

INSPECTION REPORT

FACILITY: TSE Industries, Inc.		DISTRICT: Southwest	COUNTY: Pinellas
ADDRESS: 5260 113th Avenue North Clearwater, Florida 33760		CONTACT: Mr. Dave Richcreek, Safety & Environmental Administrator Phone No: (727) 573 - 7676	
ARMS No.: NA	PERMIT NO.: NA	EXPIRATION DATE: NA	
EMISSION UNIT DESCRIPTION: Proposed EU 003 - TDI dimer batch reactor system (pilot plant) New batch process emits toluene from transfer and filling tanks and batch reactor system, itself. VOC emissions are uncontrolled except for condenser on TDI dimer dryer.			
EMISSION UNIT TYPE: Title V			
INSPECTION DATE: March 20, 2000 Last Inspected September 9, 1999	ARMS COMPLIANCE ACTIVITY: INS2	ARMS COMPLIANCE STATUS: Unknown	

Inspection Comments/Recommendations:	Compliance Status			Comment/Value
	Yes	No	NA	
1. Permit File Review	✓			Facility was inspected as part of a toxics review on their recent Title V permit application
2. Valid Permit 62-210.300, F.A.C.		✓		The facility may have been operating as more than a pilot operation in the time since they requested a waiver for the process in 1997.
3. Introduction and Entry: 403.091, F.S., 62-4.160, F.A.C., PC Code, Sec. 58-94	✓			Dave Richcreek
4. Process Rate Limitation. Spec. Cond. No. 4			✓	
5. Annual Visible Emissions Test :Spec. Cond. 11, 62-296.712(2)(c), F.A.C.			✓	
6. Hours of Operation. Spec. Cond. No. 3	✓			Unlimited (8760 hours per year)
7. Control Device O&M Plan, Pinellas County Code, Section 58-128			✓	
8. Department Visible Emissions Test: 62-296.712 (2), F.A.C			✓	
9. Records Properly Maintained: 62-4.070(3), F.A.C.			✓	
10. Unconfined Emissions: 62-296.310(3), F.A.C.	✓			No apparent dust leaving the property.
11. Facility Changes: 62.210.300, F.A.C. S. C. 5. & Gen. Condition No. 2	✓			Facility has started up dimer production.
12. Closing Conference	✓			Dave Richcreek

Purpose of Inspection

This source was inspected to assist the inspector with a toxics review of TSE's recent Title V permit application. Mr. Richcreek provided assistance during the inspection.

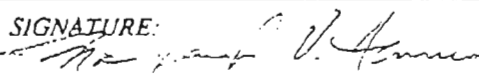
(Continued On Next Page)

Inspection Summary:

The facility is still planning to relocate the machining, sizing, shaping and cutting of materials (EU #1) to a new off-site location and operate the process as uncontrolled (PM). The address for the new facility is 4370 112th Terrace North, Clearwater, which is estimated to be 0.5 miles away. The equipment is still operating at the time of the inspection. TSE receives toluene at the 113th Avenue facility in 5000 gallon tankers. Toluene is stored in two 4000 gallon tanks, with fixed roofs and with a nitrogen blanket. Toluene is used as a diluent for toluene diisocyanate monomer (TDI). The TDI monomer consists of 98% 2,4- TDI and 2% 2,6- TDI (isomers). Toluene and 2, 6 - TDI are not part of the reaction. I requested information on the reaction. Mr. Richcreek could not provide the reaction, but stated nothing was evolved during the process (i.e. no gases were given off), the toluene was not being used up, and the 2, 6 - isomer, and added catalysts and "stoppers" become contaminants in the waste toluene. **The toluene is reused for about two weeks before being transferred off site to be recycled.** According to plant personnel, TDI is reacted for 12 to 16 hours in the 3700 gallon mixing tank. After this time, the TDI dimer is transferred to a centrifuge, about six hundred pounds at a time. Here the toluene-laden TDI dimer slurry is centrifuged to remove toluene and other contaminants (2,6, TDI, the catalyst and the stopper). The material is rinsed three times with toluene. (The rinses go back to the toluene holding tanks). When the centrifuge is finished the material is transferred (dropped) to a dryer below the centrifuge. **During this transfer, the toluene-laden air in the centrifuge is allowed to escape uncontrolled.** The material is then dried at <200°F, under a vacuum, to a fine powder. Emissions from the dryer are vented to a condenser to remove the toluene. Drying time is 45 minutes to a couple of hours. According to plant personnel, a complete batch process runs for approximately 2.5 days.

Spent/used toluene is shipped in 5000 gallon tankers. Depending on the amount transferred, Mr. Richcreek stated the it takes 1-2 hours (1.25 hours average) to fill a tanker. It takes 45 minutes to transfer virgin toluene from tankers to the holding tanks. Shipments are received and transferred approximately every two weeks. According to plant personnel, they receive 30,000 lbs. of toluene every two weeks. A production manager at the facility stated they manufacture their product 7-8 months per year until they meet their inventory requirements. It appears dimer manufacturing has been in full production for at least one year already, potentially placing TSE in violation of operating an emissions unit without a permit.

TSE has other reactors where they make another one of their urethane products. NMP is used to clean the lines from this process. MDI is used along with a polyol for this reaction. I observed a drumming operation of this process. Something was emitted as the material filled the drums, as a small vapor/fume was observed. Mr. Richcreek stated Bayer Corp. industrial hygienists were arriving the following day to do some air monitoring of this process as part of their product stewardship program. Mr. Richcreek stated he thought the emissions might be vaporized product (urethane). TSE also has **a small pilot plant to prepare urethane paint.** The emissions from this line will need to be included in any emissions estimate. Potentially the emissions from this process will need to be addressed in their air permit and their case-by-case MACT determination. A toxics review was drafted for this facility at the conclusion of this inspection. The file is located in aqtox\reviews\tse2000c.rev.

INSPECTOR: Margaret V. Hennis, Pinellas County Air Quality Division	
SIGNATURE: 	DATE: 3/23/00

Contact Log (DATE) 3/23/00
 ARMS Entry (DATE) 3/23/00
 Advisory Letter Required _____ (DATE) _____ (FILE NAME)
 Enforcement Letter Required 2 (DATE) _____ (FILE NAME)
 Paradox Entry (DATE) 3/20/00
 Paradox Proj ID 25320

F:\USERS\AIRQUAL\WPDOCS\AQ\02070100.mvh



Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Mr. Robert Klingel, President
TSE Industries, Inc.
5260 113th Avenue North
Clearwater, FL 33760

April 17, 2000

RECEIVED

APR 19 2000

BUREAU OF AIR REGULATION

Dear Mr. Klingel:

Re: Air Construction Permit Application, Dated February 15, 2000
Project: Batch Reactor System
DEP Project No.: 1030207-003-AC
Location: TSE Industries, Inc., 5260 113th Avenue North, Clearwater, Pinellas County.

On March 20, ~~1999~~²⁰⁰⁰, the Department received the above referenced air permit application. In order to continue processing the application, the Department will need the following additional information pursuant to Rule 62-4.070(1), F.A.C.

1. Please discuss the applicability of 40 CFR 63 Subparts F, G, and H*, collectively known as the Hazardous Organics NESHAP (HON) rule, to this project and update the application as necessary.

A. If the project is subject to HON, list each affected emission source and show its location on a plant diagram. List the applicable section of the rule that applies to each emission source.

B. If the project is not subject to HON, you will be required to install the Maximum Achievable Control Technology (MACT). A MACT Determination must be submitted, with a copy to:

Bureau of Air Regulation
Air Toxics Permitting Unit
Florida Department of Environmental Protection
Mail Station #5505
2600 Blair Stone Road
Tallahassee, FL 32399-2400

* 40 CFR 63

- Subpart F, *National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry*
- Subpart G, *National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater*
- Subpart H, *National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks*

2. Please complete the emissions unit section of the application for the storage tanks subject to 40 CFR 60 Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984*.
3. Please discuss the applicability of 40 CFR 60 Subpart VV, *Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry*, to this project and update the application as necessary.
4. Can any additional measures be taken to prevent fugitive emissions during the product transfer operations?
5. Please describe in detail where the toluene losses occur.
6. Please provide a new facility plot plan and process flow diagram. Be sure to include all organic liquid storage tanks, reactors, dryer, condensor, and flow arrows where appropriate.
7. How is the dryer oil heated?
8. Please address the questions in the attached letter from the Pinellas County Department of Environmental Management.

