXON DR. ELLAVILLE GA 31806
Contact:	MARK BLALOCK
Telephone/Fax:	800-533-9067 (912)937-2904
Emergency Phone (24 Hour):	MARK BLALOCK 800-533-9067
Product Class	
Trade Name	
Product Code	9610-8307

SECTION II - INGREDIENT AND HAZARD INFORMATION

Ingredient Name	CAS Number	Percent
BARIUM SULFATE	7727-43-7	15-30
HMIS Health: 1 Fire:0 Reactivity:0 PPI:E____		
1,2,5-TRIGLYCIDYL ISOCYANURATE	2451-62-9	3-6
HMIS Health: 2 Fire:1 Reactivity:0 PPI:X____		
CARBON BLACK	1333-86-4	0-5
HMIS Health: 1 Fire:1 Reactivity:1 PPI:E____		

*** All Ingredients in this product are listed in the T.S.C.A. Inventory

Product composition other than ingredients with established airborne exposure limits will be considered nuisance dust. All ingredients n

this product are listed in the T.S.C.A. inventory.

SECTION III - HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eyes, Inhalation, Skin

Skin Contact: Incindental contact is not expected to cause irritation.

Eye Contact: May cause slight to mild redness and burning. May cause mechanical irritation.

Inhalation: In the event this product does not contain ingredients with airborne exposure limits, it is considered a nuisance dust. No effects are expected when exposures are maintained below the exposure limits of section 8. Lung and respiratory conditions may be aggravated by exposure.

Ingestion: May cause pain and upset stomach.

SECTION IV - FIRST AID MEASURES

Eye Contact: Immeditaely flush eyes with cool water for 15 minutes, occaisionally lifting lids to ensure complete rinsing. Seek medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. Remove and wash clothing and shoes before reuse. Seek medical attention if irritation persists.

Inhalation: Remove to fresh air. If breathing difficulties develop, seek medical attention. If necessary, give artificial respiration.

Ingestion: Seek immediate medical attention. Wash out mouth with

water followed by a cupful of water to drink. Repeat if vomiting occurs. Never give anything by mouth to an unconscious person.

SECTION V - FIRE-FIGHTING MEASURES

Flammability Class	IIIB
Flash Range:	Not Applicable
Explosive Range:	30 GM/M3
	70 GM/M3

Extinguishing Media:
Foam, CO2, dry chemical, water spray.

Fire and Explosion Hazards: The HMIS/NFPA rating changes from 1 to 4 when powder is transferred from a closed container to a process at concentrations reaching the explosive limit.

Firefighting Instructions:
Use fully protective equipment with self-contained breathing apparatus.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Sweep up carefully or use explosion-proof vacuum cleaner. Then dispose inaccordance with local, state, and federal regulations.

SECTION VII - HANDLING AND STORAGE

Keep all equipment clean and work areas free from dust. Avoid excessive skin contact. Do not ingest or inhale. Personnel handling product should be trained in it's proper use. Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities.

Store in a cool, dry well ventillated area away from heat, ignition sources, and direct sunlight. Keep containers tightly closed.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

	ACGIH TLV	ACGIH TLV-C	ACGIH STEL	OSHA STEL	OSHA PEL
BARIUM SULFATE	10.00 mg/M3	N/est	N/est	N/est	5.00 mg/M3
2,5-TRIGLYCIDYL ISOCYANURATE	0.05 mg/M3	N/est	N/est	N/est	N/est
CARBON BLACK	3.50 mg/M3	N/est	N/est	N/est	3.50 mg/M3
Nuisance Dust	10 mg/m3	N/est	N/est	N/est	10 mg/m3

ENGINEERING CONTROLS: Provide ventilation to keep air contamination concentration below established airborne exposure limits (TLV's or PEL's). Explosion proof exhaust ventilation is recommended. Ventilation equipment, baghouse, and cyclone dust collection should be grounded. Curing ovens should be properly vented to prevent fumes from entering the workplace.

RESPIRATORS:
Use a properly fitted NIOSH/MSHA approved respirator to avoid breathing dust.

SKIN PROTECTION:
Protective gloves & clothing recommended.

EYE PROTECTION:
Goggles or safety glasses with side-shields recommended.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Form:	SOLID
Appearance/Color:	BROWN
Odor:	NEGLIGIBLE
Solubility (in water):	INSOLUBLE
pH Value:	Not Applicable
Boiling Range:	Not Applicable
Vapor Pressure (mmHg):	Not Applicable
Melting Point:	230.°F
Evaporation Rate:	
Vapor Density:	
Partition Coefficient	
% Volatile Weight	Not Applicable
% Volatile	Not Applicable
Specific Gravity:	1.00
Molecular Weight:	
Heavy Elements (ppm)	0.

SECTION X - STABILITY AND REACTIVITY

Stability:	This product may be unstable
Hazardous Polymerization:	Hazardous polymerization will not occur

Hazardous decomposition products: Combustion biproducts may contain CO, CO2, NO2, or other nitrogen compounds.

SECTION XI - TOXICOLOGICAL INFORMATION

Product: Extended inhalation of dust can lead to particulate deposition in the lungs.

COMPONENTS:

BARIUM SULFATE:
Inhalation of fine barite dust may cause irritationof the nose & throat by mechanical action. Prolonged or repeated inhalation may cause baritosis, a benign pneumoconiosis, with some signs of chronic bronchial irritation.

CARBON BLACK:
Carbon black has been evaluated by the International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans (Group 2B), however, epidemiological studies of workers in the carbon black producing industries of North America & Western Europe show no evidence of clinically significant adverse health effects due to occupational exposure to Carbon Black.

TRIGLYCIDYL ISOCYANUNATE:
Overexposure to this product can cause irritation to eyes, skin, and respiratory tract; loss of appetite; may cause nosebleeds; toxic by ingestion and if absorbed through the skin. Prolonged or repeated contact may cause skin sensitization. Animal studies show that overexposure can result in toxic effects to the testes, possible affects on liver and lungs, and possiblesdverse male reproductive

effects.

Lethal Dose	Oral (LD50)	Skin (LD50)	Inhale (LC50)
1,3,5 Triglycidyl Iso.	440 mg/kg Rat	)2000mg/kg Rat	2000mg/cu.m/4hr Rat

With powder contamination 6% TGIC, no toxic effects in rats were observed after 2 weeks of exposure at concentrations of 70 mg/cu.m.; no respiratory lesions or systemic toxicity was producted. Using a restriction research exposure, mice exposed to 10 mg/m3 for 6hrs/day for 5 days did not have any observable effects on the animals overall health or spermatogonia.

SECTION XII - ECOLOGICAL INFORMATION

None known.

SECTION XIII - DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state, and federal regulations.

SECTION XIV - TRANSPORT INFORMATION

N Number
N Pack Group
Class
AO/IATA Class
ipping Name AWNING BROWN

TION XV - REGULATORY INFORMATION

SECTION XVI - OTHER INFORMATION

The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof, we assume no responsibility for injury from the use of the product described herein.

Last Page

Attn: Bob Frank

Extra 477

TIGER DRYLAC U.S.A INC.
1251 EAST BELMONT STREET ONTARIO, CA 91761

MATERIAL SAFETY DATA SHEET
for "Tiger"-Drylac Prod. Name: 49/65920

Page: 1
Version Date: 07/01/98
Issue Date: 07/02/99

Emergency Numbers: Phone: (909) 930-9100
Fax : (909) 930-9111

This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

****

S E C T I O N I - Identity

TRADE NAME: TIGER DRYLAC U.S.A INC.
PRODUCT NAME: 49/65920 - SONAR BROWN SEMIGLOSS
CHEMICAL FAMILY: POLYESTER/TGIC
CHEMICAL NAME:
CAS NUMBER: NONE ASSIGNED
PRODUCT USE: OUTDOOR

****

S E C T I O N II - Hazardous Ingredients

all components marked with an * are subject to the reporting requirements of the Section 313 of the Emergency Planning and Community - Right - To Know Act of 1986 (SARA Title III)

	ACGIH TLV	OSHA PEL	Content
T.GLYCID.I.CYANURATE			0 - 5 %
CAS # 2451-69-9	N/E	N/E	

****

TIGER DRYLAC U.S.A INC.
1251 EAST BELMONT STREET ONTARIO, CA 91761

MATERIAL SAFETY DATA SHEET
for "Tiger" Drylac - Prod. Name: 49/65920
Version Date: 07/01/98
Issue Date: 07/02/99

Emergency Numbers: Phone: (909) 930-9100
Fax : (909) 930-9111

S E C T I O N III - Physical Data

APPEARANCE AND ODOR:	Finely divided powder - slightly, if any, odor
MELTING POINT:	185-235 degree F (85-115 degree C)
PERCENT VOLATILES BY WT:	+/- 1
SOLUBILITY IN WATER:	Negligible
SPECIFIC GRAVITY:	Equal or greater 1.2 (H20 = 1)

S E C T I O N IV - Fire and Explosion Hazard Data

FLASH POINT: Not applicable.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Dust can form an explosive mixture with air. Elimination of sources of ignition is essential. Fumes may be toxic.

LOWER EXPLOSIVE LIMIT: 40g/m3

EXTINGUISHING MEDIA: Water (most effective as mist or spray), carbon dioxide, foam, dry chemical.

S E C T I O N V - Health Hazards

GENERAL: Treat as nuisance dust, avoid inhalation, mechanical eye and and skin irritation may occur. May cause dermatitis and sensitization in susceptible individuals.

General First Aid Procedures:
If exposure leads to adverse reaction promptly start the First Aid Procedures recommended below.If conditions persist seek medical attention.

Eye contact:
Flush eyes with water for 15 minutes.Hold eyelids apart to

TIGER DRYLAC U.S.A INC.
1251 EAST BELMONT STREET ONTARIO, CA 91761

MATERIAL SAFETY DATA SHEET
for "Tiger" Drylac - Prod. Name: 49/65920
Version Date: 07/01/98
Issue Date: 07/02/99

Emergency Numbers: Phone: (909) 930-9100
Fax : (909) 930-9111

assure wetting of the entire eye and lid. If irritation develops consult a physician.

Skin contact:

Wash all affected areas with water and mild soap. Remove and clean any contaminated clothing and shoes before reuse. Seek medical attention if irritation develops.

Inhalation:

Remove from dusty area to fresh air. If victim is not breathing give artificial respiration and call a physician. If breathing is difficult give pure oxygen and call a physician.

Ingestion:

If swallowed dilute with water and immediately induce vomitting. If victim is unconcious do not induce vomitting or give fluids. Seek medical attention.

Proposition 65 Statement:

WARNING: This product contains chemicals known by the State of California tocause cancer and birth defects or other reproductive harm.

Effects of overexposure to TGIC

Contact with skin and eyes may result in possible irritation and sensitization Inhalation and Ingestion : headache, nosebleeding respiratory irritation

Carcinogenicity:	OSHA	NO	IARC	NO	NTP NO
Toxicological data:					
Rat, oral LD 50					715mg/kg
Rat, dermal LD 50					> 2,000mg/kg
Mice, male LC 50 (4hrs)					2000mg/m3
Mice, male LC 50 (5 days, 6hrs/d)					100mg/m3
Rabbit, eyes					positive irritant
Rabbit, skin					mildly irritating
Guinea pig skin					strong sensitizing
Mutagenicity, Ames Test					
Salmonella Typhimuruium					positive
Escherichia Choli					negative

A study concluded in the summer of 1991 showed that a generic powder coating

TIGER DRYLAC U.S.A INC.
1251 EAST BELMONT STREET ONTARIO, CA 91761

MATERIAL SAFETY DATA SHEET
for "Tiger"-Drylac - Prod. Name: 49/65920
Version Date: 07/01/98
Issue Date: 07/02/99

Emergency Numbers: Phone: (909) 930-9100
Fax : (909) 930-9111

S E C T I O N VII - Spill or Leak Procedures

Eliminate ignition source and avoid dust clouds. Wear an approved respiratorand appropriate protective clothing.
Uncontaminated material may be scooped for reuse. Otherwise shovel and sweepor vacuum (with spark free vacuum) into container for disposal facility inaccordance with all local, state and federal regulations.

S E C T I O N VIII - Special Protection Information

VENTILATION: Use local exhaust ventilation to keep exposure well below established TLV's and PEL's.Ventilation Equipment,Baghouse Filter and Cyclone dust collectors should be explosion proof and electrically grounded.Curing ovens should be properly vented to prevent off gas and fumes from entering the workplace.

DO NOT use higher curing temperatures than 400 F (approximately 200 C)

RESPIRATORY PROTECTION: Use NIOSH approved nose-mouth cartridge filter type dust respirator or an other suitable device to prevent inhalation and ingestion of dust and fumes.
Comply with OSHA 29 CFR 1910.134, respiratory protection.

EYE PROTECTION: Safety glasses are recommended in general industrial areas; use dustproof goggles in areas containing particulate matter

FURTHER PROTECTIVE EQUIPMENT: Permeation resistent gloves are recommended for prolonged and/or repeated contact with powder.
Wear appropriate clothing to minimize skin contact and contact with street clothes.

TIGER DRYLAC U.S.A INC.
1251 EAST BELMONT STREET ONTARIO, CA 91761

MATERIAL SAFETY DATA SHEET
for "Tiger"-Drylac - Prod. Name: 49/65920
Version Date: 07/01/98
Issue Date: 07/02/99

Emergency Numbers: Phone: (909) 930-9100
Fax : (909) 930-9111

S E C T I O N IX - Special Precautions

HANDLING AND STORAGE: Store in a cool, dry place. Handling can create explosive dust clouds. Eliminate ignition source. Use explosion proof electrical equipment. Processing equipment must be grounded.

Morton

MATERIAL SAFETY DATA SHEET

21-7001 CORVEL FLAT BLACK TEXT
MSDS Number: 22603-1-4
Effective: 12/13/96
Supersedes: 8/17/96

CHEMICAL PRODUCT AND COMPANY INFORMATION

Product ID: 21-7001 CORVEL FLAT BLACK TEXT
Generic Description: Polyester
Product Use: Corvel (R) Coating Powder

For customer service/technical information, contact:
Morton Powder Coatings
Corporate Center, Number 5 Commerce Dr.
PO Box 15240
Reading PA 19612-5240
610-775-6600

MSDS prepared by:
Toxicology and Regulated Substance Compliance
David Wienckowski, D.A.B.T.
100 N. Riverside Plaza
Chicago IL 60606
312-807-3422

ChemTrec Emergency
1-800-424-9300

HAZARD RATINGS		
	HMIS	NFPA
Health	1*	1
Fire	1	1
Reactivity	0	0
	* = Chronic	

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMMON NAME	CAS #	Approximate % (w/w)
Calcium carbonate	471-34-1	30 - 40
Blocked polyisocyanate	Not available	10 - 20
Carbon black	1333-86-4	1 - 5
Quartz (crystalline silica)	14808-60-7	0 - 1
Non-hazardous and other ingredients below reportable levels	Proprietary	Balance

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: IF PRODUCT DOES NOT CONTAIN INGREDIENTS WITH ESTABLISHED AIRBORNE EXPOSURE LIMITS, THIS MATERIAL IS CONSIDERED A NUISANCE PARTICULATE. INGESTION MAY CAUSE PAIN, UPSET STOMACH, DIARRHEA. MAY CAUSE EYE IRRITATION. MAY CAUSE MECHANICAL EYE IRRITATION. DO NOT SWALLOW. See sections 3, 5, & 6.

PRIMARY ROUTES OF EXPOSURE: Eye. Skin. Inhalation (breathing).

EYE CONTACT: May cause slight to mild irritation. May cause mechanical irritation.

SKIN CONTACT: Incidental contact is not expected to cause irritation.

INHALATION (Breathing): If this product does not contain ingredients with established airborne exposure limits (see Exposure Guidelines in section 8), this material is considered a nuisance particulate. No effects are expected when exposures are maintained below the following limits: OSHA PEL - 5 mg/M3 (respirable particulates), 15 mg/M3 (total particulates); ACGIH TLV - 10 mg/M3 (total particulates).

GESTION (Swallowing): Not hazardous in normal industrial use. May cause pain and stomach upset (e.g., diarrhea).

TARGET ORGANS/CHRONIC EFFECTS: Eyes.

CONDITIONS AGGRAVATED BY EXPOSURE: Lungs and respiratory system.