This staff assessment is preliminary and is designed to assist in the review of the application prior to final agency action. The comments provided herein are not the final position of the Department and may be subject to revision pursuant to additional information and further review.

"NOTICE: Pursuant to the provisions of Section 120.60, F.S. and Chapter 62-12.070(5), F.A.C., if the Department does not receive a response to this request for information within 90 days of the date of this letter, the Department will issue a final order denying your application. You need to respond within 30 days after you receive this letter, responding to as many of the information requests as possible and indicating when a response to any unanswered question will be submitted. If the response will require longer than 90 days to develop, an application for new construction should be withdrawn and resubmitted when completed information is available. Or for operating permits, you should develop a specific timetable for the submission of the requested information for Department review and consideration. Failure to comply with a timetable accepted by the Department will be grounds for the Department to issue a Final Order of Denial for lack of timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant can reapply as soon as the requested information is available."

TSE Industries, Inc.

DEP File No. 1030207-003-AC
Page 3 of 3

NOTE: Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature.

Question regarding the MACT Determination should be directed to Cindy Phillips, P.E. at 850/488-1344. If you should have any other questions, please call me at 813-744-6100, ext. 112.

Sincerely,



Eric Peterson, P.E.
Air Permitting Engineer

Attachment

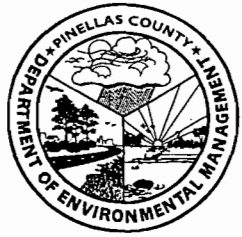
cc:

✓ Ms. Cindy Phillips, P.E., DARM
Mr. Gary Robbins, PCDEM
Mr. Cory Houchin, ESG



PINELLAS COUNTY
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

AIR QUALITY DIVISION
300 SOUTH GARDEN AVENUE
CLEARWATER, FLORIDA 33756



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FAX:(727)464-4420
SUNCOM:570-4422
SUNCOM FAX:570-4420

D.E.P.
MAR 3 1 2000
Southwest District Tampa

March 29, 2000

Eric Peterson
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

Re: TSE Industries Inc., 1030207-003-AC - Construct Toluene Diisocyanate Dimer Batch Reactor

Mr. Peterson:

This office has reviewed the construction application for the above mentioned facility. The application is considered incomplete.

1. The application indicates that the facility plot plan has been waived. Since this application is for a new process, a new plot plan should be submitted.
2. SCC Codes:
 - A. 30800703 (Fiberglass Resin Products, Solvent Consumption.) is for VOC fugitive emissions from . This is not a proper SCC code for a non-fiberglass resin product.
 - B. 30800699 (Rubber and Miscellaneous Plastics Products, Other Fabricated Plastics) is used for the Batch Reactor. Is the adhesive considered a rubber or plastic product?
 - C. No SCC given for toluene tank operations.
3. No manufacturer guarantee or testing information is provided to support the claim of 97% control efficiency for the refrigerated condenser on the Batching operation.
4. Toluene Tanks:
 - A. Are there any controls for the Toluene tanks (submerged or bottom filling, etc) which are in place to minimize transfer loses?
 - B. What size are the tanks and how many are there? The process flow diagram shows one, while a 3/20/00 inspection indicates two 4,000 gallon tanks are present.

5. Batch Reactor Process:
- A. The emissions calculations for the batch process does not provide enough detail. Please submit detailed calculations that incorporate the full process (tanks, batching, recycling, etc.).
 - B. If TSE plans on documenting emissions by mass balance, they should submit a proposed record keeping procedure. Are there any flow meters for proper documentation of use?
 - C. The process flow chart shows Reactor 1 and a Reactor 5. Are there Reactors 2-4?
 - D. The process flow chart shows a "Mother Liquor", what is this.
6. The 3/20/00 inspection mentions a drying process after the centrifuge, however none is shown on the process diagram. Is there a dryer? If so a new process diagram is required.
7. The application requests the VOC emissions for clean-up operations be increased by 2.75 tons/year. What type of solvents are used for clean-up operations?
8. The facility will need to propose a case-by-case MACT.
9. Are there any diisocyanate emissions from the reaction?
10. The application indicates the rubber compounding line (Emission Unit 001) is to be terminated. The 3/20/00 inspection indicates that this line is to be relocated to 4370 112th Terrace North, Clearwater. Which is correct?
11. TSE's consultant, Environmental Sciences Group, submitted a letter to DEP, dated 5/2/97, stating a pilot plant had been constructed to investigate the production of toluene diisocyanate (TDI).
- A. Please submit the production rates of TDI and toluene emissions (include calculations) for 1997, 1998, and 1999.
 - B. What equipment is currently on-site and what needs to be constructed?
12. The 3/20/00 inspection indicates that there is a "pilot" plant to prepare urethane paint. Why is this not part of the permit and what are the plans for the project?
- A. When was this project started.?
 - B. What are the emissions (potential & actual) from this operation?

If you have any questions, please contact me at (727) 464-4422 or Suncom 570-4422.

Sincerely,



Gary Robbins
Environmental Program Manager

cc: PF(1030207),



Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Mr. Robert Klingel, President
TSE Industries, Inc.
5260 113th Avenue North
Clearwater, FL 33760

June 23, 2000

Dear Mr. Klingel:

Re: Air Construction Permit Application, Dated February 15, 2000
Project: Batch Reactor System
DEP Project No.: 1030207-003-AC
Location: TSE Industries, Inc., 5260 113th Avenue North, Clearwater, Pinellas County.

RECEIVED
JUN 26 2000
BUREAU OF AIR REGULATION

On May 24, 2000, the Department received a response to a Department request for information on the above referenced air permit application. In order to continue processing the application, the Department will need the following additional information pursuant to Rule 62-4.070(1), F.A.C.

1. Please submit a Maximum Achievable Control Technology (MACT) Determination, sealed by a professional engineer registered in Florida, to:

Bureau of Air Regulation
Air Toxics Permitting Unit
Florida Department of Environmental Protection
Mail Station #5505
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Provide a copy of the MACT Determination to the Pinellas County Department of Environmental Management (PCDEM) and to the Southwest District office.

2. Please update the plot plan to show the distillation process for the recovery of toluene from the mother liquor.

3. What is the size (MMBtu/hr) of the dryer oil heater?

4. Please describe a testing scenario that could be used to determine the condenser control efficiency.

5. The tanks description in the response letter dated May 19, 2000 (item 8.4.B) and the revised plot plan do not correspond. Please clarify.

This staff assessment is preliminary and is designed to assist in the review of the application prior to final agency action. The comments provided herein are not the final position of the Department and may be subject to revision pursuant to additional information and further review.

"NOTICE: Pursuant to the provisions of Section 120.60, F.S. and Chapter 62-12.070(5), F.A.C., if the Department does not receive a response to this request for information within 90 days of the date of this letter, the Department will issue a final order denying your application. You need to respond within 30 days after you receive this letter, responding to as many of the information requests as possible and indicating when a response to any unanswered question will be submitted. If the response will require longer than 90 days to develop, an application for new construction should be withdrawn and resubmitted when completed information is available. Or for operating permits, you should develop a specific timetable for the submission of the requested information for Department review and consideration. Failure to comply with a timetable accepted by the Department will be grounds for the Department to issue a Final Order of Denial for lack of timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant can reapply as soon as the requested information is available."

NOTE: Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature.

Question regarding the MACT Determination should be directed to Cindy Phillips, P.E. at 850/488-1344. If you should have any other questions, please call me at 813-744-6100, ext. 112.

Sincerely,



Jerry Kissel, P.E.
Air Permitting Supervisor

Attachment

cc:

Ms. Cindy Phillips, P.E., DARM
Mr. Gary Robbins, PCDEM
Mr. Cory Houchin, ESG



RECEIVED
JUL 27 2000

July 24, 2000

Mr. Eric Peterson, P.E.
Florida Department of Environmental Protection
Division of Air Resources Management - Permitting Section
3804 Coconut Palm Drive
Tampa, Florida 33619

**RE: Request for Information - Application to Construct a Batch Reactor System
TSE Industries, Inc.; Permit No. 1030207-001-AO**

Dear Eric:

This is in response to your letter of June 23, 2000 addressed to Mr. Robert Klingel of TSE Industries, Inc. (TSE) requesting further information necessary for completing the referenced application. This response will adopt the numerology of your request.

1. Acknowledged; a MACT Determination has been developed and will be submitted to the Department and PCDEM immediately upon completion.
2. Find enclosed the updated plot plans showing the distillation process.
3. The dryer oil heater fires at a rate of 1 mmbtu/hr.
4. The only feasible method to determine the condenser efficiency is by mass balance. Assuming that the condenser is sound, all captured toluene vapors will be discharged into the vacuum pump or the condensing coil. The sum of these two streams therefore equals the total input stream. The efficiency of the condenser can then be determined by comparing the condenser coil output stream alone versus the total input stream.

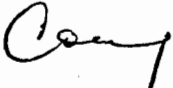
The mass of toluene collected from the condensing coil is easily measured, however the vacuum pump discharge is not. This office proposes EPA Methods 1, 2 & 18 (if possible) be used to determine the exit stream velocity and toluene concentration of the vacuum pump discharge.

5. Reactor #6 contains the "Mother Liquor", supernatant and first rinse of the T9 production process. The tank labeled *Mother Liquor* on the Process Diagram is actually the Rinse tank (2nd and 3rd toluene rinses of T9 process). These tank nomenclature have been in place at TSE for several years. Please excuse any inconvenience. Be aware that all reactor volumes given are approximations.

This response is a clarification of data previously submitted, either in the original application or subsequent requests for information and is therefore not considered to be of an engineering nature.

Thank you for your continued cooperation in this matter. Please feel free to contact this office at any time should you have questions or comments.

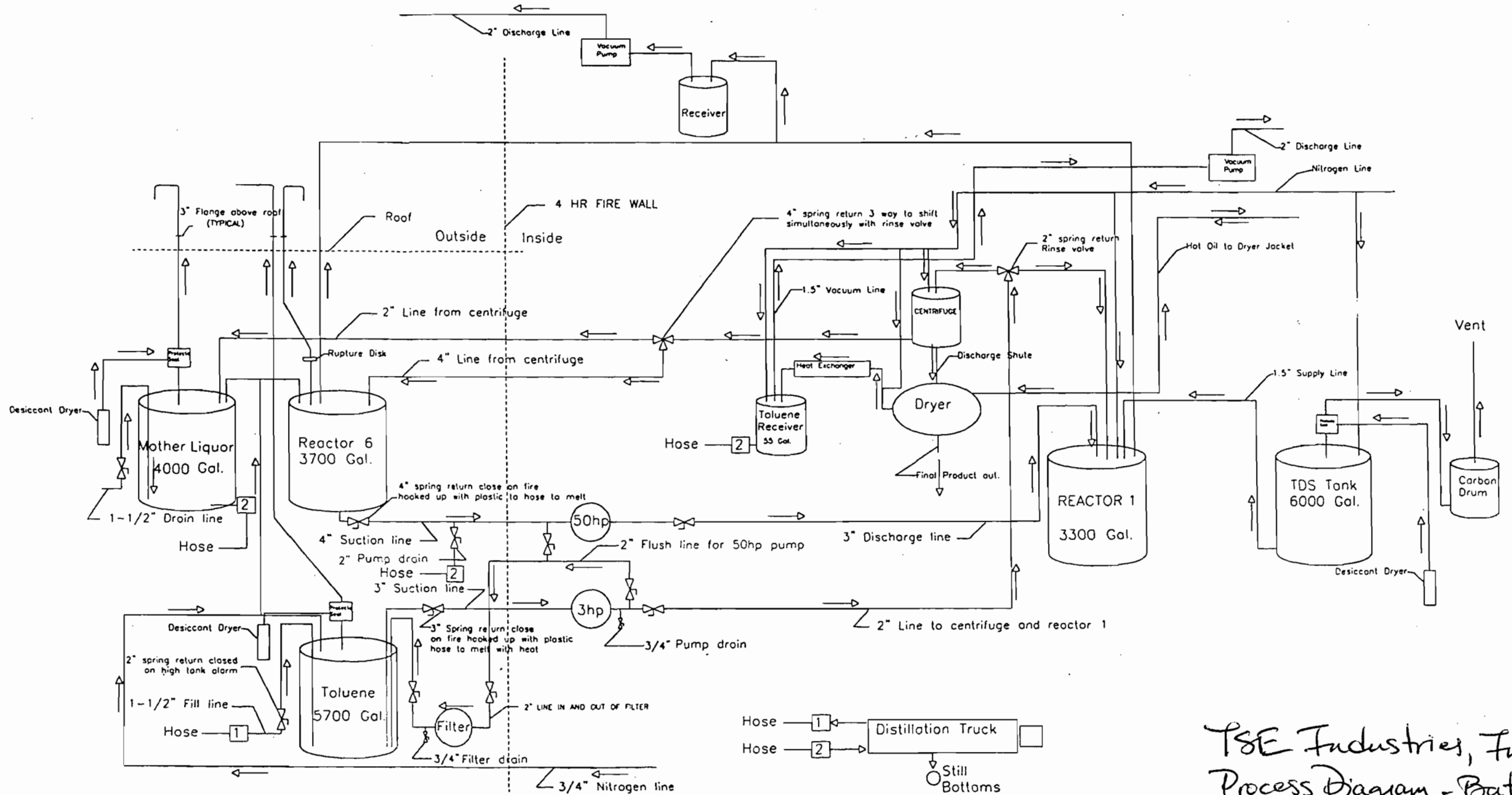
Sincerely,



Cory A. Houchin
Project Manager

Enclosure

cc: Dave Richcreek, TSE Industries, Inc.
Gary Robbins, PCDEM



TSE Industries, Inc.
 Process Diagram - Batch
 Reactor System



July 21, 2000

Bureau of Air Regulation
Air Toxics Permitting Unit
Florida Department of Environmental Protection
Mail Station #5505
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RECEIVED

AUG 11 2000

BUREAU OF AIR REGULATION

**RE: Request for Maximum Achievable Control Technology Determination
Batch Reactor System for Production of *Thanacure T9*
FDEP Project No.: 1030207-003-AC
Project Location: TSE Industries, Inc., 5260 113th Ave. N., Pinellas County**

CERTIFIED MAIL - Article #7000 0520 0015 6389 9641

Dear Sir/Madam:

The Department has recently begun processing of a Title V permit application for TSE Industries, Inc.'s (TSE) batch reactor system used to produce *Thanacure T9* (T9), a plastics & rubber adhesion promoter. T9 is not listed among the compounds given in Table 1 of 40 CFR 63, Subpart F. Therefore, the project is not subject to the Hazardous Organic NESHAP (HON) and the Southwest District has asked TSE to submit a request for a Maximum Achievable Control Technology (MACT) Determination for control of the toluene emissions from the operation. This is in response to the SW District's request.

TSE has constructed a batch reaction system for the production of T9 [1,3-Bis(3-Isocyanato-4-methylphenyl)-1,3-Diazetidino-2,4-dione] via the reaction of toluene and toluene diisocyanate monomer under pressure. TSE has determined that excess toluene is needed in the reaction to obtain adequate conversion (@ 40°F). Most of the toluene can be recovered and reused, but some loss does occur during product drying and removal.

The batch reactor (please refer to the process diagram) is charged with 6,000 lb. TDI and 22,600 lb. toluene and contacted for 12 – 48 hours under a N₂ blanket. The contents of the reactor are fed to a centrifuge in approximately 4,000 lb. aliquots. The supernatant, as well as the first toluene rinse of the product, is directed back to the "mother liquor" storage tank for reuse in the batch reactor (the "mother liquor" tank maintains a N₂ blanket, as does the virgin toluene storage tank). Further toluene rinses of the product are sometimes necessary. These rinses are directed from the centrifuge to the "Rinse" Storage Tank, also under N₂ blanket. All three of the toluene storage tanks are fitted with

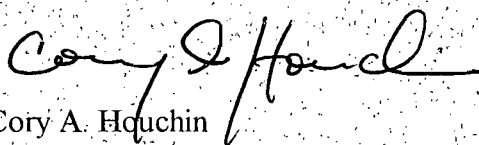
positive and negative pressure conservation vents/valves. Additionally, all storage tanks are bottom filled. A knife is used to scrape the contents from the drum of the centrifuge into a tumbling dryer directly below. The dryer is jacketed and hot oil is circulated throughout the jacket to effect drying of the product. Toluene vapors generated during drying are drawn off through a condenser with a vacuum pump. The toluene recovered in the condensation process is transferred to the Rinse Tank. Once the product is dry, the contents of the dryer is dumped into drums for specification testing and resale.