CARCINOGENICITY:

	ACGIH	IARC	NTP	OSHA
Calcium carbonate	No	No	No	No
Blocked polyisocyanate	No	No	No	No
Carbon black	No	2B	No	No
Quartz (crystalline silica)	No	2A	Yes	No

4. FIRST AID MEASURES

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irriation persists.

SKIN CONTACT: Immediately flush with water. Remove contaminated clothing and shoes. Get medical attention if irritation persists. Professionally wash clothing and shoes before re-use.

INHALATION (Breathing): Remove to fresh air. If symptoms develop, seek immediate medical attention. If not breathing, give artificial respiration.

INGESTION (Swallowing): Obtain immediate medical attention. Rinse mouth thoroughly with water, and give a cupful of water to drink. If vomiting occurs, repeat rinsing and give another cupful of water. Never give anything by mouth to an unconscious person.

NOTES TO PHYSICIANS: Treatment should be directed at preventing absorption, administering to symptoms (if they occur), and providing supportive therapy.

5. FIRE FIGHTING METHODS

Flash Point...: Not Applicable Method.....: Not Applicable
Explosive Lmts: LEL(%) 30 - 70 g/M3 UEL(%) Not Determined
Autoignition..: Not Determined

HAZARDOUS COMBUSTION AND DECOMPOSITION PRODUCTS: Smoke, soot, and toxic/irritating fumes (i.e., carbon dioxide, carbon monoxide, etc.).

FIRE AND EXPLOSION HAZARDS: Bulk powder in storage or being transferred in closed containers has an HMIS/NFPA flammability rating of 1. If this material is transferred into a process or dispersed in a powder coating operation where concentrations can reach the explosive limit, the HMIS/NFPA flammability rating is 4. Dusts at sufficient concentrations can form explosive mixtures with air. During a fire, irritating and toxic gases may be generated during combustion or decomposition.

EXTINGUISHING MEDIA: SMALL FIRES: Foam, carbon dixoide, dry chemical, water spray. LARGE FIRES: Foam, water spray, or fog.

FIRE FIGHTING PROCEDURES/EQUIPMENT: Fire fighters and others who may be exposed to the products of combustion should be equipped with NIOSH-approved positive pressure self-contained breathing apparatus (SCBA) and full protective clothing.

ACCIDENTAL RELEASE MEASURES

EVACUATION: Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Eliminate all sources of ignition.

CONTAINMENT: Safely stop discharge. Contain material, as necessary, with a dike or barrier. Stop material from contaminating soil, or from entering sewers or bodies of water.

CLEAN-UP/PERSONAL PROTECTION EQUIPMENT: Appropriate safety measures and protective equipment should be used.

COLLECTION AND DISPOSAL: Shovel or vacuum material and place in chemical waste containers. Use non-sparking tools and/or explosion-proof equipment. Dispose of according to applicable local, state and federal regulations.

REPORTING: Spills of this material in excess of a components's RQ must be reported to the National Response Center (1-800-424-8802) and to the appropriate state and local emergency response organizations.
No regulated ingredients.

7. HANDLING AND STORAGE

STORAGE CONDITIONS: Store in cool, dry, well ventilated area away from heat, ignition sources, and direct sunlight. Keep containers tightly closed.

TRANSFER: No special precautions are needed. Follow good manufacturing and handling practices.

ERSONAL HYGIENE: Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities. Wash contaminated goggles faceshield, and gloves. Professionally launder contaminated clothing before re-use.

EMPTY CONTAINER PRECAUTIONS: Attention! This container can be hazardous when empty. Follow label warnings even after container is emptied since empty containers may retain product residues. Do not reuse empty container without professional cleaning for food, clothing, or products for human or animal consumption or where skin contact can occur.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINES:

ACGIH - TLV

Calcium carbonate	10 mg/M3	Total dust
Carbon black	3.5 mg/M3	
Quartz (crystalline silica)	0.1 mg/M3	Resp. dust

OSHA - PEL

Calcium carbonate	5 mg/M3	Resp. dust
Carbon black	3.5 mg/M3	
Quartz (crystalline silica)	0.01 mg/M3	

ENGINEERING CONTROLS/VENTILATION: Local exhaust ventilation is recommended when dusts can be released in excess of established airborne exposure limits (TLVs or PELs). Explosion-proof exhaust ventilation is recommended when excessive levels of dusts are generated. Ventilation equipment, baghouse and cyclone dust collection system should be explosion proof and grounded. Curing

/ens should be properly vented to prevent fumes from entering the workplace.

EYE PROTECTION: An eye wash facility should be readily available. Dust-proof goggles are recommended for use in areas containing particulate matter. Safety glasses are recommended for general industrial use.

SKIN PROTECTION: Wear protective clothing and appropriate impervious gloves. Because a variety of protective gloves exist, consult glove manufacturer to determine the proper type for a specific operation.

RESPIRATORY PROTECTION: Avoid breathing dust. Industrial hygiene consultation is recommended because airborne exposure levels vary depending on the nature of the operation performed. Use NIOSH/MSHA approved respirator equipped with a HEPA filter or an appropriate respiratory device for particulates and fumes. Determine the appropriate type by consulting the respirator manufacturer. High airborne concentrations may necessitate the use of self-contained breathing apparatus (SCBA) or a supplied air respirator. Respiratory protection programs must be in compliance with 29 CFR 1910.134.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance....: See Section 1	Odor.....: Slight, if any
Physical State: Fine powder	Solubility....: Negligible
pH.....: Not Applicable	Freeze/Melt...: 194F - 248F 90C - 120C
VOC Material..: Not Applicable	Specific Grvty: Not Determined
%Non-Vol(w/w).: > 99	

NOTE: The physical data presented above are typical values and should not be construed as a specification.

ADDITIONAL INFORMATION: Measured volatiles are absorbed water (per EPA Reference Method 24 {ASTM D-2369-86}).

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under normal conditions of use.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: High temperatures.

INCOMPATIBILITY WITH OTHER MATERIALS: Oxidizers. Acids.

11. TOXICITY INFORMATION

PRODUCT:
Prolonged breathing of dust can lead to particulate deposition within the lungs.

COMPONENTS:

Calcium carbonate:
Repeated exposure to dusts can lead to particulate deposition in the lungs (i.e., pneumoconiosis).

Blocked polyisocyanate:
Inhalation of vapors generated during the curing process should be avoided. Neat material is essentially non-hazardous at ambient temperatures, but normal curing conditions (i.e., 120 C to 200 C) may lead to the generation of free

isocyanate-containing compounds. Caprolactam is also released during curing. Caprolactam dust or vapors may cause central nervous system effects at levels greater than 2 mg/kg for dust or 10 ppm for vapors. Isocyanates can produce dermal and/or respiratory sensitization. Adequate oven ventilation is essential. Do not vent curing oven exhausts into the workplace or other areas where potential human contact may occur. ACGIH TLV for many isocyanates is 0.005 ppm. Caprolactam: 1 mg/M3 ACGIH TLV/OSHA PEL (dusts), 3 mg/M3 ACGIH STEL/OSHA STEL (dusts); 5 ppm ACGIH TLV/OSHA PEL (vapor), 10 ppm ACGIH STEL/OSHA STEL (vapor).

Carbon black:
Inhalation studies in rats have shown increased rates of benign and malignant lung tumors. Solvent extracts of carbon black have been shown to be carcinogenic to the skin of mice. However, epidemiological studies of carbon black workers in the United States show no increased incidence of cancer deaths compared to the general population. Dust can irritate eyes and skin.

Quartz (crystalline silica):
Chronic exposure to dusts can cause silicosis. Studies indicate that lung cancer is more prevalent in individuals affected with silicosis.

12. ECOLOGICAL INFORMATION

No data are available on this product.

13. DISPOSAL CONSIDERATIONS

DISPOSAL: Dispose in accordance with all local, state, and federal regulations.

GENERAL STATEMENTS: Federal regulations may apply to empty container. State and/or local regulations may be different.

GENERAL RECOMMENDATIONS: Of the methods of disposal currently available, it is recommended that an alternative be selected according to the following order of preference, based upon environmental acceptability: (1) recycle or rework, if feasible; (2) incinerate at an authorized facility; or (3) treat at an acceptable waste treatment facility.

SPECIAL INSTRUCTIONS: Be sure to contact the appropriate government environmental agencies if further guidance is required.

14. TRANSPORT INFORMATION

Weight (lb)	Shipping Name	49 CFR	IATA	IMO
	Non-regulated	Y	Y	Y

DOT Label.....: Not applicable
DOT Label No..: L199

UN/NA Id Num..: Not Applicable

15. REGULATORY INFORMATION

FEDERAL:

This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

SARA Title III - Section 311/312 - Hazard Categories:
N- Fire Hazard
N- Sudden Release of Pressure Hazard

MATERIAL SAFETY DATA SHEET

MSDS Name: HUNTER GREEN
MSDS Number: 9910-6321
Version Number
MSDS Date: 100400
Page Number: 1 of 8

9910-6321

SECTION I - PRODUCT AND COMPANY INFORMATION

Product Name:	HUNTER GREEN
Hazard Rating:	Health: 2 Fire: 1 Reactivity: 1 PPI: E
Company Identification:	TCI POWDER COATINGS 610 DIXON DR. ELLAVILLE GA 31806
Contact:	MARK BLALOCK
Telephone/Fax:	800-533-9067 (912)937-2904
Emergency Phone (24 Hour):	MARK BLALOCK 800-533-9067
Product Class	
Grade Name	
Product Code	9910-6321

SECTION II - INGREDIENT AND HAZARD INFORMATION

Ingredient Name	CAS Number	Percent
BARIUM SULFATE	7727-43-7	2-10
HMIS Health: 1 Fire:0 Reactivity:0 PPI:E____		
1,2,5-TRIGLYCIDYL ISOCYANURATE	2451-62-9	2-10
HMIS Health: 2 Fire:1 Reactivity:0 PPI:X____		
TITANIUM DIOXIDE	13463-67-7	0-5
HMIS Health: 0 Fire:0 Reactivity:0 PPI:E____		
CARBON BLACK	1333-86-4	0-5
HMIS Health: 1 Fire:1 Reactivity:1 PPI:E____		

*** ALL Ingredients in this product are listed in the T.S.C.A. Inventory

MATERIAL SAFETY DATA SHEET

MSDS Name: HUNTER GREEN
MSDS Number: 9910-6321
Version Number
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Product composition other than ingredients with established airborne exposure limits will be considered nuisance dust. All ingredients n this product are listed in the T.S.C.A. inventory.

SECTION III - HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eyes, Inhalation, Skin

Skin Contact: Incindental contact is not expected to cause irritation.

Eye Contact: May cause slight to mild redness and burning. May cause mechanical irritation.

Inhalation: In the event this product does not contain ingredients with airborne exposure limits, it is considered a nuisance dust. No effects are expected when exposures are maintained below the exposure limits of section 8. Lung and respiratory conditions may be aggravated by exposure.

Ingestion: May cause pain and upset stomach.

SECTION IV - FIRST AID MEASURES

Eye Contact: Immeditaely flush eyes with cool water for 15 minutes, occaisionally lifting lids to ensure complete rinsing. Seek medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. Remove and wash clothing and shoes before reuse. Seek medical attention if irritation persists.

Inhalation: Remove to fresh air. If breathing difficulties develop,

seek medical attention. If necessary, give artificial respiration.

Ingestion: Seek immediate medical attention. Wash out mouth with water followed by a cupful of water to drink. Repeat if vomiting occurs. Never give anything by mouth to an unconscious person.

SECTION V - FIRE-FIGHTING MEASURES

Flammability Class	IIIB
Flash Range:	Not Applicable
Explosive Range:	30 GM/M3
	70 GM/M3

Extinguishing Media:
oam, CO2, dry chemical, water spray.

Fire and Explosion Hazards: The HMIS/NFPA rating changes from 1 to 4 when powder is transferred from a closed container to a process at concentrations reaching the explosive limit.

Firefighting Instructions:
Use fully protective equipment with self-contained breathing apparatus.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Sweep up carefully or use explosion-proof vacuum cleaner. Then dispose inaccordance with local, state, and federal regulations.

MATERIAL SAFETY DATA SHEET

MSDS Name: HUNTER GREEN
MSDS Number: 9910-6321
Version Number
MSDS Date: 100400
Page Number: 4 of 8

SECTION VII - HANDLING AND STORAGE

Keep all equipment clean and work areas free from dust. Avoid excessive skin contact. Do not ingest or inhale. Personnel handling product should be trained in it's proper use. Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities.

Store in a cool, dry well ventillated area away from heat, ignition sources, and direct sunlight. Keep containers tightly closed.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

	ACGIH TLV	ACGIH TLV-C	ACGIH STEL	OSHA STEL	OSHA PEL
BARIUM SULFATE	10.00 mg/M3	N/est	N/est	N/est	5.00 mg/M3
1,2,5-TRIGLYCIDYL ISOCYANURATE	0.05 mg/M3	N/est	N/est	N/est	N/est
TTIANIUM DIOXIDE	10.00 mg/M3	N/est	N/est	N/est	15.00 mg/M3
CARBON BLACK	3.50 mg/M3	N/est	N/est	N/est	3.50 mg/M3
Nuisance Dust	10 mg/m3	N/est	N/est	N/est	10 mg/m3

ENGINEERING CONTROLS: Provide ventilation to keep air contamination concentration below established airborne exposure limits (TLV's or PEL's). Explosion proof exhaust ventilation is recommended. Ventilation equipment, baghouse, and cyclone dust collection should be

grounded. Curing ovens should be properly vented to prevent fumes from entering the workplace.

RESPIRATORS:
Use a properly fitted NIOSH/MSHA approved respirator to avoid breathing dust.

SKIN PROTECTION:
Protective gloves & clothing recommended.

EYE PROTECTION:
Goggles or safety glasses with side-shields recommended.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

.orm:	SOLID
Appearance/Color:	GREEN
Odor:	NEGLIGIBLE
Solubility (in water):	INSOLUBLE
pH Value:	Not Applicable
Boiling Range:	Not Applicable
Vapor Pressure (mmHg):	Not Applicable
Melting Point:	230.°F
Evaporation Rate:	
Vapor Density:	
Partition Coefficient	
% Volatile Weight	Not Applicable
% Volatile	Not Applicable
Specific Gravity:	1.00
Molecular Weight:	
Heavy Elements (ppm)	0.

SECTION X - STABILITY AND REACTIVITY

Stability: This product may be unstable

MATERIAL SAFETY DATA SHEET

MSDS Name: HUNTER GREEN
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Hazardous Polymerization: Hazardous polymerization will not occur

Hazardous decomposition products: Combustion biproducts may contain CO, CO2, NO2, or other nitrogen compounds.

SECTION XI - TOXICOLOGICAL INFORMATION

Product: Extended inhalation of dust can lead to particulate deposition in the lungs.

COMPONENTS:

BARIUM SULFATE:
Inhalation of fine barite dust may cause irritationof the nose & throat by mechanical action. Prolonged or repeated inhalation may cause baritosis, a benign pneumoconiosis, with some signs of chronic bronchial irritation.

CARBON BLACK:
Carbon black has been evaluated by the International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans (Group 2B), however, epidemiological studies of workers in the carbon black producing industries of North America & Western Europe show no evidence of clinically significant adverse health effects due to occupational exposure to Carbon Black.

TRIGLYCIDYL ISOCYANUNATE:

Overexposure to this product can cause irritation to eyes, skin, and respiratory tract; loss of appetite; may cause nosebleeds; toxic by ingestion and if absorbed through the skin. Prolonged or repeated contact may cause skin sensitization. Animal studies show that overexposure can result in toxic effects to the testes, possible effects on liver and lungs, and possiblesdverse male reproductive effects.

Lethal Dose	Oral (LD50)	Skin (LD50)	Inhale (LC50)
1,3,5 Triglycidyl Iso.	440 mg/kg. Rat	)2000mg/kg Rat	2000mg/cu.m/4hr Rat

With powder contamination 6% TGIC, no toxic effects in rats were observed after 2 weeks of exposure at concentrations of 70 mg/cu.m.; no respiratory lesions or systemic toxicity was producted. Using a restriction research exposure, mice exposed to 10 mg/m3 for 6hrs/day for 5 days did not have any observable effects on the animals overall health or spermatogonia.

TITANIUM DIOXIDE:
Inhalation of titanium Dioxide can cause lung irritation. In an inhalation study evidence of lung cancer was found in 1 out of 77 male rats and 13 out of 74 female rats after they were exposed to 250 mg/m3 titanuim dioxide dust for a two year period. The exposure level of 250mg/m3 is approximately 50 times that permitted in an occupational environment and is not expected to correlate to human exposure.

SECTION XII - ECOLOGICAL INFORMATION

None known.

SECTION XIII - DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state, and federal regulations.

MATERIAL SAFETY DATA SHEET

MSDS Name: HUNTER GREEN
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SECTION XIV - TRANSPORT INFORMATION

UN Number
UN Pack Group
UN Class
ICAO/IATA Class
Shipping Name HUNTER GREEN

SECTION XV - REGULATORY INFORMATION

SECTION XVI - OTHER INFORMATION

The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof, we assume no responsibility for injury from the use of the product described herein.

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

F - Paint Binder

Product ID: 10-7011 CORVEL FLAT BLACK
Generic Description: Epoxy
Product Use: Corvel (R) Coating Powder

For general information, contact:
Morton Powder Coatings
Corporate Center, Number 5 Commerce Dr.
PO Box 15240
Reading PA 19612-5240
610-775-6600

MSDS prepared by:
Toxicology and Regulated Substance Compliance
David Wienckowski, D.A.B.T.
100 N. Riverside Plaza
Chicago IL 60606
312-807-3422

HAZARD RATINGS		
	HMIS	NFPA
Health	1*	1
Fire	1	1
Reactivity	0	0
	* = Chronic	

ChemTrec Emergency
1-800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMMON NAME	CAS #	Approximate % (w/w)
Barium sulfate	7727-43-7	5 - 10
Carbon black	1333-86-4	1 - 5
Non-hazardous and other ingredients below reportable levels	Proprietary	Balance

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Do not inhale, can cause respiratory tract irritation. Powder (dust) may cause eye or skin irritation. Do not swallow, can cause digestive tract irritation. Do not create dust. See sections 3, 5, & 6.

PRIMARY ROUTES OF EXPOSURE: Eye. Skin. Inhalation (breathing).

EYE CONTACT: Causes slight to mild irritation. Can cause mechanical irritation.

SKIN CONTACT: Incidental contact is not expected to cause irritation.

INHALATION (Breathing): If this product does not contain ingredients with established airborne exposure limits (see Exposure Guidelines in section 8), this material is considered a nuisance particulate. No effects are expected when exposures are maintained below the following limits: OSHA PEL - 5 mg/M3 (respirable particulates), 15 mg/M3 (total particulates); ACGIH TLV - 10 mg/M3 (total particulates).

INGESTION (Swallowing): Not hazardous in normal industrial use. Can cause pain and stomach upset (e.g., diarrhea).

TARGET ORGANS/CHRONIC EFFECTS: Eyes.

CONDITIONS AGGRAVATED BY EXPOSURE: Lungs and respiratory system.

CARCINOGENICITY:

	ACGIH	IARC	NTP	OSHA
Barium sulfate	No	No	No	No
Carbon black	No	No	No	No

4. FIRST AID MEASURES

EYE CONTACT: Flush eyes with plenty of water for 15 minutes. Get medical attention if irritation occurs.

SKIN CONTACT: Remove contaminated clothing. Wash with soap and plenty of water. Get medical attention if irritation develops. Wash contaminated clothing separately before re-use.

INHALATION (Breathing): Remove to fresh air. If symptoms develop, seek immediate medical attention. If not breathing, give artificial respiration.

INGESTION (Swallowing): Obtain immediate medical attention. Rinse mouth thoroughly with water, and give approximately 8 ounces to drink. If vomiting occurs repeat rinsing and give 8 ounces again. Never give anything by mouth to a partially conscious, unconscious or convulsing person.

NOTES TO PHYSICIANS: Treatment should be directed at preventing absorption, administering to symptoms (if they occur), and providing supportive therapy.

5. FIRE FIGHTING METHODS

Flash Point...: Not Applicable Method.....: Not Applicable
Explosive Lmts: LEL(%) 30 - 70 g/M3 UEL(%) Not Determined
Autoignition..: Not Determined

HAZARDOUS COMBUSTION AND DECOMPOSITION PRODUCTS: Smoke, soot, and toxic/irritating fumes (i.e., carbon dioxide, carbon monoxide, etc.).

FIRE AND EXPLOSION HAZARDS: Bulk powder in storage or being transferred in closed containers has an HMIS/NFPA flammability rating of 1. If this material is transferred into a process or dispersed in a powder coating operation where concentrations can reach the explosive limit, the HMIS/NFPA flammability ra ting is 4. Dusts at sufficient concentrations can form explosive mixtures with air. During a fire, irritating and toxic gases may be generated during combustion or decomposition.

EXTINGUISHING MEDIA: SMALL FIRES: Foam, carbon dixoide, dry chemical, water spray. LARGE FIRES: Foam, water spray, or fog.

FIRE FIGHTING PROCEDURES/EQUIPMENT: Fire fighters and others who may be exposed to the products of combustion should be equipped with NIOSH-approved positive pressure self-contained breathing apparatus (SCBA) and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

EVACUATION: Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Eliminate all sources of ignition.

CONTAINMENT: Safely stop discharge. Contain material, as necessary, with a dike or barrier. Stop material from contaminating soil, or from entering sewers or bodies of water.

CLEAN-UP/PERSONAL PROTECTION EQUIPMENT: Appropriate safety measures and protective equipment should be used.

COLLECTION AND DISPOSAL: Shovel or vacuum material and place in chemical waste containers. Use non-sparking tools and/or explosion-proof equipment. Dispose of according to applicable local, state and federal regulations.

REPORTING: Spills of this material in excess of a components's RQ must be reported to the National Response Center (1-800-424-8802) and to the appropriate state and local emergency response organizations.
No regulated ingredients.

7. HANDLING AND STORAGE

STORAGE CONDITIONS: Store in cool, dry, well ventilated area away from heat, ignition sources, and direct sunlight. Keep containers tightly closed.

TRANSFER: No special precautions are needed. Follow good manufacturing and handling practices.

PERSONAL HYGIENE: Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities. Wash contaminated goggles faceshield, and gloves. Professionally launder contaminated clothing before re-use.

EMPTY CONTAINER PRECAUTIONS: Attention! This container can be hazardous when empty. Follow label warnings even after container is emptied since empty containers may retain product residues. Do not reuse empty container without professional cleaning for food, clothing, or products for human or animal consumption or where skin contact can occur.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINES:

ACGIH - TLV

Barium sulfate	10 mg/M3 Total dus
Carbon black	3.5 mg/M3

OSHA - PEL

Barium sulfate	10 mg/M3 Total dus
Carbon black	3.5 mg/M3

ENGINEERING CONTROLS/VENTILATION: Local exhaust ventilation is recommended when dusts can be released in excess of established airborne exposure limits (TLVs or PELs). Explosion-proof exhaust ventilation is recommended when excessive levels of dusts are generated. Ventilation equipment, baghouse and cyclone dust collection system should be explosion proof and grounded. Curing ovens should be properly vented to prevent fumes from entering the workplace.

EYE PROTECTION: An eye wash facility should be readily available. Dust-proof goggles are recommended for use in areas containing particulate matter. Safety glasses are recommended for general industrial use.

SKIN PROTECTION: Wear protective clothing and appropriate impervious gloves. Because a variety of protective gloves exist, consult glove manufacturer to determine the proper type for a specific operation.

RESPIRATORY PROTECTION: Avoid breathing dust. Industrial hygiene consultation is recommended because airborne exposure levels vary depending on the nature of the operation performed. Use NIOSH/MSHA approved respirator equipped with a HEPA filter or an appropriate respiratory device for particulates and fumes. Determine the appropriate type by consulting the respirator manufacturer. High airborne concentrations may necessitate the use of self-contained breat hing apparatus (SCBA) or a supplied air respirator. Respiratory protection programs must be in compliance with 29 CFR 1910.134.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance....: See Section 1	Odor.....: Slight, if any
Physical State: Fine powder	Solubility....: Negligible
pH.....: Not Applicable	Freeze/Melt...: 194F - 248F 90C - 120C
VOC Material..: Not Applicable	Specific Grvty: Not Determined
%Non-Vol(w/w).: > 99	

NOTE: The physical data presented above are typical values and should not be construed as a specification.

ADDITIONAL INFORMATION: Measured volatiles are absorbed water (per EPA Reference Method 24 {ASTM D-2369-86}).

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under normal conditions of use.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: High temperatures.

INCOMPATIBILITY WITH OTHER MATERIALS: Oxidizers. Acids.

11. TOXICITY INFORMATION

PRODUCT:
Prolonged breathing of dust can lead to particulate deposition within the lungs.

COMPONENTS:

Barium sulfate:
Repeated exposure to dusts can lead to particulate deposition in the lungs (i.e., pneumoconiosis).

Carbon black:
Dust can irritate eyes and skin.

12. ECOLOGICAL INFORMATION

No data are available on this product.

13. DISPOSAL CONSIDERATIONS

DISPOSAL: Dispose in accordance with all local, state, and federal regulations.

GENERAL STATEMENTS: Federal regulations may apply to empty container. State and/or local regulations may be different.

GENERAL RECOMMENDATIONS: Of the methods of disposal currently available, it is recommended that an alternative be selected according to the following order of preference, based upon environmental acceptability: (1) recycle or rework, if feasible; (2) incinerate at an authorized facility; or (3) treat at an acceptable waste treatment facility.

SPECIAL INSTRUCTIONS: Be sure to contact the appropriate government environmental agencies if further guidance is required.

14. TRANSPORT INFORMATION

Weight (lb)	Shipping Name	49 CFR	IATA	IMO
	Non-regulated	Y	Y	Y

DOT Label.....: Not applicable
DOT Label No..: L199
UN/NA Id Num..: Not Applicable

15. REGULATORY INFORMATION

FEDERAL:

This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

SARA Title III - Section 311/312 - Hazard Categories:
N- Fire Hazard
N- Sudden Release of Pressure Hazard
N- Reactivity Hazard
N- Immediate (acute) Health Hazard
Y- Delayed (chronic) Health Hazard

Ozone-Depleting Chemicals - No regulated ingredients.

SARA Section 302 Extremely Hazardous Mat - No regulated ingredients.

SARA Section 313 Toxic Chemicals - No regulated ingredients.

STATE RIGHT-TO-KNOW:

Pennsylvania - New Jersey R-T-K

Barium sulfate	7727-43-7	5 - 10
Carbon black	1333-86-4	1 - 5
Non-hazardous trade secret ingredient(s)	Proprietary	Balance

California - California Proposition 65 - No regulated ingredients.

CONEG - No data available.

CANADA:
This is a "controlled product" under the Canadian Workplace Hazardous Materials Information System (WHMIS).

CEPA - NPRI - No regulated ingredients.

16. OTHER INFORMATION

==========

The LC 50 for a 5 day ,6hrs/d repeated exposure was determined to be greate than 1700 mg/m3, the highest concentration tested.

Mutagenicity, Ames Test

Salmonella Typhimuruium	positive
Escherichia Coli	negative

Preliminary results from a mouse spermatogonial cell mutagenicity screen of generic powder containing 9% TGIC indicate a statistically significant in - creased rate of chromosomal abberations(genetic damage) at 800 mg/kg body weight,oral administration.Dose Levels of 266.7,88.9 and 29.8mg/kg bodyweig failed to elicit a statistically significant response.

Therefore,due to the probable mutagenic potential of Triglycidyl - isocyanurate the processing of this powder coating should be in strict compliance with the following recommendations:

* any skin contact with the uncured powder is to be avoided
* dust concentration in the workshop should not exceed 2.5mg/m3

Effects of overexposure to Barium Sulfate:

May cause mechanical irritation of eyes or,in great concentration overloading of the respiratory system.Others than that no signifi cant healthproblems related to Barium Sulfate.

Carcinogenicity: OSHA NO IARC NO NTP NO

Effects of overexposure to Titanium Dioxide:

Skin contact non irritating,non sensitizing may have a drying effect on skin Inhalation inert nuisance dust,temporary drying effect and irritation of mucous membranes possible.

Rat,oral LD50 > 9,000 mg/kg

Carcinogenicity: OSHA NO IARC NO NTP NO

Effects of overexposure to Amorphous Silica:

Silica is not toxic by ingestion.It is a permitted direct food additive.Synthetic Amorphous Silica has been studied in animals by exposure to respirable dust and intratracheal injection.No fibros was observed.Epidemological studies on workers engaged in pro - cessing precipitated silicas for up to 18 years showed no adverse effects.Silica has been tested for mutagenicity and carcinogeni - city and found negative.

Carcinogenicity: OSHA NO IARC NO NTP NO

****

ER DRYLAC U.S.A INC.
)5 ARROW ROUTE SUITE S RANCHO CUCAMONGA, CA 91730

MATERIAL SAFETY DATA SHEET
for "Tiger"-Drylac - Prod. Name: 49/11500

Page: 1
Version Date: 01/01/90
Issue Date: 03/16/92

Emergency Numbers: Phone: (714) 980-7977
Telex: 333 815

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This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

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S E C T I O N I - Identity

TRADE NAME: TIGER DRYLAC U.S.A INC.
PRODUCT NAME: 49/11500
CHEMICAL FAMILY: POLYESTER/TGIC
CHEMICAL NAME:
NUMBER:
IDUCT USE: OUTDOOR

****

S E C T I O N II - Hazardous Ingredients

all components marked with an * are subject to the reporting requirements of t Section 313 of the Emergency Planning and Community - Right - To - Know Act of 1986 (SARA Title III)

	ACGIH TLV	OSHA PEL	Content
T.Glycid.I.Cyanurate CAS # 2451-69-9	N/E	N/E	0 - 5 %
Barium Sulfate * CAS # 7727-43-7	5	N/E	5 - 10 %
Titanium Dioxide S # 13463-67-7	10	15	10 - 30 %
orphous Silica CAS # 7631-86-9	10	N/E	0 - 5 %

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S E C T I O N III - Physical Data

APPEARANCE AND ODOR:	Finely divided powder - slightly, if any, odor
MELTING POINT:	185-235 degree F (85-115 degree C)
PERCENT VOLATILES BY WT:	+/- 1
SOLUBILITY IN WATER:	Negligible
SPECIFIC GRAVITY:	Equal or greater 1.2 (H2O = 1)

S E C T I O N IV - Fire and Explosion Hazard Data

FLASH POINT: Not applicable.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Dust can form an explosive mixture with air. Elimination of sources of ignition is essential. Fumes may be toxic.

LOWER EXPLOSIVE LIMIT: 40g/m3

EXTINGUISHING MEDIA: Water (most effective as mist or spray), carbon dioxide, foam, dry chemical.

S E C T I O N V - Health Hazards

GENERAL: Treat as nuisance dust, avoid inhalation, mechanical eye and and skin irritation may occur. May cause dermatitis and sensitization in susceptible individuals.

General First Aid Procedures:
If exposure leads to adverse reaction promptly start the First Aid Procedures recommended below. If conditions persist seek medical attention.

Eye contact:
Flush eyes with water for 15 minutes. Hold eyelids apart to

assure wetting of the entire eye and lid.If irritation develo consult a physician.

Skin contact:

Wash all affected areas with water and mild soap.Remove and clean any contaminated clothing and shoes before reuse.Seek medical attention if irritation develops.

Inhalation:

Remove from dusty area to fresh air.If victim is not breathir give artificial respiration and call a physician.If breathing is difficult give pure oxygen and call a physician.

Ingestion:

If swallowed dilute with water and immediately induce vomitti If victim is unconcious do not induce vomitting or give fluids.Seek medical attention.

Proposition 65 Statement:

Since Tiger Drylac U.S.A. Inc, cannot foresee what conditions may be preval at our customer's workplace and considering the fact that tracequantities c certain propostion 65 listed chemicals are present in Tiger Drylac powdercoatings we strongly advise our California customers to take appropri steps to inform any exposed employees /community accordingly.