T9 has been produced previously by Bayer® in Germany, however TSE has no knowledge of T9 production in the United States. TSE is not aware of further measures Bayer® may have taken to minimize toluene loss. Similarly, they are unaware of further steps that can be taken to reduce toluene emissions from their own process. A method for determining the condenser efficiency is being discussed with the SW District to ascertain whether a significant loss is generated through the vacuum pump discharge.

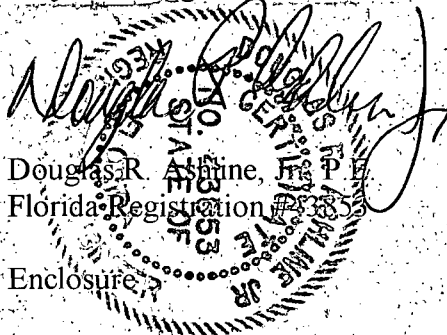
TSE feels that the measures currently in place to minimize toluene loss from the T9 production process are sufficient to meet MACT compliance. The facility appears to have achieved MACT due to the mere fact that the process is currently alone in its field. Therefore, this office requests on behalf of TSE that the Department make a determination regarding the MACT compliance status of TSE's batch reactor system. TSE looks forward to your response.

Please feel free to contact this office at any time should you have questions.

Sincerely,



Cory A. Houchin
Project Manager



Douglas R. Ashburn, Jr.
Florida Registration # 3335

Enclosure

cc: Dave Richcreek, TSE Industries, Inc.
Gary Robbins, Pinellas County Department of Environmental Management
Eric Peterson, PE, DARM-FDEP-SWDist

Phillips, Cindy

From: Eric Peterson TPA 813/744-6100
Sent: Thursday, August 17, 2000 8:58 AM
To: Cindy Phillips TAL 850/921-953
Subject: Re: TSE Application



ATT2746.TXT

I'll send up a copy of the application. They asked for 23.75 tpy of toluene emissions, based on scale-up of a pilot operation. Let me know if you need anything else.

Have fun!

INTEROFFICE MEMORANDUM

Date: 21-Aug-2000 02:07pm
From: Mcdonald.Randy
Mcdonald.Randy@epamail.epa.gov
Dept:
Tel No:

To: Cindy.Phillips (Cindy.Phillips@dep.state.fl.us)

Subject: Re: Misc. Organic Chemical Production and Processes

The proposal will be published sometime around the end of Oct., however, until it gets out of OMB we can't be sure. The proposal will include amendments to the source category list. Twenty-two chemical production categories will be subsumed into the misc. organic chem. manufacturing NESHAP. This NESHAP will also include other non-listed organic chem processes defined or described by SIC 28. I'm sure the process in question will be covered by the std.

Summary of applicability:

- 1) Facility must be a major source
- 2) Source must produce an organic chemical or product described by SIC 28
- 3) Process must use, generate, or emit a HAP



Environmental
Sciences **RECEIVED**
Group

SEP 01 2000

RECEIVED
MAY 24 2000

May 19, 2000

BUREAU OF AIR REGULATION

Department of Environmental Protection
SOUTHWEST DISTRICT
BY _____

Mr. Eric Peterson, P.E.
Florida Department of Environmental Protection
Division of Air Resources Management - Permitting Section
3804 Coconut Palm Drive
Tampa, Florida 33619

**RE: Request for Information Regarding Application to Construct a Batch Reactor System
TSE Industries, Inc.; Permit No. 1030207-001-AO**

Dear Eric:

This is in response to your letter of April 17, 2000 addressed to Mr. Robert Klingel of TSE Industries, Inc. (TSE) requesting further information necessary for completing the referenced application. This response will adopt the numerology of your request.

1. Pursuant to our meeting with Mr. Gary Robbins of Pinellas County Department of Environmental Management (PCDEM), the product of the batch reactor system, *Thanacure T9 and T9 Superfine* [1,3-Bis(3-Isocyanato-4-methylphenyl)-1,3-Diazetidid-2,4-dione], is not listed in Table 1 of Subpart F, 40 CFR 63. Therefore, it appears that this project is not subject to HON and TSE is required to submit a MACT Determination.
2. Subpart Kb, 40 CFR 60, exempts tanks storing VOL with a capacity of less than 10,567 gallons. TSE does not store VOL in tanks with a capacity of greater than 6,000 gallons. Therefore, it does not appear that TSE will be governed by this subpart.
3. 60.480(d)(2) of Subpart VV, 40 CFR 60 exempts facilities from all aspects of *Equipment Leaks of VOC* regulation except the record keeping requirements given in 60.486(i) if that facility produces less than 1,000 metric tons (Mg). Therefore, TSE will be required to maintain production records and keep them in a readily accessible place. The revised pages of the application have been included.

As we discussed in our telephone conversation on May 10, 2000, TSE has been keeping track of TDI emissions as part of the emissions inventory for EU ID 002 *VOC Fugitive Emissions*.

4. TSE is unaware of additional measures available to reduce toluene losses during product transfer. TSE has decided to use a distillation process to recover toluene from the "mother liquor" (supernatant and first rinse). This activity could reduce toluene loss significantly.
5. The process appears to have four opportunities for toluene to escape; 1) opening of the centrifuge and subsequent dumping of T9 into the tumbling dryer, 2) opening of the dryer and subsequent removal of T9 product, 3) loading of spent "mother liquor" into waste hauler tankers for disposal/recycle and 4) losses due to the condenser efficiency. As you may recall, a condenser captures toluene vapors as they are generated during the drying process.

heat exchanger

6. Please find enclosed a corrected process flow diagram depicting the batch reaction process in Attachment 1. Also find enclosed a facility plot plan and accompanying Tanks and Reactors: Chemical Contents Legend. All reactor volumes given are approximations.
7. The dryer oil is directly heated with a natural gas fired burner and is continuously recycled through the dryer jacket during operation.
8.
 1. Submitted in 6. above.
 2.
 - A. Please excuse the outdated SCC codes (1986) that were used in the original application. Four SCC codes were identified in the current list (updated 04/11/2000) that adequately characterize this source: 30801001 (Rubber and Miscellaneous Plastic Products, Plastics Products Manufacturing – Adhesives Production), 30880001 (Rubber and Miscellaneous Plastic Products, Equipment Leaks), 40703615 (Organic Chemical Storage, Fixed Roof Tanks-Aromatics, Breathing Loss) and 40703616 (Organic Chemical Storage, Fixed Roof Tanks-Aromatics, Working Loss).
 - B. The adhesive acts primarily as an adhesion promoter in urethanes. However, it is also a cross-linking agent for vulcanizable polyurethanes. Therefore, T9 can be either rubber or plastic; when bonding plastic materials, it would be considered plastic. Similarly, when bonding rubber materials, it is considered a rubber product.
 - C. Two SCC codes identified in A above describe toluene storage tank operations. However, given that the toluene storage tanks maintain a nitrogen blanket and the tanks are bottom filled, breathing and working losses do not seem to be applicable.
 3. *Heat exchanger*
The condenser is not a turn-key unit and the individuals that built the unit are not known. Therefore, a manufacturer's guarantee is not possible. Testing the vacuum pump discharge directly would likely be the best way to determine the condenser contribution to overall loss.

The efficiency value of 97% given in the original application submittal was meant to describe the toluene recovery of the system, derived from a mass balance. The spent mother liquor was typically 97% toluene when hauled away for recovery.
 4.
 - A. As noted in 8.2.C. above, the tanks maintain an N₂ blanket and are bottom filled. Additionally, the tanks are fitted with positive and negative pressure conservation vent/valve.
 - B. The virgin toluene tank is 5,539 gallons, the Mother Liquor (ML) tank, also called Reactor #6, is 3,700 gallons and the Rinse Tank is 4,000 gallons.
 5.
 - A. See Attachment 5.A.
 - B. The most easily tracked record keeping procedure would be a mass balance using the toluene purchased less the toluene remaining in spent ML, off-spec T9 and still bottoms manifested off site. This difference is the quantity of toluene entering the environment (due to the volatility of toluene, negligible amounts will be contained in the T9). Quarterly testing (e.g. EPA Method 24) of the manifested materials could be used to verify toluene content.