Effects of overexposure to TGIC

Contact with skin and eyes may result in possible irritation and sensitization Inhalation and Ingestion : headache,nosebleedi respiratory irritation

Carcinogenicity: OSHA NO IARC NO NTP NO

Toxicological data:

Rat,oral LD 50	715mg/kg
Rat,dermal LD 50	> 2,000mg/kg
Mice,male LC 50 (4hrs)	2000mg/m3
Mice,male LC 50 (5 days,6hrs/d)	100mg/m3
Rabbit,eyes	positive irritant
Rabbit,skin	mildly irritating
Guinea pig skin	strong sensitizing

A generic powdercoating containing 10% TGIC was tested on male mice and resulted in a single exposure of 4 hours LC 50 of greater than 11600 mg/m3

TIGER DRYLAC U.S.A INC.
1 1 EAST BELMONT STREET ONTARIO, CA 91761 11340 File

MATERIAL SAFETY DATA SHEET
for "Tiger"-Drylac - Prod. Name: 49/11340

Version Date: 07/01/98
Issue Date: 10/01/99

Emergency Numbers: Phone: (909) 930-9100
Fax : (909) 930-9111

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This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

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S E C T I O N I - Identity

TRADE NAME: TIGER DRYLAC U.S.A INC.
PRODUCT NAME: 49/11340
CHEMICAL FAMILY: POLYESTER/TGIC
CHEMICAL NAME:
CAS NUMBER: NONE ASSIGNED
DUCT USE: OUTDOOR

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S E C T I O N II - Hazardous Ingredients

all components marked with an * are subject to the reporting requirements ofthe Section 313 of the Emergency Planning and Community - Right - To - KnowAct of 1986 (SARA Title III)

	ACGIH TLV	OSHA PEL	Content
T.GLYCID.I.CYANURATE CAS # 2451-69-9	N/E	N/E	0 - 5 %
BARIUM SULFATE * CAS # 7727-43-7	5	N/E	5 - 10 %

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S E C T I O N III - Physical Data

APPEARANCE AND ODOR:	Finely divided powder - slightly, if any, odor
MELTING POINT:	185-235 degree F (85-115 degree C)
PERCENT VOLATILES BY WT:	+/- 1
SOLUBILITY IN WATER:	Negligible
SPECIFIC GRAVITY:	Equal or greater 1.2 (H20 = 1)

S E C T I O N IV - Fire and Explosion Hazard Data

FLASH POINT: Not applicable.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Dust can form an explosive mixture with air. Elimination of sources of ignition is essential. Fumes may be toxic.

LOWER EXPLOSIVE LIMIT: 40g/m3

EXTINGUISHING MEDIA: Water (most effective as mist or spray), carbon dioxide, foam, dry chemical.

S E C T I O N V - Health Hazards

GENERAL: Treat as nuisance dust, avoid inhalation, mechanical eye and and skin irritation may occur. May cause dermatitis and sensitization in susceptible individuals.

General First Aid Procedures:
If exposure leads to adverse reaction promptly start the First Aid Procedures recommended below.If conditions persist [illegible]ek medical attention.

Eye contact:
Flush eyes with water for 15 minutes.Hold eyelids apart to

assure wetting of the entire eye and lid.If irritation develops consult a physician.

Skin contact:

Wash all affected areas with water and mild soap.Remove and clean any contaminated clothing and shoes before reuse.Seek medical attention if irritation develops.

Inhalation:

Remove from dusty area to fresh air.If victim is not breathing give artificial respiration and call a physician.If breathing is difficult give pure oxygen and call a physician.

Ingestion:

If swallowed dilute with water and immediately induce vomitting. If victim is unconcious do not induce vomitting or give fluids.Seek medical attention.

Proposition 65 Statement:

WARNING: This product contains chemicals known by the State of California tocause cancer and birth defects or other reproductive harm.

Effects of overexposure to TGIC

Contact with skin and eyes may result in possible irritation and sensitization Inhalation and Ingestion : headache,nosebleeding respiratory irritation

Carcinogenicity: OSHA NO IARC NO NTP NO

Toxicological data:

Rat,oral LD 50	715mg/kg
Rat,dermal LD 50	> 2,000mg/kg
Mice,male LC 50 (4hrs)	2000mg/m3
Mice,male LC 50 (5 days,6hrs/d)	100mg/m3
Rabbit,eyes	positive irritant
Rabbit,skin	mildly irritating
Guinea pig skin	strong sensitizing

Mutagenicity, Ames Test

Salmonella Typhimuruium	positive
Escherichia Choli	negative

A study concluded in the summer of 1991 showed that a generic powder coating

containing 10% TGIC caused a statistically significant increase in the number of chromosomal aberrant cells of male mice in the spermatogonial cytotoxicity test when exposed to a concentration of 1700 mg/m3.
This finding naturally caused great concern since for the time it had been shown that not only neat TGIC, but also formulated powder coatings were connected to genetic damage.
Therefore another study was sponsored in which the findings of the previous study were to be varified, with one exception: Where the first study allowed for a whole body exposure of the test animals (which leads to deposits of powder on the fur of the animals totalling 20 times the weight of powder, that could have been taken in by inhalation only and subsequently was taken in orally through licking) the newer test excluded this possibility and provided for inhalation only.
The results showed, that up to the maximum concentration of 255 mg/m3 no genetic damage or fatalities occurred.
yet another study also completed recently instead of a 10% TGIC powder a more commercial grade containing 5% TGIC only was used; also the particle size distribution of that powder was equivalent to a commercially available powder coating. The results showed no fatalities or genetic damage at concentrations as high as 1000 mg/m3.
In applying a 100 fold safety factor, the supplier of TGIC now recommends an exposure limit of 10 mg/m3 TWA for formulated powder coatings not to be exceeded.

Effects of overexposure to Barium Sulfate:
May cause mechanical irritation of eyes or, in great concentration, overloading of the respiratory system. Others than that no signifi - cant healthproblems related to Barium Sulfate.

Carcinogenicity: OSHA NO IARC NO NTP NO

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S E C T I O N VI - Reactivity Data

STABILITY: Stable

INCOMPATIBILITY: Strong oxidizing agents, strong acids.

ZARDOUS DECOMPOSITION PRODUCTS: (only in case of fire):
Oxides of carbon and nitrogen, aldehydes and other organic compounds.

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S E C T I O N VII - Spill or Leak Procedures

Eliminate ignition source and avoid dust clouds. Wear an approved respiratorand appropriate protective clothing.
Uncontaminated material may be scooped for reuse. Otherwise shovel and sweepor vacuum (with spark free vacuum) into container for disposal facility inaccordance with all local, state and federal regulations.

S E C T I O N VIII - Special Protection Information

VENTILATION: Use local exhaust ventilation to keep exposure well below established TLV's and PEL's.Ventilation Equipment,Baghouse Filter and Cyclone dust collectors should be explosion proof and electrically grounded.Curing ovens should be properly vented to prevent off gas and fumes from entering the workplace.

DO NOT use higher curing temperatures than 400 F (approximately 200 C)

RESPIRATORY PROTECTION: Use NIOSH approved nose-mouth cartridge filter type dust respirator or an other suitable device to prevent inhalation and ingestion of dust and fumes.

Comply with OSHA 29 CFR 1910.134, respiratory protection.

EYE PROTECTION: Safety glasses are recommended in general industrial areas; use dustproof goggles in areas containing particulate matter

FURTHER PROTECTIVE EQUIPMENT: Permeation resistent gloves are recommended for prolonged and/or repeated contact with powder.

Wear appropriate clothing to minimize skin contact and contact with street clothes.

S E C T I O N IX - Special Precautions

HANDLING AND STORAGE: Store in a cool, dry place. Handling can create explosive dust clouds. Eliminate ignition source. Use explosion proof electrical equipment. Processing equipment must be grounded.

TIGER DRYLAC U.S.A., INC.
9605 Arrow Route, Suite S Rancho Cucamonga - California 91730

MATERIAL SAFETY DATA SHEET
for "Tiger"-DRYLAC - Prod. Name: 49/90500

Version Date:91/12
Issue Date:94.04.01

Emergency Numbers: Phone: (714) 980-7977
Fax: (714) 980-8461

This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard.

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S E C T I O N I - Identity

TRADE NAME:	'TIGER'-DRYLAC
PRODUCT NAME:	49/90500
CHEMICAL FAMILY:	POLYESTER-POLYURETHANE MIXTURE
CHEMICAL NAME:	NA
CAS NUMBER:	MIXTURE
PRODUCT USE:	POWDER COATING

S E C T I O N II - Hazardous Ingredients

All components marked with an * are subject to the reporting requirements of the Section 313 of the Emergency Planning and Community - Right - To - Know Act of 1986 (SRA Title III)

CONTENT Nuisance Particles ACGIH TLV:15 OSHA PEL:15

0- 5 % Aluminium *
ACGIH TLV: 15 OSHA PEL: 15
CAS # 7429-90-5

5-10 % Blocked Isocyanate
CAS # none established, contains small quantities of E-Caprolactam
CAS # 105-60-2
ACGIH TLV: N/E
OSHA PEL: N/E

0- 5 % T-Glycid-I-Cyanurate
ACGIH TLV: N/E OSHA PEL: N/E
CAS # 2451-62-9

10-30 % Calcium Carbonate
ACGIH TLV: 10 OSHA PEL: 5
CAS # 1317-65-3

S E C T I O N III - Physical Data

MATERIAL SAFETY DATA SHEET
for "Tiger"-DRYLAC - Prod. Name: 49/90500

APPEARANCE AND ODOUR: Finely divided powder - slightly, if any, odour
MELTING POINT: 185-235 degree F (85-115 degree C)
PERCENT VOLATILES BY WT.: +/- 1
SOLUBILITY IN WATER: Negligible
SPECIFIC GRAVITY: equal or greater 1.2 (H20 = 1)

S E C T I O N IV - Fire and Explosion Hazard Data

FLASH POINT: Not applicable.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Dust can form an explosive mixture with air.
Elimination of sources of ignition is essential.
Fumes may be toxic.

LOWER EXPLOSIVE LIMIT: 40g/m3.

EXTINGUISHING MEDIA: Water (most effective as mist or spray), carbon dioxide, foam, dry chemical.

Aluminium is classified by the OSHA and DOT flammable solid.
LEL 35 g/m3 FLASHPOINT: not applicable
Extinguishing Agents: dry sand or other granulat inert media.
Special Fire Fighting Procedures:
Use a class "D" fire extinguisher; let the media rain down to smother the fire. Under no circumstances use water on burning Aluminium powder because water reacts with hot, burning Aluminium to liberate hydrogen gas, which in turn is combustible itself.
Do not use halogenated fire extinguishing agents on burning Aluminium.
Do not use fire extinguishers equipped with a propellants because they can create dustclouds and increase the danger of dustexplosions.

MATERIAL SAFETY DATA SHEET Version Date:01/12
for "Tiger"-DRYLAC - Prod. Name: 49/90500 Issue Date:04.04.01

S E C T I O N V - Health Hazards

GENERAL: Treat as nuisance dust, avoid inhalation, mechanical eye and skin irritation may occur. May cause dermatitis and sensitization in susceptible individuals.

General First Aid Procedures:
If exposure leads to adverse reaction promptly start the First Aid Procedures recommended below. If conditions persist seek medical attention.

Eye contact:
Flush eyes with water for 15 minutes. Hold eyelids apart to assure wetting of the entire eye and lid. If irritation develops consult a physician.

Skin contact:
Wash all affected areas with water and mild soap. Remove and clean any contaminated clothing and shoes before reuse. Seek medical attention if irritation develops.

Inhalation:
Remove from dusty area to fresh air. If victim is not breathing give artificial respiration and call a physician. If breathing is difficult give pure oxygen and call a pfhysician.

Ingestion:
If swallowed dilute with water and immediately induce vomitting . If victim is unconcious do not incuce vomitting or give fluids. Seek midical attention.

Proposition 65 Statement:
Since Tiger Drylac USA. Inc. cannot foresee what conditions may be prevalent at our customers workplace and considering the fact that tracequantities of certain proposition 65 listed chemicals are present in Tiger Drylac powdercoatings we strongly advice our California customers to take appropriate steps to inform any exposed employees / community accordingly.

Primary Route of Entry:
Inhalation (X) Ingestion ( ) Skincontact ( )

Effects of overexposure to Aluminium:
Aluminium may cause transitory eye, nose and throat irritation.
Carcinogenicity: OSHA NO IARC NO NTP NO

Effects of overexposure to Blocked Isocyanate:
Contact may cause eye- and skinirritation. Ingestion may be harmful.
Overexposure to E-Caprolactame may cause central nervous system effects at levels of > 2mg/m3 for dust & 10 ppm for vapors. May cause irritation of eye, skin, and respiratory tract.
Carcinogenicity: OSHA NO IARC NO NTP NO

Effects of overexposure to TGIC:
Contact with skin and eyes may result in possible irritation and sensitization. Inhalation and Ingestion: headache, nosebleacing respiratory irritation.
Carcinogenicity: OSHA NO IARC NO NTP NO
Toxicological data:

Rat, oral LD 50	715mg/kg
Rat, dermal LD 50	> 2,000mg/kg
Mice, male LC 50 (4hrs)	2000mg/m3
Mice, male LC 50 (5 days, 6hrs/day)	100mg/m3
Rabbit, eyes	positive irritant
Rabbit, skin	mildly irritating
Guinea Pig Skin	strong sensitizing
Mutagenicity, Ames Test	
Salmonella Typhimurium	positive
Escherichia Choli	negative

Inhalationstucies with neat TGIC produced no results in the dominant lethal assay at concentrations of 2.5,10, and 50 mg/m3. In the mouse spermatogonial cytotoxicity test TGIC failed to produce evidence of mutation at a level of 2.5 mg/m3, when compared to the animals used as control. However, at concentrations of 10 and 50 mg/m3 a dose dependent damage to the precursor was evicent.
Therefore a No Observed Effect Level (NOEL) of 2.5 mg for neat TGIC was set.
In inhalationstudies performed with a generic powdercoating containing 10% TGIC during a single 4-hours exposure no fatalities occurred. In the six hours per day/five days regime the highest maintainable concentration of 1700 mg/m3 lead to one fatality out of fourty testanimals.
Preliminary results from a mouse spermatogonial cell mutagenicity screen of a generic powder containing 2% TGIC indicate a statistically significant increased rate of chromosomal aberrations(genetic damage) at 300 mg/kg body weight, oral administration. Dose levels of 266.7, 83.9 and 28.9 mg/kg body weight failed to elicit a statistically significant response.

MATERIAL SAFETY DATA SHEET
for "Tiger"-DRYLAC - Prod. Name: 49/90500

In a recently completed inhalation study a generic powdercoating containing 10% TGIC showed negative results in the dominant lethal assay at concentrations as high as 1700 mg/m3, whereas in the spermatogonial cytotoxicity test at 1700 mg/m3 a statistically significant increase in the number of chormosomal aberrant cells was observed.

Therefore, due to the mutagenic potential of Triglycidyl-Isocyanurate processing of this powder should be in strict compliance with the following recommendations:
* any skincontact with the uncured powder is to be avoided
* dustconcentration in the workshop should not exceed 3.0mg/m3.

Effects of overexposure to Calcium Carbonate:
Contact with skin and eyes may lead to irritation. Ingestion should not cause any significant health problems. No adverse health effects are to be expected from chronic exposure to Calcium Carbonate.

Carcinogenicity: OSHA NO IARC NO NTP NO
There are extremely small but detectable amounts of substances, regulated under California's Safe Drinking Water and Toxic Enforcement Act (Proposition 65), that naturally occur with Calcium Carbonate.
Arsenic - less than 2 ppm
Cadmium - less than 2 ppm
Lead - 4-6 ppm
Chromium (VI) - .1 ppm

S E C T I O N VI - Reactivity Data

STABILITY: Stable.
INCOMPATIBILITY: Strong oxidizing agents, strong acids.
HAZARDOUS DECOMPOSITION PRODUCTS (only in case of fire): Oxides of carbon and nitrogen, aldehydes and other organic compounds.

S E C T I O N VII - Spill or Leak Procedures

Eliminate ignition source and avoid dust clouds. Wear an approved respirator and appropriate protective clothing.
Uncontaminated material may be scooped for reuse. Otherwise shovel and sweep or vacuum (with spark free vacuum) into container for disposal facility in accordance with all local, state and federal regulations.

S E C T I O N VIII - Special Protection Informations

VENTILATION: Use local exhaust ventilation to keep exposure well below established TLV's and PEL's. Ventilation Equipment, Baghouse filter and Cyclone dust collectors should be explosion proof and electrically grounced. Curing ovens should be properly vented to prevent off gas and fumes from entering the workplace.
DO NOT use higher curing temperatures than 400 F (approximately 200 C)

RESPIRATORY PROTECTION: Use NIOSH approved nose-mouth cartidge filter type dust respirator or an other suitable device to prevent inhalation and ingestion of dust and fumes. Comply with OSHA 29 CFR 1910.134, respiratory protection.

EYE PROTECTION: Safety glasses are recommended in general industrial areas; use dustproof goggles in areas containing particulate matter .

FURTHER PROTECTIVE EQUIPMENT: Permeation resistent gloves are recommended for prolonged and/or repeated contact with powder.

Wear appropriate clothing to minimize skin contact and contact with street clothes.

S E C T I O N IX - Special Precautions

HANDLING AND STORAGE: Store in a cool, dry place. Handling can create explosive dust clouds. Eliminate ignition source. Use explosion proof electrical equipment. Processing equipment must be grounded.

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If you require more information, please contact the nearest of the following regional sales offices:

West Coast Office	South-East-Coast Office	South Office
Phone (909) 980-7977	Phone (404) 984-1317	Phone (817) 277-7995
Fax (909) 980-8461	Fax (404) 984-1513	Fax (817) 277-1931

East Coast Office	Midwest Office
Phone (215) 926-8148	Phone (708) 231-1420
Fax (215) 926-8149	Fax (708) 231-1579

MATERIAL SAFETY DATA SHEET
for "Tiger"-DRYLAC - Prod. Name: 42/90500

MATERIAL SAFETY DATA SHEET

Govesan ,S.A.
C/Oro, 82 (Pol. Ind. Sur.)
28770 Colmenar Viejo - Madrid
SPAIN

Govesan America Corp.
2041 Wooddale Drive
Woodbury, MN 55125
1-888-9POWDER
Prepared by Technical Dept.

PRODUCT IDENTIFICATION

Govesan, S.A. Name.....: **RPB-1150; RAL 1015**
Color: **Light Ivory** Chemistry: **Polyester TGIC**
DOT proper shipping name....: Not a regulated material.
UL Approved: MH25283 (N)

HMIS RATINGS FOR HAZARDOUS INGREDIENTS

Health : 1 Flammability : 1 Reactivity : 0

For PPE (Personal Protection Equipment) please refer to occupational control procedures, page 2.

HAZARDOUS INGREDIENTS

Material Name / C.A.S.	Level In Product	OSHA PEL	ACGIH TLV.
Titanium Dioxide (13463-67-7)	<OR = 40%	10.0 mg/m^3	10.0 mg/m^3
Barium Sulfate (7727-43-7)	<OR = 20%	10.0 mg/m^3	10.0 mg/m^3
TGIC (2431-62-9)	<OR = 10%	NE	NE
Nepheline Syenite (37244-96-8)	<OR = 5%	NE	10.0 mg/m^3
Iron Oxide (51274-00-1)	<OR = 1%	10.0 mg/m^3	10.0 mg/m^3
Carbon Black (1333-86-4)	<OR = 1%	3.5 mg/m^3	3.5 mg/m^3

PHYSICAL DATA

- Physical State: Solid
- Boiling Range: N/A
- pH: N/A
- Percent Volatile by Weight: N/A
- Weight per Gallon: N/A

FIRE PROTECTION

- Flash Point Method: N/A
- Appropriate Extinguishers: Dry chemical, sand or ground limestone.
- Special Fire Fighting Procedures: Persons exposed to products of combustion should wear self-contained breathing apparatus and full protective equipment. Do not allow powder to be dispersed into the air while fighting fires.
- Unusual Fire and Explosion Hazards: Dust mixtures in air may be flammable.

REACTIVITY DATA

NA=Not Applicable
NE=Not Established

▪ Stability:	Stable
▪ Incompatibility:	N/E
▪ Hazardous Decomposition Products:	Incomplete combustion can yield low molecular weight hydrocarbons and carbon monoxide.
▪ Hazardous Polymerization:	Will not occur.

EFFECTS OF OVEREXPOSURE

▪ Acute:	Powder coatings may irritate the skin or respiratory tract in sensitive individuals. Eye contact may be abrasive. May cause irritation of skin, eyes, nose and throat.
▪ Existing Health Conditions:	Inhalation of dust may aggravate lung conditions such as asthma, emphysema or chronic bronchitis.

EMERGENCY AND FIRST AID PROCEDURES

▪ For Eye Contact:	Flush eye immediately with water for 15 minutes. If irritation persists get medical attention.
▪ For Skin Irritation:	Wash affected area with soap and water.
▪ Inhalation:	Remove from exposure. Keep warm and still. Notify a physician.

OCCUPATIONAL CONTROL PROCEDURES

▪ Eye Protection:	Safety glasses, eye wash.
▪ Skin Protection:	Gloves, long sleeve shirt and other clothing as needed to minimize skin contact.
▪ Respiratory Protection:	NIOSH approved particulate respirator.
▪ Ventilation:	Local exhaust with an appropriate dust collection system.

NA=Not Applicable
NE=Not Established

SPILL, LEAK AND DISPOSAL PROCEDURES

- Spill or Leak Procedures: Remove all sources of ignition. Vacuum or sweep up spilled material.
- Waste Disposal: This product does not meet the definition of hazardous waste as defined in 40 CFR 261. Incinerate or landfill in accordance with local or state regulations.

ADDITIONAL INFORMATION

- Store in a cool, dry location.
- After handling the product, wash thoroughly before eating or smoking.
- Use adequate ventilation or NIOSH approved organic vapor respirator when welding, cutting or brazing coated parts.

REGULATORY INFORMATION:

- TSCA: We certify that all components of this product are registered under the regulations of the Toxic Substance Control Act.
- SARA: This product contains the following toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act 1986 (SARA) and 40CFR part 372:

Chemical Name / CAS Number	Percentage
Titanium Dioxide (13463-67-7)	<OR = 40%
Barium Sulfate (7727-43-7)	<OR = 20%
TGIC (2431-62-9)	<OR = 10%
Nepheline Syenite (37244-96-8)	<OR = 5%
Iron Oxide (51274-00-1)	<OR = 1%
Carbon Black (133-86-4)	<OR = 1%

NA=Not Applicable
NE=Not Established

MSDS Name: WS BRONZE II
MSDS Number: 7020-8355
Version Number
MSDS Date: 071700
Page Number: 1 of 6

SECTION I - PRODUCT AND COMPANY INFORMATION

Product Name: WS BRONZE II
Hazard Rating: Health: 1 Fire: 1 Reactivity: 1 PPI: E

Company Identification: TCI POWDER COATINGS
610 DIXON DR.
ELLAVILLE GA 31806

Contact: MARK BLALOCK
Telephone/Fax: 800-533-9067 (912)937-2904
Emergency Phone (24 Hour): MARK BLALOCK
800-533-9067

Product Class
Trade Name
Product Code 7020-8355

SECTION II - INGREDIENT AND HAZARD INFORMATION

Ingredient Name	CAS Number	Percent
EPOXY RESINS	25068-38-6	30-60
HMIS Health: 1 Fire:1 Reactivity:0 PPI:X____		
TTIANIUM DIOXIDE	13463-67-7	10-20
HMIS Health: 0 Fire:0 Reactivity:0 PPI:E____		
CARBON BLACK	1333-86-4	0-5
HMIS Health: 1 Fire:1 Reactivity:1 PPI:E____		

*** ALL Ingredients in this product are listed in the T.S.C.A. Inventory

Product composition other than ingredients with established airborne exposure limits will be considered nuisance dust. All ingredients n

---

this product are listed in the T.S.C.A. inventory.

SECTION III - HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eyes, Inhalation, Skin

Skin Contact: Incindental contact is not expected to cause irritation.

Eye Contact: May cause slight to mild redness and burning. May cause mechanical irritation.

Inhalation: In the event this product does not contain ingredients with airborne exposure limits, it is considered a nuisance dust. No effects are expected when exposures are maintained below the exposure limits of section 8. Lung and respiratory conditions may be aggravated by exposure.

Ingestion: May cause pain and upset stomach.

SECTION IV - FIRST AID MEASURES

Eye Contact: Immeditaely flush eyes with cool water for 15 minutes, occaisionally lifting lids to ensure complete rinsing. Seek medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. Remove and wash clothing and shoes before reuse. Seek medical attention if irritation persists.

Inhalation: Remove to fresh air. If breathing difficulties develop, seek medical attention. If necessary, give artificial respiration.

Ingestion: Seek immediate medical attention. Wash out mouth with water followed by a cupful of water to drink. Repeat if vomiting occurs. Never give anything by mouth to an unconscious person.

SECTION V - FIRE-FIGHTING MEASURES

Flammability Class	IA
Flash Range:	Not Applicable
Explosive Range:	30 GM/M3
	70 GM/M3

Extinguishing Media:
Foam, CO2, dry chemical, water spray.

Fire and Explosion Hazards: The HMIS/NFPA rating changes from 1 to 4 when powder is transferred from a closed container to a process at concentrations reaching the explosive limit.

Firefighting Instructions:
Use fully protective equipment with self-contained breathing apparatus.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Sweep up carefully or use explosion-proof vacuum cleaner. Then dispose inaccordance with local, state, and federal regulations.

SECTION VII - HANDLING AND STORAGE

Keep all equipment clean and work areas free from dust. Avoid excessive skin contact. Do not ingest or inhale. Personnel handling product should be trained in it's proper use. Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities.

Store in a cool, dry well ventillated area away from heat, ignition sources, and direct sunlight. Keep containers tightly closed.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

	ACGIH TLV	ACGIH TLV-C	ACGIH STEL	OSHA STEL	OSHA PEL
EPOXY RESINS	N/est	N/est	N/est	N/est	N/est
TTIANIUM DIOXIDE	10.00 mg/M3	N/est	N/est	N/est	15.00 mg/M3
CARBON BLACK	3.50 mg/M3	N/est	N/est	N/est	3.50 mg/M3
Nuisance Dust	10 mg/m3	N/est	N/est	N/est	10 mg/m3

ENGINEERING CONTROLS: Provide ventilation to keep air contamination concentration below established airborne exposure limits (TLV's or PEL's). Explosion proof exhaust ventilation is recommended. Ventilation equipment, baghouse, and cyclone dust collection should be grounded. Curing ovens should be properly vented to prevent fumes from entering the workplace.

RESPIRATORS:
Use a properly fitted NIOSH/MSHA approved respirator to avoid breathing dust.

SKIN PROTECTION:
Protective gloves & clothing recommended.

EYE PROTECTION:
Goggles or safety glasses with side-shields recommended.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Form:	SOLID
Odor:	NEGLIGIBLE
Solubility (in water):	INSOLUBLE
pH Value:	Not Applicable
Boiling Range:	Not Applicable
Vapor Pressure (mmHg):	Not Applicable
Melting Point:	230.°F
Evaporation Rate:	
Vapor Density:	
Partition Coefficient	
% Volatile Weight	Not Applicable
% Volatile	Not Applicable
Specific Gravity:	1.00
Molecular Weight:	
Heavy Elements (ppm)	0.

SECTION X - STABILITY AND REACTIVITY

Stability:	This product may be unstable
Hazardous Polymerization:	Hazardous polymerization will not occur

Hazardous decomposition products: Combustion biproducts may contain CO, CO2, NO2, or other nitrogen compounds.

SECTION XI - TOXICOLOGICAL INFORMATION

Product: Extended inhalation of dust can lead to particulate deposition in the lungs.

COMPONENTS:

CARBON BLACK:
Carbon black has been evaluated by the International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans (Group 2B), however, epidemiological studies of workers in the carbon black producing industries of North America & Western Europe show no evidence of clinically significant adverse health effects due to occupational exposure to Carbon Black.

EPOXY RESINS:
Overexpoure to this product may cause eye and skin irritation and sensitization. Similar resins have shown mutagenic activity in vitro test, while others have not. All in vitro assays were negative.

TITANIUM DIOXIDE:
Inhalation of titanium Dioxide can cause lung irritation. In an inhalation study evidence of lung cancer was found in 1 out of 77 male rats and 13 out of 74 female rats after they were exposed to 250 mg/m3 titanuim dioxide dust for a two year period. The exposure level of 250mg/m3 is approximately 50 times that permitted in an occupational environment and is not expected to correlate to human exposure.

SECTION XII - ECOLOGICAL INFORMATION

None known.

SECTION XIII - DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state, and federal regulations.

SECTION XIV - TRANSPORT INFORMATION

UN Number
UN Pack Group
UN Class
ICAO/IATA Class
Shipping Name WS BRONZE II

SECTION XV - REGULATORY INFORMATION

SECTION XVI - OTHER INFORMATION

The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof, we assume no responsibility for injury from the use of the product described herein.

MATERIAL SAFETY DATA SHEET

MSDS Name: SKY WHITE II
MSDS Number: 9910-9897
Version Number
MSDS Date: 022200
Page Number: 1 of 7

SECTION I - PRODUCT AND COMPANY INFORMATION

Product Name:	SKY WHITE II
Hazard Rating:	Health: Fire: Reactivity: PPI:
Company Identification:	TCI POWDER COATINGS 610 DIXON DR. ELLAVILLE GA 31806
Contact:	MARK BLALOCK
Telephone/Fax:	800-533-9067 (912)937-2904
Emergency Phone (24 Hour):	MARK BLALOCK 800-533-9067
Product Class	
ade Name	
Product Code	9910-9897

SECTION II - INGREDIENT AND HAZARD INFORMATION

Ingredient Name	CAS Number	Percent
TTIANIUM DIOXIDE	13463-67-7	30-60
HMIS Health: 0 Fire:0 Reactivity:0 PPI:E____		
1,2,5-TRIGLYCIDYL ISOCYANURATE	2451-62-9	3-6
HMIS Health: 2 Fire:1 Reactivity:0 PPI:X____		

*** ALL Ingredients in this product are listed in the T.S.C.A. Inventory

Product composition other than ingredients with established airborne exposure limits will be considered nuisance dust. All ingredients n this product are listed in the T.S.C.A. inventory.

MATERIAL SAFETY DATA SHEET

MSDS Name: SKY WHITE II
MSDS Number: 9910-9897
Version Number
MSDS Date: 022200

SECTION III - HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eyes, Inhalation, Skin

Skin Contact: Incindental contact is not expected to cause irritation.

Eye Contact: May cause slight to mild redness and burning. May cause mechanical irritation.

Inhalation: In the event this product does not contain ingredients with airborne exposure limits, it is considered a nuisance dust. No effects are expected when exposures are maintained below the exposure limits of section 8. Lung and respiratory conditions may be aggravated by exposure.

Ingestion: May cause pain and upset stomach.

SECTION IV - FIRST AID MEASURES

Eye Contact: Immeditaely flush eyes with cool water for 15 minutes, occaisionally lifting lids to ensure complete rinsing. Seek medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. Remove and wash clothing and shoes before reuse. Seek medical attention if irritation persists.

Inhalation: Remove to fresh air. If breathing difficulties develop, seek medical attention. If necessary, give artificial respiration.

Ingestion: Seek immediate medical attention. Wash out mouth with water followed by a cupful of water to drink. Repeat if vomiting occurs. Never give anything by mouth to an unconscious person.

MATERIAL SAFETY DATA SHEET

MSDS Name: SKY WHITE II
MSDS Number: 9910-9897
Version Number
MSDS Date: 022200
Page Number: 3 of 7

SECTION V - FIRE-FIGHTING MEASURES

Flammability Class	IIIB
Flash Range:	
Explosive Range:	30 GM/M3
	70 GM/M3

Extinguishing Media:
Foam, CO2, dry chemical, water spray.

Fire and Explosion Hazards: The HMIS/NFPA rating changes from 1 to 4 when powder is transferred from a closed container to a process at concentrations reaching the explosive limit.

Firefighting Instructions:
Use fully protective equipment with self-contained breathing apparatus.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Sweep up carefully or use explosion-proof vacuum cleaner. Then dispose inaccordance with local, state, and federal regulations.

SECTION VII - HANDLING AND STORAGE

Keep all equipment clean and work areas free from dust. Avoid excessive skin contact. Do not ingest or inhale. Personnel handling product should be trained in it's proper use. Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities.