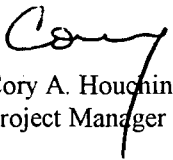
- C. There are Reactors #1-6. Reactor #1 is the T9 reactor (batch reactor for this process). Reactors #2-5 are unrelated to this process. Reactor #6 is the ML tank.
- D. ML is centrifuge discharge and first rinse of T9 product. Second, third, etc. rinses are discharged to the Rinse tank.
6. There is a jacketed dryer that uses hot oil to dry the product. The toluene vapors are recovered with a refrigerated condenser, also not shown on the original diagram. A revised process flow diagram was submitted in 6. above.
 7. Cleaning operations generally use isopropanol. Some rubber products cleaning utilizes MEK, as well as cleaning of glassware in the lab. N-methyl pyrrolidone (NMP) is used to clean reactors and strip rubber off of substrate. Ethanol is used in mold release formulations (TSE Crystals™). The laboratory uses the typical solvents (i.e., methylene chloride, toluene, tetrahydrofuran, MEK, xylene, pyridine, etc.) required to conduct analytical chemistry in small amounts (1 gal/yr).
 8. Acknowledged in 1. above.
 9. Diisocyanate emissions do not seem likely considering the low vapor pressure of TDI and the fact that the MSDS states that less than 0.2%, by weight, of TDI remains in the T9 product. However, losses from filling the 6,000 gallon TDI storage tanks are reported as about 10 pounds per year on TSE's annual Toxic Emissions Inventory.
 10. Currently, TSE plans to move the compounding mills to the 4370 112th Terrace North facility. However, due to changes in the rubber TSE now receives, very little cures or additives are required to meet specifications. Therefore, TSE does not expect to need a baghouse to control dust emissions due to cures and additives.
 11. The notice of pilot plant start-up submitted by this office was not accurate. TDI was not being manufactured; TDI was one of the reactants used to manufacture T9 in the pilot process.
 - A. No TDI was produced. Toluene emissions during the three year study are estimated to be 5,442 lb (see attachment 11.A). However, due to process downtime for retrofitting, design changes and the typical learning curve associated with new processes, this figure accounts for approximately 25 months of operation.
 - B. All equipment is scaled up and in place. However, the process is still in the research and development stages.
 12. The Urethane Coating Pilot Plant was not addressed in the application because it is not thought to be a significant source of emissions. Please excuse this oversight. The process should have been listed as an *Insignificant Source* in the Title V application.
 - A. The pilot project was begun in February, 2000. Since that time, 1,188 gallons of coating have been produced containing 3,665 lb. of VOC.
 - B. Estimates of loss from paint manufacturing given in AP-42, Table 5.10-1 are listed at approximately 1.5 %. Therefore, VOC emissions due to coating manufacture are estimated to be about 218 lb. to date. There are currently no plans to continue making urethane coatings. However, TSE believes a market exists and may continue to experiment with coating

formulation. The Material Safety Data Sheets (MSDS) for the four types of coatings produced in the pilot study are attached.

The majority of this response is only a clarification of the data previously submitted in the original application and is therefore not considered to be of an engineering nature. The information submitted for the urethane coating pilot operation is based solely on the MSDS and coating production. No claim is made as to the accuracy of the emissions calculations and the values are not meant to be considered for purposes emissions rates or permit limitations.

Thank you for your continued cooperation in this matter. Please feel free to contact this office at any time should you have questions or comments.

Sincerely,


Cory A. Houchin
Project Manager

Enclosure

cc: Dave Richcreek, TSE Industries, Inc.
Gary Robbins, PCDEM

B. FACILITY REGULATIONS

List of Applicable Regulations

62-103, FAC Rules of Administrative Action

62-210, FAC Stationary Sources - General Requirements

62-212, FAC Stationary Sources - Preconstruction Review

62-213, FAC Operation Permits for Major Sources of Air Pollution

62-275, FAC Air Quality Areas

62-296, FAC Stationary Sources - Emissions Standards

62-297, FAC Stationary Sources - Emissions Monitoring

40 CFR 60 Subpart VV Standards of Performance for Equipment Leaks of VOC in the Synthetic Organi

62-4, FAC Permits

II. Part 3b - 1

DEP Form No. 62-210.900(1) - Form
Effective : 3-21-96

List of Applicable Regulations

62-4, FAC Permits

62-103, FAC Rules of Administrative Action

62-210, FAC Stationary Sources - General Requirements

62-212, FAC Stationary Sources - Preconstruction Review

62-213, FAC Operation Permits for Major Sources of Air Pollution

62-275, FAC Air Quality Areas

62-296, FAC Stationary Sources - Emissions Standards

62-297, FAC Stationary Sources - Emissions Monitoring

40 CFR 60 Subpart VV Standards of Performance for Equipment Leaks of VOC in the Synthetic Organi

List of Applicable Regulations

62-4, FAC Permits

62-103, FAC Rules of Administrative Action

62-210, FAC Stationary Sources - General Requirements

62-212, FAC Stationary Sources - Preconstruction Review

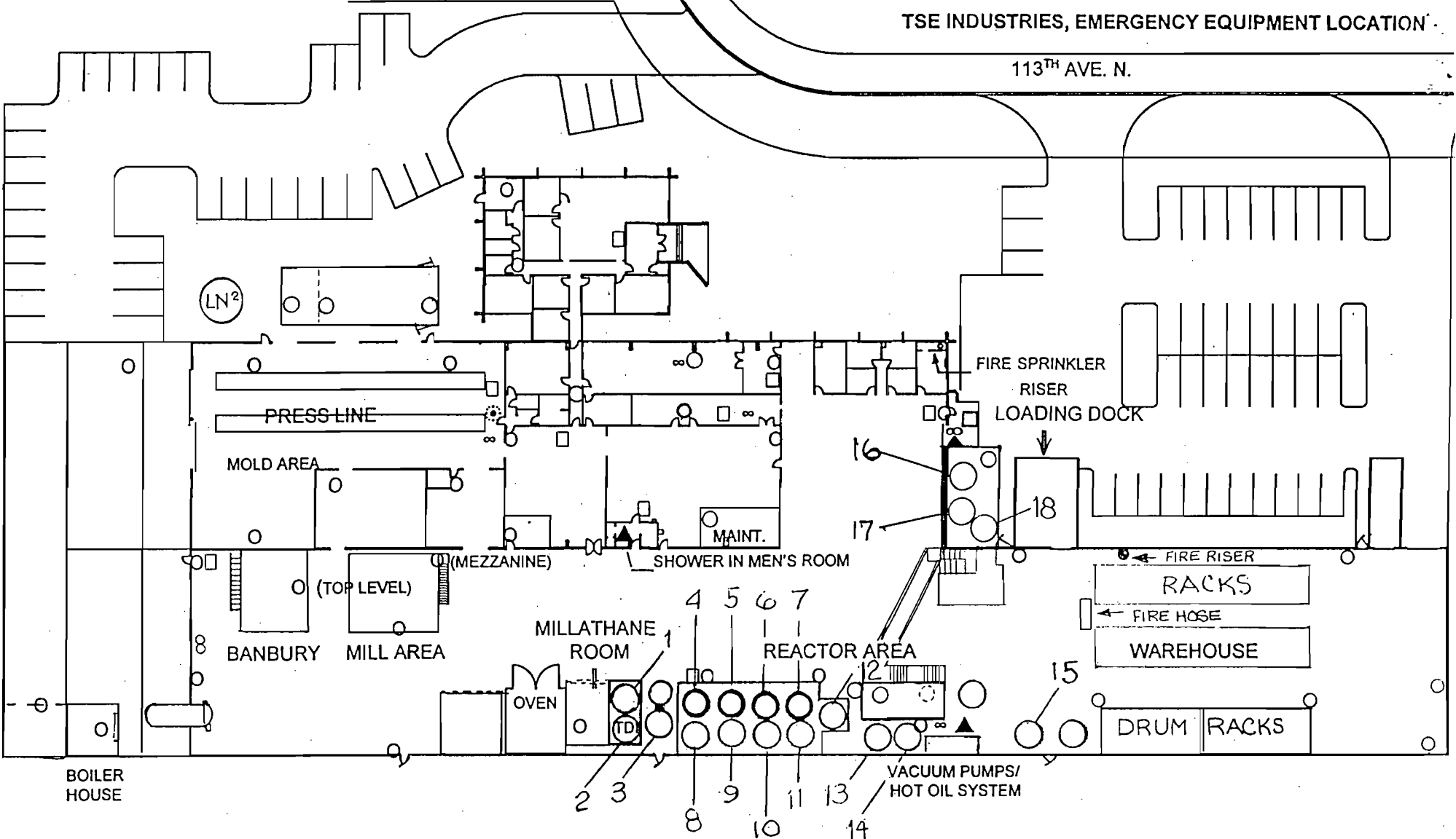
62-213, FAC Operation Permits for Major Sources of Air Pollution

62-275, FAC Air Quality Areas

62-296, FAC Stationary Sources - Emissions Standards

62-297, FAC Stationary Sources - Emissions Monitoring

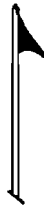
40 CFR 60 Subpart VV Standards of Performance for Equipment Leaks of VOC in the Synthetic Organi



LEGEND:

- - FIRST AID KIT, (CROSS-REFERENCE FOR CONTENTS FOR ALL KITS LISTED WITHIN EACH KIT)
- - FIRE EXTINGUISHER, HAND HELD, DRY CHEMICAL
- ∞ - EYE WASH STATION
- ⊙ - OXYGEN
- ▲ - SHOWER

N



TSE INDUSTRIES INC.
 5260 113th AVENUE NORTH
 CLEARWATER, FLORIDA
 573-7676



TSE INDUSTRIES, INC.