MATERIAL SAFETY DATA SHEET

Store in a cool, dry well ventillated area away from heat, ignition sources, and direct sunlight. Keep containers tightly closed.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

	ACGIH TLV	ACGIH TLV-C	ACGIH STEL	OSHA STEL	OSHA PEL
TTIANIUM DIOXIDE	10.00 mg/M3	N/est	N/est	N/est	15.00 mg/M3
1,2,5-TRIGLYCIDYL ISOCYANURATE	0.05 mg/M3	N/est	N/est	N/est	N/est
Nuisance Dust	10 mg/m3	N/est	N/est	N/est	10 mg/m3

ENGINEERING CONTROLS: Provide ventilation to keep air contamination concentration below established airborne exposure limits (TLV's or PEL's). Explosion proof exhaust ventilation is recommended. Ventilation equipment, baghouse, and cyclone dust collection should be grounded. Curing ovens should be properly vented to prevent fumes from entering the workplace.

RESPIRATORS:
Use a properly fitted NIOSH/MSHA approved respirator to avoid breathing dust.

SKIN PROTECTION:
Protective gloves & clothing recommended.

EYE PROTECTION:
Goggles or safety glasses with side-shields recommended.

MATERIAL SAFETY DATA SHEET

MSDS Name: SKY WHITE II
MSDS Number: 9910-9897
Version Number
MSDS Date: 022200
Page Number: 5 of 7

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Form:	SOLID
Appearance/Color:	WHITE
Odor:	NEGLIGIBLE
Solubility (in water):	INSOLUBLE
pH Value:	
Boiling Range:	
Vapor Pressure (mmHg):	
Melting Point:	230.°F
Evaporation Rate:	
Vapor Density:	
Partition Coefficient	
% Volatile Weight	
% Volatile	
Specific Gravity:	1.0C
Molecular Weight:	
Heavy Elements (ppm)	0.

SECTION X - STABILITY AND REACTIVITY

Stability: This product may be unstable
Hazardous Polymerization: Hazardous polymerization will not occur

Hazardous decomposition products: Combustion biproducts may contain CO, CO2, NO2, or other nitrogen compounds.

SECTION XI - TOXICOLOGICAL INFORMATION

Product: Extended inhalation of dust can lead to particulate deposition in the lungs.

COMPONENTS:

MATERIAL SAFETY DATA SHEET

MSDS Name: SKY WHITE II
MSDS Number: 9910-9897
Version Number
MSDS Date: 022200
Page Number: 6 of 7

TRIGLYCIDYL ISOCYANUNATE:
Overexposure to this product can cause irritation to eyes, skin, and respiratory tract; loss of appetite; may cause nosebleeds; toxic by ingestion and if absorbed through the skin. Prolonged or repeated contact may cause skin sensitization. Animal studies show that overexposure can result in toxic effects to the testes. possible effects on liver and lungs, and possiblesdverse male reproductive effects.

:thal Oose	Oral (LD50)	Skin (LD50)	Inhale (LC50)
1,3,5 Triglycidyl Iso.	440 mg/kg Rat	)2000mg/kg Rat	2000mg/cu.m/4hr Rat

With powder contamination 6% TGIC, no toxic effects in rats were observed after 2 weeks of exposure at concentrations of 70 mg/cu.m.; no respiratory lesions or systemic toxicity was producted. Using a restriction research exposure, mice exposed to 10 mg/m3 for 6hrs/day for 5 days did not have any observable effects on the animals overall health or spermatogonia.

TITANIUM DIOXIDE:
Inhalation of titanium Dioxide can cause lung irritation. In an inhalation study evidence of lung cancer was found in 1 out of 77 male rats and 13 out of 74 female rats after they were exposed to 250 mg/m3 titanuim dioxide dust for a two year period. The exposure level of 250mg/m3 is approximately 50 times that permitted in an occupational environment and is not expected to correlate to human exposure.

MATERIAL SAFETY DATA SHEET

MSDS Name: SKY WHITE II
MSDS Number: 9910-9897
Version Number
MSDS Date: 022200
Page Number: 7 of 7

SECTION XII - ECOLOGICAL INFORMATION

None known.

SECTION XIII - DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state, and federal regulations.

SECTION XIV - TRANSPORT INFORMATION

UN Number
"N Pack Group
I Class
ICAO/IATA Class
Shipping Name

SECTION XV - REGULATORY INFORMATION

SECTION XVI - OTHER INFORMATION

The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof, we assume no responsibility for injury from the use of the product described herein.

H-1
F-1
R-0

PERMALUX POWDER COATING INC.

11430, 56TH Avenue, Montreal (Québec) H1E 2L5 Tel: (514) 648-4912 Fax: (514) 648-4060

TECHNICAL DATA SHEET

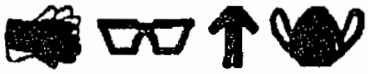
Product:	Permalux Polyester Powder Coating , Beige, Pearl
Number :	**PR-0725A90EW**
Use:	Interior and exterior use powder coating for metal substrates. Excellent gloss retention. Is used on garden furniture, gardening implements, lampposts, fences, letterboxes, automotive parts, transformers, heating appliances, air conditioners, heat-pumps, etc.
Gloss:	90 ± 5 with an angle of 60°.
Curing:	*6 minutes at 400 °F/ 204 °C (metal temperature). (For heavier gauges of metal or irregular shapes, longer curing time may be necessary).*
Specific Gravity :	1.66.
Theor. Covering Power :	256 sq.ft. / kg at 1 mil thickness. 23.8 m^2 / kg at 25µ thickness.
Film Thickness Recommended :	From 2.5 mils to 3.5 mils. General appearance may vary according to film thickness.
Solid Content :	100 %.
Hardness : (ASTMD-3363)	3 H.
Overbake Resistance:	12 minutes at 400 °F/ 204 °C ΔE: 0.4.
Reverse Impact Resistance : (ASTMD-2794)	160 lb – in. at 2.5 mils thickness. 18.1 joules at 62.5 microns thickness.
Abrasion Resistance : (ASTMD-4060)	Taber abrading wheels CS10, 1000 g, 1000 cycles: loss of 65 mg.
Salt Spray Test : (ASTMB-117)	1000 hours at 3 mils / 75 microns (µ). Rust at less than 1/8 inch from the mark. No blistering on the surface.
UV Resistance : (ASTM G-53)	Lamp UVA 340. 1000 hours in QUV. Excellent. Loss of gloss : from 10 - 15 % (regained by polishing).

Application Conditions :	Relative humidity: from 40 to 60 %. Ambient temperature: from 68 to 80°F / 20 to 27°C
Shelf Life :	12 months from date of production, in unopened original containers kept in a dry place at a temperature not exceeding 80°F - 27 °C and relative humidity between 40 and 60%.

The above-mentioned information is provided on our current knowledge and is based on lab tests results with B-1000 panels. It is intended to assist our customers in determining whether our products meet their needs. In view of the many modifying factors that may occur during the storage, use and/or application of this product and that are beyond our control, these data do not imply any legally binding assurance of definite properties and/of suitabilities for use of this product. Users must carry out their own tests and experiments and must ensure that all safety measures necessary for handling chemicals are taken. It is inadvisable and at the customer's own risk to make any change in the product or to mix into it any additive other than specified in this technical data sheet, without the written approval of Permalux Powder Coating Inc. Consult the material safety data sheet of this product. For industrial use only, by trained personnel. This technical data sheet supersedes previous ones .. The manufacturer's liability is limited to the purchase price of this product.

Revised Date : July 4, 2000

Material Safety Data Sheet

WHMIS	Protective Clothing	TDG
		

Product Name

PR-0725A90 EW POLYESTER POWDER COATING, PEARL BEIGE

Manufacturer	Supplier
Permalux Powder Coating 11430, 56th Avenue Montreal (Québec) H1E 2L5	Permalux Powder Coating Inc. 11430, 56th Avenue Montreal (Québec) H1E 2L5

Section 1. CHEMICAL PRODUCT IDENTIFICATION

Synonyms: Not available.

CAS#: Mixture.

General uses: Coatings: Powder Coating for metal surfaces.

Product Code: PR-0725A90 EW

Emergency phone: EMERGENCY PHONE: (514) 648-4912

Section 2. HAZARDOUS INGREDIENTS

Ingredients	CAS#	Conc. %	Toxicological data on ingredients
Titanium White	013463-67-7	30-60	**Titanium White** LD50: Not available. LC50: Not available.
TGIC-4	002451-62-9	1-5	**TGIC-4:** ORAL (LD50): Acute: 255 mg/kg (Rat). DERMAL (LD50): Acute: 255 mg/kg (Rabbit).
Barium Sulfate 3	007727-43-7	1-5	**Barium Sulfate 3** LD50: Not available. LC50: Not available.

Section 3. PHYSICAL PROPERTIES

Physical State: Powdered Solid

Appearance and odor: Beige
Odorless

Solubility: Insoluble in water

Melting point: 150-200oF (66-93oC)

Specific gravity: 1.66 (Water = 1)

Minimal ignition temp.: 752oF (400oC)

PR-0725A90 EW POLYESTER POWDER COATING, PEARL BEIGE

Section 4. STABILITY AND REACTIVITY

Stability: Stable Product

Instability temperature: N/A

Conditions and substance to avoid: Incompatible with strong oxidizers, acids and alkalis. Heated resin may react with water. (Triglycidyl Isocyanurate 2 (TGIC))
Strong oxidizing materials and acids

Hazardous decomposition products Dense black smoke, carbon monoxide (CO), carbon dioxide (CO2), nitrogen oxides (NO2), metal oxides.

Reactivity: Acids, organic solvents, alkalis.

Section 5. FIRE AND EXPLOSIVE HAZARDS

NFPA Flammability Code: 1 4-Dangerously flammable 3-Extremely flammble 2-Flammable 1-Combustible

Flammability: Combustible.

Flammability conditions: The product is not auto-inflammable. However, dust particles of product suspended in air in critical concentration (see Minimum inflammability treshold) present a risk of explosion if ignited.

Fire fighting media: Use dry chemical, CO2, sand or water spray. DO NOT use water jet. Cool closed containers with water spray.

Flash points: Not applicable for solids.

Minimum inflammability treshold: Dust concentration of 30 mg/m3 in air

Minimal ignition temp.: 752oF (400oC)

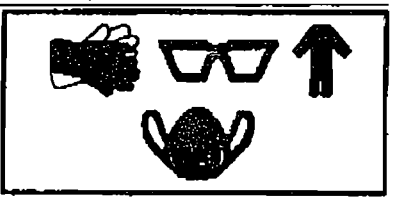
Flammable limits: See Minimum inflammability treshold.

Explosibility properties: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharges: See Flammability conditions. Risks of explosion of the product in presence of other materials: Not available.

Products of combustion: Dense black smoke, carbon monoxide (CO), carbon dioxide (CO2), nitrogen oxides (NO2), metal oxides.

Section 6. PREVENTIVE MEASURES

Protective Clothing: Gloves. Safety glasses. Protective clothing. Dust respirator. When spraying the product: a dust respirator may not offer enough protection; a self contained approved respirator may be required.



Spill or leaks: Exclude sources of ignition. Avoid inhalation of dusts. Collect spillages and place in a closed appropriate disposal container, without creating dust clouds. Do not allow to enter sewers or watercourses.

Waste disposal: Recycle uncontaminated product to process, if possible. Waste disposal: In accordance with all local and regional applicable regulations.

Handling and Storage

Handling: Prevent the formation of dusts. Equipment has to be explosion-proof. Exclude sources of ignition (hot surfaces, flames, electrical discharges or sparks, static discharges). Avoid the inhalation of dusts. Use only with adequate ventilation. Avoid skin contact. Smoking, eating and drinking should be prohibited in areas of storage and use. For industrial use only. Dust control and good housekeeping is required.

Storage: Keep containers closed. Store in cool, dry and well ventilated place, at a temperature not exceeding 80oF (25oC). Do not expose to ignition sources and direct sunlight. Smoking, eating and drinking should be prohibited where the product is used or stored.

Section 7. TOXICOLOGICAL PROPERTIES

Route of entry:

Ingestion: Yes **Inhalation:** Yes **Dermal:** Yes

Acute effects

Inhalation: May be irritant for respiratory tract.

Skin contact: May be irritant for skin.

Eye contact: May be irritant.

Ingestion: May be dangerous.

Chronic effects on humans

Inhalation: May cause sensitization. Excessive exposure to barium sulfate dust may cause "Baritosi" (asymptomatic benign pneumoconiosis). Lungs irritation possible; benign pulmonary fibrosis possible (titanium dioxide).

Skin contact: May cause sensitization.

Eye contact: N/A

Ingestion: N/A

Carcinogenicity: N/A

Mutagenicity: Potential (TGIC).

Teratogenicity: N/A

Interaction with other products: **Synergy:** N/A

Antagonism: N/A

Other effects: May aggravate a pulmonary illness. May cause allergic reactions. Possible risk of irreversible effects through inhalation and if swallowed (TGIC).

Section 8. FIRST AID MEASURES

Inhalation: Allow the victim to rest in a well ventilated area. Seek medical attention.

Skin contact: Remove contaminated clothing. Wash skin with soap and water. Do not use solvent or thinner. If irritation persists, seek medical attention.

Eye contact: Irrigate copiously with fresh water for at least 15 minutes, holding the eyelids apart. Seek medical attention.

Ingestion: Seek medical attention.

Section 9. REGULATION

WHMIS:

WHMIS CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

EXPOSURE STANDARDS:

Products	R.Q.M.T.
Titanium White	TWA: 5 (mg/m³) from OSHA TWA: 10 (mg/m³) from ACGIH INHALATION Respirable.
TGIC-4	TWA: 0.025 (mg/m³)
Barium Sulfate 3	TWA: 10 (mg/m³)

Remarks

No additional remark.

TRANSPORTATION OF DANGEROUS GOODS:

Not a TDG controlled material.

Section 10. OTHER INFORMATIONS

REFERENCES: -Manufacturers Material Safety Data Sheets. -RQMT, Règlement sur la qualité du milieu de travail

Validated by J. Montpetit on 99-12-15.

Verified by R. Desrosiers.

Printed 99-12-15.

EMERGENCY PHONE: (514) 648-4912

MATERIAL SAFETY DATA SHEET

Product name: SPARTAN BRONZE
Product code: PFJ507A5055
Product date: MAY 21 1999 Print date: 03/21/00 Page 1

Section 1 - Product and Company Identification

Product Name:	SPARTAN BRONZE
Company Identification:	DuPont Powder Coatings 9800 Genard Rd Houston, TX 77041-7624
Telephone/Fax:	713.939.4000 / 713.939.4025
Chemtrec International(24hr):	703.527.3887 Collect
Chemtrec USA(24hr):	800.424.9300
Product Class:	COATING POWDER
Product Number:	PFJ507A5

Section 2 - Ingredient Information

Ingredient Name	CAS Number	Percent
1,3,5-Triglycidyl Isocyanurate	002451-62-9	1 - 5
IRON OXIDE YELLOW	051274-00-1	1 - 5
TITANIUM DIOXIDE	013463-67-7	1 - 5
NUISANCE DUST	N/A	100

Section 3 - Hazards Identification

These acute and chronic health effect statements address exposure to the pure chemicals only. In a coating powder these components are mixed within the coating and direct exposure to them is not likely.

ACUTE HEALTH EFFECTS:

(1,3,5-Triglycidyl Isocyanurate)

INGESTION: Moderately toxic. Symptoms are not fully known, may include loss of appetite and nose bleeding. INHALATION: Irritating to upper respiratory tract. May cause nosebleeds. EYE CONTACT: Irritating. SKIN CONTACT: Irritating. Can be absorbed through the skin in harmful amounts. Effects similar to ingestion.

(TITANIUM DIOXIDE)

INGESTION: Low oral toxicity. No toxic effects due to ingestion are described in literature. INHALATION: Irritating to upper respiratory tract. EYE CONTACT: Irritating.

CHRONIC HEALTH EFFECTS:

(1,3,5-Triglycidyl Isocyanurate)

Irritation of eyes, skin and respiratory tract; loss of appetite, may cause nosebleeds; toxic by ingestion and if absorbed through the skin.

MATERIAL SAFETY DATA SHEET

electricity discharge. Keep work areas free of dust. Avoid excessive skin contact. Do not ingest or inhale. Keep out of the reach of children.

STORAGE

Keep containers sealed and avoid static electricity discharges.

Section 8 - Exposure Controls / Personal Protection

Occupational Exposure Limits

	ACGIH TLV	ACGIH TLV-C	ACGIH STEL	OSHA STEL	OSHA PEL
1,3,5-Triglycidyl Isocyanurate	0.05 mg/M3	N/A	N/A	N/A	N/A
IRON OXIDE YELLOW	N/A	N/A	N/A	N/A	N/A
TITANIUM DIOXIDE	10.00 mg/M3	N/A	N/A	N/A	10.00 mg/M3
NUISANCE DUST	10.00 mg/M3	N/A	N/A	N/A	N/A

ENGINEERING CONTROLS

Provide sufficient ventilation in volume and pattern to keep air contamination concentration below applicable OSHA permissible exposure levels or ACGIH's TLV TWA limit.

RESPIRATORS

Use a properly fitted NIOSH/MSHA approved mechanical respirator or mask to avoid breathing dust. Carefully follow respirator manufacturer's instructions for use.

OTHER CLOTHING

PROTECTIVE GLOVES: Recommended to avoid skin contact.
EYE PROTECTION: Goggles or safety glasses w/side shields recommended.
OTHER PROTECTIVE EQUIPMENT: Protective overalls recommended. Remove and wash soiled clothing.

Section 9 - Physical and Chemical Properties

Spec. Grav., ASTM D5965-96,C:1.48

Section 10 - Stability and Reactivity

Stability: This product is stable
Hazardous Polymerization: Hazardous polymerization will not occur

HAZARDOUS DECOMPOSITION PRODUCTS: Fumes may contain CO, CO2, NO2 or other Nitrogen compounds.

Section 11 - Toxicological Information

	Route	Species	Exposure and Dose
1,3,5-Triglycidyl Isocyanurate			

MATERIAL SAFETY DATA SHEET

Oral	Rat, adult	LD50 440. PPM

TITANIUM DIOXIDE

Oral	Rat, adult	LD50 9500. PPM

Section 12 - Ecological Information

None known

Section 13 - Disposal Considerations

Manage or dispose in accordance with local, state and federal regulations.

Section 14 - Transport Information

Not Regulated

Section 15 - Regulatory Information

All ingredients in this product are listed in the T.S.C.A. Inventory.

Weight loss is less than one percent when using US EPA Federal Reference Method 24 (ASTM D2369). This weight loss is mostly water (ASTM D4107) with a trace amount of organic material. This trace amount should be considered Volatile Organic Compound (VOC) Content.

Section 16 - Other Information

HMIS Rating: Health=1* Fire=1 Reactivity=0 PPE=E
NFPA 704 Rating: Health=1 Fire=1 Reactivity=0
Rating Definitions:
Health 1-Slight hazard, irritation possible
Health *-Long term health effects may result from repeated overexposure
Fire 1-Slight hazard, needs considerable preheat before combustion will occur
Reactivity 0-Minimal hazard, materials are normally stable
PPE E-Safety glasses, gloves, dust respirator

Other Definitions:
MEC (sec. 5) = Minimum Explosive Concentration

Last Page

DUPONT

DuPont Powder Coatings

DuPont Powder Coatings U.S.A., Inc.
9800 Genard Rd.
Houston, Texas 77041-7624
Phn: (713) 939-4000
Fax: (713) 939-4027

Fax Transmittal Form

To: Jean Ritterhouse

Company:

Fax: (901) 794-1508

From: Ersil L. Powers

Phone: 713-996-4650

Fax: 713-939-4027

Date sent: 3/21/00

Time sent: 12:24 pm

Number of pages including cover page: 5

☐ Urgent
☑ For Review
☐ Please Comment

Message:

****

MATERIAL SAFETY DATA SHEET

FOR CECURA POWDER COATINGS MANUFACTURED BY SPRAYLAT

Date of preparation: 12/01/99 PAGE 1

Manufacturer: SPRAYLAT CORPORATION
Address: 3333 NORTH INTERSTATE 35
GAINESVILLE, TX 76240
Telephone: TX: (940) 665-9590 (Emergency - Information)
CA: (310) 559-2335 (Emergency - Information)
CHEMTREC: (800) 424-9300 (Emergency)
Prepared by: Glynn Mason

****

SECTION I PRODUCT IDENTIFICATION

NOTE: This supercedes ALL previous MSDS sheets for this product.
Manufacturer's Code Identification: PU98902
Product Class: SECURA PU98902 POLYURETHANE F.G. PEARLESCENT WHITE
Trade Name: SECURA/SPRAYLAT

HMIS Information: Health- 02 Flammability- 0
Reactivity- 0 Personal Protective Equipment- E
HAZARD INDEX: 4= Severe 3= Serious 2= Moderate 1= Slight 0= Least

****

This MSDS contains information on good industrial practice for safe handling of all industrial chemicals which includes the use of Safety Glasses, Gloves, & Dust Respirator

****

SECTION II IMPORTANT INGREDIENTS

SARA SECTION 313 SUPPLIER NOTIFICATION
Those ingredients (if any) which have an asterisk (*) preceding the CAS # are subject to the reporting requirements of Section 313 of the Emergency Planning Community Right-To-Know Act of 1986 and of CFR 372.

----- INGREDIENT ----- MATERIAL DESCRIPTION REF #	CAS #	% BY WGT.	ACGIH TLV(TWA) PPM	OSHA PEL PPM	LEL VAPOR PRESSURE OTHER LIMITS
13 SYNTHETIC RESIN NON		5 - 10	NO EST.	NO EST.	
14 TITANIUM DIOXIDE	13463-67-7	20 - 30	10.00	15.00	MG/M3 AS DUST
21 BARIUM SULFATE	7727-43-7	1.0 - 2.0	10.00	15.00	MG/M3 AS DUST
22 MICA SILICATE MICA <1% QUARTZ	12001-26-2	1.0 - 2.0	3.00	3.00	MG/M3
	% LEAD	.00			
	% CHROMATE	.00			

This product contains no reported carcinogens or suspected carcinogens subject to warnings in Section II.

This product contains pigments which may become a dust nuisance when removed by abrasive blasting, sanding, or grinding. (See Section V)

SECTION III PHYSICAL DATA

The V.O.C. listed below is in pounds per gallon excluding exempt material. Powder coatings are essentially 100% solid. Therefore any V.O.C. is negligible.

Boiling Range: High- N/A Low- N/A
Vapor Pressure: N/A TO POWDER COATINGS
Vapor Density: N/A
Evaporation Rate: N/A
Weight Per Gallon: 13.1
VOC: N/A
Physical State: 100% SOLID
Appearance: FINELY DIVIDED POWDER
Odor: NEGLIGIBLE
Odor Threshold: N/A
pH: N/A
Freezing Point: N/A
Water Solubility: NEGLIGIBLE
Coefficient of Water/Oil Distribution: N/A

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flammability Classification: N/A DOT: N/A
Lowest Flashpoint TCC: N/A F
Explosion Level: Lower- N/A Upper- N/A
Upper Flammability Limit: N/A
Auto Ignition Temperature: N/A
Use CO2, DRY CHEMICAL, FOAM, or WATER FOG

Fire fighters should use self-contained breathing apparatus with full facepiece as in fighting any chemical fire.

SECTION V HEALTH HAZARD DATA

EFFECTS OF EXCESSIVE OVEREXPOSURE:
Do not breathe dust mist or vapors of any paint product. Wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application unless air monitoring demonstrates exposure levels are below appropriate limits. Follow respirator manufacturer's directions for respirator use. All powder coatings can be considered nuisance dusts which may cause skin, eye and/or upper respitory tract irritation; and/or be harmful if swallowed.
Based on Section II ingredient(s) (21) Heavy exposure to dust may cause a benign pneumoconiosis, termed "Baritosis". The reaction results in impairment of ventilatory function, mild bronchial irritation may occur.
Based on Section II ingredient(s) (14) May cause lung injury.
Based on Section II ingredient(s) (13,14,21) this product may cause irritation to the upper respiratory tract.
Based on Section II ingredient(s) (14) this product may be harmful if it is swallowed.
Based on Section II ingredient(s) (13,14,21) this product can be irritating to the eyes.
Based on Section II ingredient(s) (13,14) this product may cause skin irritation.

FIRST AID:
EYE CONTACT: Flush with luke warm water for 15 minutes.
SKIN CONTACT: Wash with soap and water. Remove contaminated clothes.
INHALATION: Remove exposed individual to fresh air. Restore breathing if required and contact a physician.
INGESTION: Rinse mouth immediately. Give exposed individual 6-8 ounces of liquid. (Never give anything by mouth to an unconscious person.) Do NOT induce vomiting unless advised by physician. Contact a physician immediately.

SECTION VI REACTIVITY DATA

HAZARDOUS POLYMERIZATION; Will not occur.
STABILITY: This product is stable.
Thermal decomposition
in the presence of air may yield carbon monoxide and/or carbon dioxide.

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Based on Section II ingredient(s) (14,21)
Remove all sources of ignition. Sweep up carefully or use an explosion proof vacuum cleaner. Avoid dusty conditions.
WASTE DISPOSAL METHOD:
Dispose of product in accordance with applicable local, county, state, and federal regulations. Do NOT flush to sewer, watershed or waterway.

SECTION VIII SAFE HANDLING AND USE INFORMATION

Do not breathe dust, mist or vapors (if present) of any paint product.
Wear an appropriate, properly fitted respirator (NOISH/MSHA approved) during and after application unless air monitoring demonstrates exposure levels are below applicable limits if any appear in Section II.
Follow respirator manufacturer's directions for respirator use.
PROTECTIVE GLOVES:
Required for prolonged or repeated contact. Wear resistant gloves such as natural rubber, neoprene, buna N or nitrile. An apron should be worn to avoid skin contact.
Use dust mask or respirator if the concentration is high.
Eyewash stations and safety showers should be readily available and in use in handling areas.
VENTILATION:
Based on Section II ingredient(s) (21)
Use ventilation as required to control dust concentrations. Avoid prolonged or repeated breathing of dust. If exposure exceeds TLV, use a NIOSH-approved respirator to prevent overexposure.
Use ventilation as required to control dust concentrations. Avoid prolonged or repeated breathing of dust. If exposure exceeds TLV, use a NIOSH-approved respirator to prevent overexposure.
PROTECTIVE EYEWEAR:
Use safety eyewear with perforated sideshields.
Avoid contact with eyes. Wear goggles if there is a likelihood of contact with eyes.

SECTION IX SPECIAL PRECAUTIONS

HANDLING AND STORING PRECAUTIONS:
Keep product containers cool, dry, and away from sources of ignition. Use and store this product with adequate ventilation. Do NOT smoke in storage areas.

SECTION X OTHER INFORMATION

FEDERAL OSHA HAZORDOUS COMMUNICATION STANDARD

ALL 50 STATES COMPLY TO TO FED. OSHA HAZARDOUS COMMUNICATION STANDARDS SOME STATES HAVE ENACTED LOCAL OSHA REGULATIONS, WHICH MAY TAKE PRESIDENCE. IT IS SUGGESTED YOU CONTACT YOUR STATE AND LOCAL AGENCIES FOR FURTHER INFORMATION.

THE INFORMATION CONTAINED HEREIN IS BASED ON INFORMATION RECEIVED FROM OUR RAW MATERIAL SUPPLIERS AND OTHER SOURCES AND IS BELIEVED TO BE RELIABLE. THIS INFORMATION IS NOT TO BE TAKEN AS A WARRANTY OR REPRESENTATION FOR WHICH SPRAYLAT CORP. ASSUMES LEGAL RESPONSIBILITY. INFORMATION ON THIS FORM IS TO BE USED TO COMPLY WITH OSHA AND HEALTH REGULATIONS ONLY AND NOT BE USED OR DISSEMINATED FOR OTHER PURPOSES.

Attachment 10

MSDSs for Alumibond 2 and Alodine 47

TCI POWDER COATINGS
4036 Dixon Drive • P.O. Box 13 • Ellaville, GA 31806 • 229•937•5411 • FAX 229•937•2064

May 21, 2001

Judy Vanouten
Lan Associates
66 Cuna St.
St. Augustine, FL 32084

Dear Judy,

I am writing you in response to your question about VOC's in powder coatings. Due to the fact that no organic solvents are used in the powder coating process, the levels of HAP and VOC's are negligible. This is one of the many advantages that powder coatings has over other coating processes. There is additional information about this topic on the EPA web site.

Please call if you have any questions.

Sincerely,

Mark Blalock
Director of Human Resources
TCI Powder Coatings

MATERIAL SAFETY DATA SHEET

ACI Chemicals, Inc.
140 Industrial St Lancaster, Texas 75134
Phone (214) 227-2241 Fax (214) 227-7943

ALUMIBOND 2

Section 1: Chemical Product Identification

Product Name: ALUMIBOND 2
Formula: Proprietary Mixture
Emergency Phone (Chemtrec): 1-800-424-9300

Section 2: Composition Information on Ingredients

ACI Chemicals' hazard evaluation has identified the following chemical ingredients as hazardous under OSHA's Hazard Communication Rule, 29 CFR 1910.1200.

Ingredients:	CAS #:	Approximate %:	OSHA PEL:	ACGIH TLV:
Hydrofluoric Acid	7664-39-3	20 - 25	2.5 mg/m3	2.5 mg/m3

Section 3: Hazards Identification

Emergency Overview: Clear colorless liquid with a slight sour odor. Causes skin and eye burns. While product contains a relatively small percentage of hydrofluoric acid, all precautions for products containing higher percentages should be observed.

Potential Health Effects:

Eye: Corrosive to the eyes and may cause severe burning and swelling to the eye and surrounding tissue.

Skin: Substance is corrosive. Causes irritation, redness, swelling of tissue and permanent scarring. The fluoride ion can penetrate the skin and attack the underlying tissue and bone.

Ingestion: Can cause severe mouth, throat and stomach burns. Can affect kidney function. Profound hypocalcemia is likely unless treated.

Inhalation: Mild exposure may irritate nose, throat and respiratory system. Severe exposure may cause burns to upper respiratory tract.

Chronic Effects: Damage to eye, skin and mucous membranes.

Signs and Symptoms: Irritation, redness or burning of eye or skin tissue.

Carcinogenicity: NTP: Not listed IARC Monographs: Not listed OSHA Regulated: Not listed

Section 4: First Aid Measures

Eyes: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Seek immediate medical attention, preferably eye specialist.
Skin: Immediately flush skin with plenty of water for 15 to 20 minutes removing contaminated clothing. Get medical attention immediately for all burns regaroless of how minor they appear. Discard contaminated clothing..
Ingestion: If swallowed DO NOT induce vomiting. Give large quanities of water. If available give several glasses of milk or milk of magnesia. Get immediate medical attention. Never give anything by mouth to an unconscious person.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Get immediate medical attention.
Note to Physician: The product contains complex fluorides. The physician's judgement should be used to control symptoms and clinical condition.

Section 5: Fire Fighting Measures

Flash Point: None **Method:**
Flammable Limits: Non flammable LEL: UEL:
Extinguishing Media: Use suitable agents for fires adjacent to nonleaking containers.
Unusual Fire and Explosion Hazards: Product contains acid which may react violently with water. Contact with many substances may generate considerable heat.
Fire - Fighting Equipment: As in any fire, wear self contained breathing apparatus, pressure-demand, MSHA/NIOSH (approved or equivalent) and full gear.

Section 6: Accidental Release Measures

Spill Control and Recovery: Clean up workers must use protective clothing and equipment to prevent body contact. Preferred clean up procedure is to dam up spill, dilute with water and neutralize with alkali such as soda ash or lime. Place in container for disposal. Avoid flushing chemical into public sewer or water systems. Flush clean up area with water. Small spills may be neutralized with dilute soda ash solution before flushing away. For large spills pick up spill with vacuum equipment (acid resistant) for disposal, or flush to holding area with water, prior to neutralization. Notify local health and pollution control officials if flushed spillage unavoidably enters public sewers or other water systems.
US regulations require reporting of spill of this material that could reach any surface waters. Spills containing 100 lbs. or more of Hydrofluoric Acid must be reported to the National Response Center - Phone (800) 424-8802.

Section 7: Handling and Storage

Handling: Wash thoroughly after handling. Wash hands with soap and water before eating, drinking, smoking or using toilet facilities. Exposure can cause burns which are not immediately painful or visible. Use with adequate ventilation. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing dust or mist. Avoid contact with eyes, skin and clothing.

Storage: Store in tightly closed container in a cool dry place. Do not store near strong acids. Keep away from food or feed products. Keep out of reach of children.