Tanks and Reactors: chemical contents legend

Number	Chemical contents	F.P. °F	Comments
1	Mondur TDS (TDI) 6,000 gal	260	Toluene Diisocyanate, reacted to make TDI dimer.
2	Mondur TD-80 (TDI) 6,000 gal	260	Toluene Diisocyanate, a urethane component.
3	N-Methylpyrrolidone still 4,000	199	Closed loop cleaning/distillation system utilizing hot oil for distillation.
4	Reactor # 4 3,700 gal	N/A	Used for manufacture of urethane adhesives
5	Reactor # 3 3,700 gal	N/A	Used for manufacture of urethane adhesives
6	Reactor # 2 3,700 gal	N/A	Used for manufacture of urethane adhesives
7	Reactor # 1 3,300 gal	N/A	Used for manufacture of TDI dimer
8	Polymeg 2000 (polyol) 8,000 gal	405	All of the "polyols" are oily or waxy materials used as a component in urethanes. This particular polyol is like candle wax at room temperature.
9	Fomrez 66-32 10,000 gal	>200	A polyol, polyester resin with an NFPA rating of 1,1,0
10	Fomrez 23-60 8,000 gal	>200	A polyol, polyester resin with an NFPA rating of 1,1,0
11	Rucoflex S-108 8,000 gal	>347	A polyol, polyester resin with an NFPA rating of 1,1,0
12	Mondur M (MDI) 4,000 gal	395	Diphenylmethane Diisocyanate, a urethane component.
13	Castor Oil 10,000 gal	540	Castor oil, used like a "polyol".
14	PPG 4025 10,000 gal	336	A polyether polyol used in the manufacture of urethanes.
15	PPG 2025 12,000 gal	>335	A polyether polyol used in the manufacture of urethanes.
16	Toluene 6,000 gal 3,700 gal	45	The carrier for Mondur TDS in making TDI dimer. Kept under nitrogen blanket during storage and processing. The toluene is cooled to $\approx 40^{\circ}\text{F}$ during processing.
17	~3:97 mixture of #1 and #16	45	Treat as flammable TDI. NFPA equivalent rating of 3,3,1
18	<2:98 mixture of #1 and #16 4,000 gal	45	Treat as toluene. NFPA rating of 2,3,0

Batch Reactor Process -

① Pilot study - toluene to TDI in 2.5 to 1 ratio

so Charge Reactor w/

6000 lb TDI

15,000 lb toluene

21,000 lb in 3300 gal reactor

② Spin off supernatant and rinse, then tumble dry. Yield ~ 6000 lb

— Toluene Required for Desired Production

$$(300,000 \text{ lb/yr}) / 6000 \text{ lb/batch} = 50 \text{ batch/yr}$$

$$(50 \text{ batch/yr}) (15,000 \text{ lb tol/batch}) = 750,000 \text{ lb/yr}$$

Pilot Study saw about a 5.5% loss of toluene in 1998 (about 5.5% of total toluene used during pilot study was make up in 1998)

Therefore, toluene loss should be

$$(750,000 \text{ lb/yr}) (0.055) = 41,250 \text{ lb toluene/yr}^*$$

* As noted in the original application, actual emissions cannot yet be determined as the process has not been fully operational. Toluene make-up to the process may be less than 5.5%.

- Total toluene used during 3yr Pilot Study -
1,359,502 lb
- Total toluene manifested off-site (@ 96% toluene)
1,354,060 lb
- Toluene Emissions over 3yr Pilot Study
 $1,359,502 - 1,354,060 = 5,442 \text{ lb}$

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS



FOR COATINGS, RESINS, AND RELATED MATERIALS
(APPROVED BY THE U.S. DEPARTMENT OF LABOR AS
'ESSENTIALLY SIMILAR' TO FORM OSHA-20)
(MEETS REQUIREMENTS OF CFR 29 PART 1910.1200,
OSHA'S HAZARD COMMUNICATION STANDARD)

NPCA 1-84

SECTION 1 - MANUFACTURER AND PRODUCT INFORMATION

CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT ID : F594-0594
PRODUCT CLASS : ISOCYANATE
TRADE NAME : SERIES 594 OMNITHANE MIO ZINC
FORMULA VERSION NUMBER : 3
MSDS PREPARATION DATE : 03/07/2000

MANUFACTURER IDENTIFICATION:

NAME : TNEMEC COMPANY, INC.
ADDRESS : 123 WEST 23RD AVENUE
NORTH KANSAS CITY, MO. 64116-3064
TELEPHONE : 816-474-3400
EMERGENCY TELEPHONE : 816-474-1425

SECTION 2 - HAZARDOUS INGREDIENTS

1
CAS# 1309-37-1
IRON OXIDE FUME
PCT BY WT: 41.1580
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0005.00 MG/M3
OSHA PEL/TWA: 0010.00 MG/M3

2
CAS# 1309-37-1
IRON OXIDE FUME
PCT BY WT: 2.3370
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0005.00 MG/M3
OSHA PEL/TWA: 0010.00 MG/M3

3
CAS# 14807-96-6
TALC (NO ASBESTOS FIBERS/RESPIRABLE DUST)
PCT BY WT: 2.7160
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0002.00 MG/M3
OSHA PEL/TWA: 0002.00 MG/M3

4
CAS# 7440-66-6
ZINC (TOTAL DUST)
PCT BY WT: 27.8690
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0010.00 MG/M3
OSHA PEL/TWA: 0015.00 MG/M3

5 METHYLENE BISPHENYL ISOCYANATE
CAS# 101-68-8
DIPHENYLMETHANE DIISOCYANATE (MDI) MONOMER
PCT BY WT: 2.1150 VAPOR PRESSURE: .010 MMHG @ 68F
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0000.005 PPM
OSHA CEILING: 0000.02 PPM

6
DIPHENYLMETHANE DIISOCYANATE (MDI) POLYMER
PCT BY WT: 8.4620
EXPOSURE LIMIT:
ACGIG TVL/TWA: T

7
CAS# 64742-95-6
AROMATIC PETROLEUM DISTILLATE
PCT BY WT: 7.9470

8
CAS# 95-63-6
1,2,4-TRIMETHYLBENZENE

Millathane®

800-237-7634 FAX: 813-572-0415

205 GAL

FOR COATINGS, RESINS, AND RELATED MATERIALS
(APPROVED BY THE U.S. DEPARTMENT OF LABOR AS
'ESSENTIALLY SIMILAR' TO FORM OSHA-20)
(MEETS REQUIREMENTS OF CFR 29 PART 1910.1200,
OSHA'S HAZARD COMMUNICATION STANDARD)

NPCA 1-84

SECTION 1 - MANUFACTURER AND PRODUCT INFORMATION

CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT ID : F207-0207A
PRODUCT CLASS : MODIFIED POLYESTER
TRADE NAME : SERIES 207 FLEXIBLE UNDERLAYMENT
FORMULA VERSION NUMBER : 3
MSDS PREPARATION DATE : 02/21/2000
MANUFACTURER IDENTIFICATION:
NAME : TNEMEC COMPANY, INC.
ADDRESS : 123 WEST 23RD AVENUE
NORTH KANSAS CITY, MO. 64116-306
TELEPHONE : 816-474-3400
EMERGENCY TELEPHONE : 816-474-1425

SECTION 2 - HAZARDOUS INGREDIENTS

1

AMINE COMPOUNDS
PCT BY WT: 6.4390
EXPOSURE LIMIT:

2 TITANIUM DIOXIDE
CAS# 13463-67-7
TITANIUM DIOXIDE (TOTAL DUST)
PCT BY WT: 3.8600
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0010.00 MG/M3
OSHA PEL/TWA: 0010.00 MG/M3

3
CAS# 7727-43-7
BARIUM SULFATE (TOTAL DUST)
PCT BY WT: 27.0310
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0010.00 MG/M3
OSHA PEL/TWA: 0010.00 MG/M3

4

POTASSIUM ALUMINOSILICATE
PCT BY WT: 3.3390
EXPOSURE LIMIT:

5 LIGROIN
CAS# 8032-32-4
VM&P NAPHTHA
PCT BY WT: 4.7650 VAPOR PRESSURE: 29.800 MMHG @ 68F
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0300.00 PPM
OSHA PEL/TWA: 0300.00 PPM

6

CAS# 64742-95-6
PETROLEUM SOLVENT (NAPHTHA)
PCT BY WT: 1.0730
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0300.00 PPM
OSHA PEL/TWA: 0400.00 PPM

7

CAS# 64742-47-8
PARAFFINIC SOLVENT
PCT BY WT: 2.0390
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0200.00 MFG REC, IN PPM

This product contains no reported carcinogens or suspected
carcinogens.