Section 8: Exposure Controls, Personal Protection

Engineering Controls:

Eye Protection: Chemical safety glasses or chemical splash goggles. Have emergency eye bath available where eye contact can occur. Do not wear contact lenses.

Skin Protection: Neoprene gloves, along with neoprene apron and sufficient clothing o minimize skin contact. Have emergency safety shower available where skin contact an occur.

Respiratory Protection: A respiratory program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Exposure Guidelines: Provide ventilation adequate to maintain airborne concentrations below OSHA limits of 2.5 mg/m3. Local exhaust ventilation preferred where dilutions or reactions cause misting.

Section 9: Physical and Chemical Properties

Specific Gravity: 1.07
pH (1% Solution): 3.5
Solubility In Water: Complete
Vapor Pressure: Not available
Vapor Density: Not available
Appearance: Clear colorless liquid
Odor: Slight sour odor
Boiling Point: No data available
Evaporation Rate: No data available
Melting Rate: No data available

Section 10: Stability and Reactivity Data

Stability: Stable **Conditions to Avoid:** Avoid high heat. Add carefully to water.
Incompatability with Other Materials: Glass, concrete and other silicon-bearing materials including fiberglass. Carbonates, sulfides and cyanides. Alkalis, some oxides, fluorine and other water-reactive materials. Corrosive to many materials including leather, rubber and many organics.
Hazardous Decomposition or Byproducts: Does not decompose. Boils away as hydrogen fluoride gas and water.
Hazardous Polymerization: Will not occur.

Section 11: Toxicological Information

No data available

Section 12: Ecological Information

No data available

Section 13: Disposal Considerations

If not diluted and neutralized, this product, as a liquid, can become a hazardous waste as designated by the Environmental Protection Agency under authority of the Resource Conservation and Recovery Act (RCRA). The waste would have RCRA Hazardous Waste number 002 (Corrosive) as designated in 40 CFR 261.22. It is the responsibility of the user to dispose of the chemicals, chemical baths, their container and materials used in spill clean up in accordance with the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, as well as any other relevant federal, state or local laws and regulations regarding disposal.

Section 14: Transport Information

DOT Shipping Description: Compound, cleaning liquid (Containing Hydrofluoric Acid) 8, NA1760, PG II, RQ

Section 15: Regulatory Information

The following Federal Regulations apply to this product:

OSHA's Hazard Communication Rule, 29 CFR 1910.1200:
Based on ACI Chemicals' hazard evaluation, the following ingredient in this product is hazardous and the reason is shown below.
CERCLA, 40 CFR 117.3:
This product contains the following ingredient specified in the List of Reportable Quantities of Hazardous Substances.
Hydrofluoric Acid - 100 lbs.
SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III)
Section 302, Extremely Hazardous Substances (40 CFR 355):
This product contains the following ingredient listed in Appendix A and B as an Extremely Hazardous Substance.
Hydrofluoric Acid

Sections 311, Hazard and Physical Properties (40 CFR 370):

ACI Chemicals' evaluation has determined this product should be reported under the following categories:

- X Immediate Health Hazard (Acute)
- X Delayed Health Hazard (Chronic)
- Fire Hazard
- Sudden Release of Pressure Hazard
- X Reactive Hazard
- Pure Chemical
- X Mixture of Chemicals
- Solid Chemical State
- X Liquid Chemical State
- Gaseous Chemical State

Section 313 - Toxic Chemical Release Inventory (40 CFR 372) (Form R):

This product contains the following chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right to Know:

Hydrofluoric Acid

Toxic Substances Control Act (TSCA) (40 CFR 710):

All components of this product are listed or are excluded from listing on the 8(b) Inventory List.

Section 16: Other Information

Hazard Rating System:

NFPA:

3 Health
0 Flammability
1 Reactivity
Cor Special Hazard

HMIS:

3 Health
0 Flammability
1 Reactivity
J Personal Protection

Prepared By: Diane Patterson

Date: February 3, 1994

Revised: June 1, 1994

Material Safety Data Sheet

Product Trade Name: ALODINE® 47 **Code:** 235101

* * * Section 1 - Chemical Product and Company Identification * * *

Product Trade Name: ALODINE® 47

Manufacturer Information

Henkel Surface Technologies
32100 Stephenson Highway
Madison Heights, MI 48071

Contact Phone: (248) 583-9300

Chemtrec Emergency # (800) 424-9300

* * * Section 2 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
7664-39-3	Hydrogen fluoride	10-30

Additional Information:

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

* * * Section 3 - Hazards Identification * * *

Emergency Overview:

DANGER -- CORROSIVE! Contact with this material will cause burns to the skin, eyes and mucous membranes. Prolonged or repeated breathing may cause ulceration of nasal membranes. Following skin exposure to this product, the sensation of irritation or pain may be delayed.

Eye Contact:

This product is severely irritating to the eyes and may cause irreversible damage including burns and blindness.

Skin Contact:

This product is severely irritating to the skin and may cause burns. Following skin exposure to this product, the sensation of irritation or pain may be delayed.

Skin Absorption:

A component in this product may be harmful or fatal if absorbed through the skin, especially if skin is damaged. Hydrofluoric acid will penetrate the skin and attack underlying tissue and bone. Large burns (over 25 square inches) may also cause hypocalcemia and other systemic effects which may be fatal.

Ingestion:

This product may produce corrosive damage to the gastrointestinal tract if it is swallowed. Ingestion of small amounts of this product may result in potentially fatal hypocalcemia and systemic toxicity. Ingestion of large amounts of this product may result in fluoride poisoning including symptoms of calcification of the ligaments and severe bone changes making normal movements painful, mottling of the teeth, pulmonary fibrosis, anemia, anorexia, dental effects, and possibly death.

Inhalation:

Inhalation of mists of this product may cause severe irritation and burns to the respiratory tract.

Medical Conditions Aggravated by Exposure:

Pre-existing eye, skin and respiratory disorders.

* * * Section 4 - First Aid Measures * * *

Eye Contact:

In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.

Skin Contact:

Immediately take off all contaminated clothing. Flush with large amounts of water. Soak the affected area for one hour in an iced solution (0.13%) of Zephiran chloride (30 cc of 17% concentrate per gallon of iced distilled water) GET MEDICAL ATTENTION IMMEDIATELY.

Ingestion:

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting. Give one to two glasses of water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions

Inhalation:

If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.

First Aid:, Notes to Physician

Ocular exposure to corrosive fluoride compounds has been treated with isotonic sodium chloride or magnesium chloride. Dermal exposure to corrosive fluoride compounds has been treated with calcium gluconate or calcium carbonate gel applied topically to the affected areas to relieve pain at the site of exposure. Treatment of hypocalcemia associated with corrosive fluoride compounds exposure may be corrected by intravenous calcium gluconate or calcium chloride. Treatment of hypomagnesemia may be corrected by intravenous magnesium sulfate.

* * * Section 5 - Fire Fighting Measures * * *

Flash Point:	Not applicable
Method Used:	Not applicable
Flammability Classification:	Non-flammable
Upper Flammable Limit (UFL):	Not applicable
Lower Flammable Limit (LFL):	Not applicable

Fire & Explosion Hazards:

This product is an aqueous mixture which will not burn.

Decomposition Products:

Irritating and toxic gases or fumes may be released during a fire. Flammable and explosive hydrogen gas may be formed when hydrofluoric acid reacts with certain metals. Hydrogen fluoride gas may evolve when chemical is subjected to prolonged high temperature.

Extinguishing Media:

Dry chemical.

Fire-Fighting Instructions:

Firefighters should wear full protective clothing including self contained breathing apparatus.

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures:

Stop the flow of material, if this is without risk. Wear appropriate protective equipment and clothing during clean-up.

Clean-Up Procedures:

Absorb spill with inert material. Shovel material into appropriate container for disposal. Dispose of collected material according to regulation.

* * * Section 7 - Handling and Storage * * *

Handling Procedures:

Do not get this material in your eyes, on your skin, or on your clothing. Do not inhale vapors or mists of this product. Wash thoroughly after handling. Do not take internally. For industrial use only. IN CASE OF CONTACT OR SUSPICION OF CONTACT, PROMPT MEDICAL ATTENTION IS ABSOLUTELY NECESSARY

Storage Procedures:

Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials

*** Section 8 - Exposure Controls / Personal Protection ***

Exposure Guidelines:

A: General Product Information

Follow all applicable exposure limits.

B: Component Exposure Limits

Hydrogen fluoride (7664-39-3)

ACGIH: as F: C 3 ppm; C 2.3 mg/m3
OSHA: as F: 3 ppm TWA
as F: 6 ppm STEL
NIOSH: as F: 3 ppm TWA; 2.5 mg/m3 TWA
C 6 ppm; C 5 mg/m3 (15 min)

Engineering Controls:

Ventilation should effectively remove and prevent buildup of any vapor or mist generated from the handling of this product.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face Protective Equipment:

Wear chemical goggles; face shield (if splashing is possible).

Skin Protection:

Use impervious gloves. Recommended gloves include butyl rubber and neoprene. Use of impervious apron and boots are recommended.

Respiratory Protection:

If ventilation is not sufficient to effectively prevent buildup of aerosols or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

Personal Protective Equipment:

Eye wash fountain and emergency showers are recommended.

*** Section 9 - Physical & Chemical Properties ***

Physical State:	Liquid	**Appearance:**	Light green
Odor:	Sharp	**Vapor Pressure:**	Not determined
Vapor Density:	Not determined	**Boiling Point:**	>212 °F (>100 °C)
Specific Gravity:	1.0 - 1.1	**pH:**	<1.0
Viscosity:	Not determined	**VOC:**	Not applicable
Solubility Water:	Complete	**Evaporation Rate:**	Not determined
Percent Volatile:	Not determined	**Percent Solids:**	Not applicable

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability:

Stable under normal conditions.

Conditions to Avoid:

None expected.

Incompatibility:

This product may react with strong alkalies. This material will react with glass, concrete, certain metals, silica containing materials, rubber, leather, and many organics.

Decomposition Products:

May liberate hydrogen fluoride.

Material Safety Data Sheet

Product Trade Name: ALODINE® 47 Code: 235101

Hazardous Polymerization:

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Toxicity:

A: General Product Information

No information available for the product. The main routes of occupational exposure to hydrogen fluoride are inhalation, ingestion, and skin absorption. Exposure to hydrogen fluoride may result in severe irritation or burns to the eyes, skin, gastrointestinal system, and respiratory system. Contact with hydrogen fluoride may not be immediately evident due to the delayed onset of pain following exposure to fluoride compounds. Systemic effects include salivation, nausea, abdominal pain, vomiting, diarrhea, nervousness, convulsions, muscle pain, shock, central nervous system (CNS) depression (dizziness, weakness, loss of coordination), tachycardia, hypotension, electrolyte imbalances (hypocalcemia, hypomagnesemia), muscle weakness, cardiovascular collapse, breathing difficulty, difficulty speaking, and loss of consciousness. Death is usually from respiratory arrest or cardiac failure Chronic exposure to hydrogen fluoride may result in fluorosis characterized by calcification of ligaments and severe bone changes which result in painful movements, mottling of the teeth, pulmonary fibrosis, anemia, anorexia, and weight loss.

B: Component Analysis - LD50/LC50

Hydrogen fluoride (7664-39-3)

Inhalation LC50 Mouse: 342 ppm/1H

Inhalation LC50 Rat: 1276 ppm/1H

Carcinogenicity:

A: General Product Information

No information available for the product.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Epidemiology:

No information available for the product.

Neurotoxicity:

No information available for the product.

Mutagenicity:

No information available for the product.

Teratogenicity:

No information available for the product.

Other Toxicological Information:

None available.

*** Section 12 - Ecological Information ***

Ecotoxicity:

A: General Product Information

No data available for this product. Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

Environmental Fate:

No data is available concerning the environmental fate, biodegradation or bioconcentration for this product

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Numbers & Descriptions:

A: General Product Information

This product, if discarded directly, would be a characteristic RCRA corrosive waste (D002). Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes

B: Component Waste Numbers

Hydrogen fluoride (7664-39-3)

RCRA: waste number U134 (Corrosive waste; Toxic waste)

Disposal Instructions:

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations. Neutralize the spilled material before disposal.

* * * Section 14 - Transportation Information * * *

US DOT Information

Shipping Name: Please refer to the container label for transportation information.

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

No additional information available.

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Hydrogen fluoride (7664-39-3)

SARA 302: TPQ = 100 pounds; RQ = 100 pounds
SARA 313: form R reporting required for 1.0% de minimus concentration
CERCLA: final RQ = 100 pounds (45.4 kg)

SARA 311/312: **Acute:** Yes **Chronic:** Yes **Fire:** No **Pressure:** No **Reactive:** No

State Regulations

A: General Product Information

No additional information available.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists.

Component	CAS #	CA	FL	MA	MN	NJ	PA
Hydrogen fluoride	7664-39-3	Yes	Yes	Yes	Yes	Yes	Yes

Other Regulations

A: General Product Information

All components are on the U.S. EPA TSCA Inventory List.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Hydrogen fluoride	7664-39-3	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Hydrogen fluoride	7664-39-3	1% item 847 (906)

* * * Section 16 - Other Information * * *

NFPA Ratings: Health: 4 **Fire:** 0 **Reactivity:** 0 **Other:**
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

HMIS Ratings: Health: 4* **Fire:** 0 **Reactivity:** 0 **Pers. Prot.:**
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

The information presented herein is believed to be factual as it has been derived from the works and opinions of persons believed to be qualified experts; however, nothing contained in this information is to be taken as a warranty or representation for which Henkel Surface Technologies bears legal responsibility. The user should review any recommendations in the specific context of the intended use to determine whether they are appropriate.

Contact: Sulinda Leffingwell
Contact Phone: (248) 583-9300

This is the end of MSDS # 235101

Attachment 11

VAW Letter of Authorization

VAW of America, Inc.

Mr. Christopher L. Kirts, P.E.
District Air Program Administrator
Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256-7590

July 25, 2001

Subject: Permit No. 1090013-003-AV, Project 005 Air TV Permit Revision
LAN Ref. #2.392.41

Dear Mr. Kirts:

As the responsible official for VAW of America, Inc., as defined by 62 F.A.C. 210.200, I appoint Mr. Robert Keathley, Vice President of Operations, VAW of America, Inc., 200 Riviera Boulevard, St. Augustine, Florida, to serve as my authorized representative regarding air permitting matters for the VAW St. Augustine facility. As the authorized representative, he may execute any and all application forms, certification, reports, compliance statements and schedules, etc., as may be required by the Department from time to time to manage the Title V air permitting requirements for the facility.

If you have any questions regarding this appointment, please contact me at 794-1500, Ext. 2121.

Sincerely,

Albert F. Styring
President

/jvh
2-392-41-Kirst-RespOfficial-010724-jvh.doc

Copy:
Judy Van Houten/LAN Associates, Inc.
Bob Keathley

101 E. Town Place, Suite 800 • St. Augustine, Florida 32092 • (904) 794-1500 • Fax (904) 940-1535

Attachment 12

Professional Engineer Certification/LAN Associates, Inc.

Application Processing Fee

Check one :

[ ] Attached - Amount : $0.00 [X] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations :

   The application is submitted to modify the air construction permits for the facility. The operations in Old Casthouse (Emission Units (EU) #1, #2, #3) are terminated. The original Painting Facility (EU #4), Solve Cleaning Operations (EUs #11, #12, #14, and #15) are combined (EU #4). The two Remelting Furnaces (EUs #8, #9) are modified for fuel use capacities. The Homogenizer (original EU #10) is changed to insignificant source. There is an increase in annual 140-solvent usage of 35 tons from the existing permit to potential production increase. There is no actual construction activities connected with this application.

2. Projected or Actual Date of Commencement of Construction :

3. Projected Date of Completion of Construction :

Professional Engineer Certification

1. Professional Engineer Name : Guy D. Van Doren
   Registration Number : 40454

2. Professional Engineer Mailing Address :

   Organization/Firm : LAN Associates, Inc.
   Street Address : 66 Cuna Street
   City : St. Augustine State : FL Zip Code : 32084

3. Professional Engineer Telephone Numbers :
   Telephone : (904)824-6999 Fax : (904)824-0726

4. Professional Engineer Statement :

I, the undersigned, hereby certify, except as particularly noted herein, that :*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollutant control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ] if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [ ] if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ] if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Signature _____ Date _____

(seal)