TNEMEC COMPANY, INC.
MATERIAL SAFETY DATA SHEET

F207-0207A

Use Chemical resistant gloves.
Use chemical resistant coveralls or apron to protect against skin and clothing contamination.

VENTILATION:
Sufficient ventilation, in volume and pattern, should be provided through both local and general exhaust to keep the air contaminant concentration below current applicable OSHA Permissible Exposure Limits (PEL) and ACGIH Threshold Limit Values (TLV). Appropriate ventilation should be employed to remove hazardous decomposition products formed during welding or flame cutting operations of surfaces coated with this product. Heavier than air solvent vapors should be removed from lower levels of work area due to potential explosion hazard and all ignition sources (non-explosion proof equipment) should be eliminated if flammable mixtures will be encountered.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Vapor Pressure	29.80	
Vapor Density	-N/A	
Bolling Range	Lower - 246.0	°F
	Higher - 278.0	°F
Formula Weight per Volume	11.1054	LB/GL
VOC IN LBS PER GALLON	.930	
Evaporation Rate	.000	(Ether = 1)
% Volatile by Weight	8.372	
% Volatile by Volume	14.520	

SECTION 10 - STABILITY AND REACTIVITY

INCOMPATIBILITIES:

Strong oxidizing agents.

Alkalis.

Acids.

Amines.

DECOMPOSITION:

Carbon monoxide, carbon dioxide, hydrocarbon fragments

CONDITIONS TO AVOID:

Heat, sparks, open flames.

POLYMERIZATION:

Will not occur.

STABILITY:

Stable.

SECTION 11 - TOXICOLOGICAL INFORMATION

OTHER:

Consult various toxicology references such as NIOSH's "Registry of Toxic Effects of Chemical Substances" or Sax's "Dangerous Properties of Industrial Chemicals" for specific toxicity information regarding hazardous ingredients.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Dispose of in accordance with Federal, state, and local regulations regarding pollution.

SECTION 14 - TRANSPORT INFORMATION

DOT HAZARD CLASS

TRANSPORTATION ASSISTANCE:

Contact Tnemec's Traffic department @ (816) 474-3400.

FOR COATINGS, RESINS, AND RELATED MATERIALS
(APPROVED BY THE U.S. DEPARTMENT OF LABOR AS
'ESSENTIALLY SIMILAR' TO FORM OSHA-20)
(MEETS REQUIREMENTS OF CFR 29 PART 1910.1200,
OSHA'S HAZARD COMMUNICATION STANDARD)

NPCA 1-84

SECTION 1 - MANUFACTURER AND PRODUCT INFORMATION

CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT ID : F090-0097A
PRODUCT CLASS : POLYMERIC DIISOCYANATE
TRADE NAME : SERIES 090 TNAME ZINC REDDISH GRAY
FORMULA VERSION NUMBER : 16
MSDS PREPARATION DATE : 01/27/2000

MANUFACTURER IDENTIFICATION:

NAME : TNEMEC COMPANY, INC.
ADDRESS : 123 WEST 23RD AVENUE
NORTH KANSAS CITY, MO. 64116-3054
TELEPHONE : 816-474-3400
EMERGENCY TELEPHONE : 816-474-1425

SECTION 2 - HAZARDOUS INGREDIENTS

1
CAS# 1309-37-1
IRON OXIDE FUME
PCT BY WT: 2.9790
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0005.00 MG/M3
OSHA PEL/TWA: 0010.00 MG/M3

2
CAS# 14808-60-7
CRYSTALLINE SILICA (QUARTZ, RESPIRABLE DUST)
PCT BY WT: .1050
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0000.10 MG/M3
OSHA PEL/TWA: 0000.05 MG/M3

3
CAS# 14808-60-7
CRYSTALLINE SILICA (QUARTZ, RESPIRABLE DUST)
PCT BY WT: 3.0700
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0000.10 MG/M3
OSHA PEL/TWA: 0000.05 MG/M3

4
CAS# 12001-26-2
MICA (RESPIRABLE DUST)
PCT BY WT: 3.0700
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0003.00 MG/M3
OSHA PEL/TWA: 0003.00 MG/M3

5
CAS# 7631-86-9
AMORPH. SILICA (DIATOM. EARTH/UNCALCINED/TOTAL DUST)
PCT BY WT: 1.7400
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0010.00 MG/M3
OSHA PEL/TWA: 0006.00 MG/M3

6 METHYLENE BISPHENYL ISOCYANATE
CAS# 101-68-8
DIPHENYLMETHANE DIISOCYANATE (MDI) MONOMER
PCT BY WT: 8.9190 VAPOR PRESSURE: .010 MMHG @ 68F
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0000.005 PPM
OSHA CEILING: 0000.02 PPM

7
DIPHENYLMETHANE DIISOCYANATE (MDI) POLYMER
PCT BY WT: 35.6760
EXPOSURE LIMIT:
ACGIG TVL/TWA: T

Millathane®

800-237-7634 FAX 816-572-0415

4386AL

TNAMEC COMPANY, INC.
MATERIAL SAFETY DATA SHEET

F090-0097A

8
CAS# 100-41-4
ETHYL BENZENE
PCT BY WT: 8.4590 VAPOR PRESSURE: 6.000 MMHG @ 68F
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0100.00 PPM
ACGIH TLV/STEL: 0125.00 PPM
OSHA PEL/TWA: 0100.00 PPM
OSHA STEL: 0125.00 PPM

9 XYLENE
CAS# 1330-20-7
DIMETHYLBENZENE
PCT BY WT: 33.8420 VAPOR PRESSURE: 5.100 MMHG @ 68F
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0100.00 PPM
ACGIH TLV/STEL: 0150.00 PPM
OSHA PEL/TWA: 0100.00 PPM
OSHA STEL: 0150.00 PPM

This product contains one or more reported carcinogens or suspected carcinogens which are noted NTP, IARC, or OSHA-Z in the other limits recommended column.

This substance contains a material classified as a hazardous air pollutant.

This product contains pigment dusts which may be released when subjected to abrasive blasting, sanding, or grinding. Contains isocyanate monomer. If subject to spray application, engineering and administrative controls must be instituted to maintain an exposure level below .005ppm. If these controls are not adequate, the use of an air-supplied respirator is mandatory.

SECTION 3 - HEALTH HAZARD INFORMATION

EMERGENCY OVERVIEW:

POTENTIAL HEALTH EFFECTS:

EYE:

Severe irritation.
Redness, tearing, blurred vision.

SKIN:

Moderate irritation, drying of skin, defatting and possible dermatitis.
Allergic skin responses.
Discoloration.

INHALATION - OVEREXPOSURE TO SOLVENT VAPORS OR SPRAY MIST:
Nasal and respiratory irritation, anesthetic effects, dizziness, possible unconsciousness and asphyxiation, stupor, weakness, fatigue, nausea, and headache.

INHALATION - OVEREXPOSURE TO FREE PIGMENT DUST:
Coughing, wheezing, shortness of breath, restricted nasal passages, lung injury.

INGESTION:
Gastrointestinal irritation, nausea, vomiting, diarrhea, death, aspiration into the lungs which can be fatal.

CHRONIC EFFECTS:

Prolonged contact or repeated exposure to isocyanate concentrations greater than the recommended TLV may result in permanent respiratory and skin sensitization. Once diagnosed as being sensitized to isocyanates, no further exposure can be permitted.

Prolonged inhalation of dusts containing crystalline silica may result in the development of a lung disease known as silicosis.

NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the vapors may be harmful or fatal.

This product contains crystalline silica, which is considered a cancer hazard by inhalation of respirable dust. The International Agency for Research on Cancer (IARC) concluded that respirable crystalline silica inhaled in the form of quartz or cristobalite from occupational sources

TNEMEC COMPANY, INC.
MATERIAL SAFETY DATA SHEET

90-0097A

Boiling Range	Lower - 275.0 °F	Higher - 288.0 °F
Formula Weight per Volume	8.9615 LB/GL	
VOC IN LBS PER GALLON	3.793	
Evaporation Rate	9.400 (Ether = 1)	
% Volatile by Weight	42.328	
% Volatile by Volume	52.680	

SECTION 10 - STABILITY AND REACTIVITY

INCOMPATIBILITIES:

Strong oxidizing agents.
Water, alcohols, amines, strong bases, metal components, surface active materials.

DECOMPOSITION:

Carbon monoxide, carbon dioxide, hydrocarbon fragments
Nitrogen monoxide, nitrogen dioxide
Trace amounts of HCN.

CONDITIONS TO AVOID:

Heat, sparks, open flames.
Amine compounds under uncontrolled conditions.

POLYMERIZATION:

Will not occur.

STABILITY:

Stable.

SECTION 11 - TOXICOLOGICAL INFORMATION

OTHER:

Consult various toxicology references such as NIOSH's "Registry of Toxic Effects of Chemical Substances" or Sax's "Dangerous Properties of Industrial Chemicals" for specific toxicity information regarding hazardous ingredients.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Dispose of in accordance with Federal, state, and local regulations regarding pollution.

OTHER:

SECTION 14 - TRANSPORT INFORMATION

DOT HAZARD CLASS:

TRANSPORTATION ASSISTANCE:

Contact Tnemec's Traffic department @ (816) 474-3400.

SECTION 15 - REGULATORY INFORMATION

FEDERAL REGULATIONS:

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:

DIPHENYLMETHANE DIISOCYANATE (MDI) MONOMER
CAS# 101-68-8 PCT BY WT: 8.9190

ETHYL BENZENE
CAS# 100-41-4 PCT BY WT: 8.4590

DIMETHYLBENZENE
CAS# 1330-20-7 PCT BY WT: 33.8420

STATE REGULATIONS:

FOR COATINGS, RESINS, AND RELATED MATERIALS
 (APPROVED BY THE U.S. DEPARTMENT OF LABOR AS
 'ESSENTIALLY SIMILAR' TO FORM OSHA-20)
 (MEETS REQUIREMENTS OF CFR 29 PART 1910.1200,
 OSHA'S HAZARD COMMUNICATION STANDARD)

NPCA 1-84

SECTION 1 - MANUFACTURER AND PRODUCT INFORMATION

CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT ID : F050-0330
 PRODUCT CLASS : POLYMERIC DIISOCYANATE
 TRADE NAME : SERIES 050 POLY-URA-PRIME
 FORMULA VERSION NUMBER : 1
 MSDS PREPARATION DATE : 01/27/2000
 MANUFACTURER IDENTIFICATION:
 NAME : TNE MEC COMPANY, INC.
 ADDRESS : 123 WEST 23RD AVENUE
 NORTH KANSAS CITY, MO. 64116-3064
 TELEPHONE : 816-474-3400
 EMERGENCY TELEPHONE : 816-474-

SECTION 2 - HAZARDOUS INGREDIENTS

1
 CAS# 7429-90-5
 ALUMINUM FLAKE
 PCT BY WT: 15.0230
 EXPOSURE LIMIT:
 ACGIG TVL/TWA: 0010.00 MG/M3
 OSHA PEL/TWA: 0015.00 MG/M3

2
 CAS# 7631-86-9
 AMORPH. SILICA (DIATOM. EARTH/UNCALCINED/TOTAL DUST)
 PCT BY WT: 1.1200
 EXPOSURE LIMIT:
 ACGIG TVL/TWA: 0010.00 MG/M3
 OSHA PEL/TWA: 0006.00 MG/M3

3 METHYLENE BISPHENYL ISOCYANATE
 CAS# 101-68-8
 DIPHENYLMETHANE DIISOCYANATE (MDI) MONOMER
 PCT BY WT: 8.9100 VAPOR PRESSURE: .010
 EXPOSURE LIMIT:
 ACGIG TVL/TWA: 0000.005 PPM
 OSHA CEILING: 0000.02 PPM

4
 DIPHENYLMETHANE DIISOCYANATE (MDI) POLYMER
 PCT BY WT: 35.6420
 EXPOSURE LIMIT:
 ACGIG TVL/TWA: T

5 WHITE SPIRITS
 CAS# 8052-41-3
 MINERAL SPIRITS, AS STODDARD SOLVENT
 PCT BY WT: 8.0890 VAPOR PRESSURE: 2.700 MMHG @ 68F
 EXPOSURE LIMIT:
 ACGIG TVL/TWA: 0100.00 PPM
 OSHA PEL/TWA: 0100.00 PPM

6
 CAS# 64742-95-6
 AROMATIC PETROLEUM DISTILLATE
 PCT BY WT: 18.4810

7 XYLENE
 CAS# 1330-20-7
 DIMETHYLBENZENE
 PCT BY WT: 2.2580 VAPOR PRESSURE: 5.100 MMHG @ 68F
 EXPOSURE LIMIT:
 ACGIG TVL/TWA: 0100.00 PPM
 ACGIH TLV/STEL: 0150.00 PPM
 OSHA PEL/TWA: 0100.00 PPM
 OSHA STEL: 0150.00 PPM

Millathane®
 800-237-7634 FAX: 813-572-0415

300 GAL.

050-0330
trace amo.
Califor

F050-0330

TNEMEC COMPANY, INC.
MATERIAL SAFETY DATA SHEET

CAS# 95-63-6
1,2,4-TRIMETHYLBENZENE
PCT BY WT: 8.7860
EXPOSURE LIMIT:
ACGIG TVL/TWA: 0025.00 MFG REC, IN PPM
OSHA PEL/TWA: 0025.00 MFG RE C, IN PPM

This substance contains a material classified as a hazardous air pollutant.

This product contains no reported carcinogens or suspected carcinogens.

This product contains pigment dusts which may be released when subjected to abrasive blasting, sanding, or grinding.
Contains isocyanate monomer. If subject to spray application, engineering and administrative controls must be instituted to maintain an exposure level below .005ppm. If these controls are not adequate, the use of an air-supplied respirator is mandatory.
The information contained in this Section is considered confidential and proprietary and should be used only for safety and health purposes.

SECTION 3 - HEALTH HAZARD INFORMATION

EMERGENCY OVERVIEW:
POTENTIAL HEALTH EFFECTS:

EYE:
Severe irritation.
Redness, tearing, blurred vision.
SKIN:
Moderate irritation, drying of skin, defatting and possible dermatitis.
Allergic skin responses.
Discoloration.
INHALATION - OVEREXPOSURE TO SOLVENT VAPORS OR SPRAY MIST:
Nasal and respiratory irritation, anesthetic effects, dizziness, possible unconsciousness and asphyxiation, stupor, weakness, fatigue, nausea, and headache.
INHALATION - OVEREXPOSURE TO FREE PIGMENT DUST:
Coughing, wheezing, shortness of breath, restricted nasal passages, lung injury.
INGESTION:
Gastrointestinal irritation, nausea, vomiting, diarrhea, death, aspiration into the lungs which can be fatal.
CHRONIC EFFECTS:
Prolonged contact or repeated exposure to isocyanate concentrations greater than the recommended TLV may result in permanent respiratory and skin sensitization. Once diagnosed as being sensitized to isocyanates, no further exposure can be permitted.
NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the vapors may be harmful or fatal.
TARGET ORGANS:
Can cause eye damage.
Can cause skin irritation.
Can be corrosive to respiratory tract.
Can be corrosive to gastrointestinal tract.
Can cause nervous system effects.
Can cause liver damage.
Can cause lung damage.
Can cause kidney damage.
Can cause respiratory tract sensitization.
Can cause skin sensitization.

OTHER:
This product when mixed with other components acquires the hazards of all components.
PRIMARY ROUTES OF ENTRY:
Dermal and Inhalation.
PROPOSITION 65:
Pigments and/or other raw materials present in this product contain

50-0330
 Dept. 50-0330
 POLYMER CORP.
 WILLIAMSBURG, VA

F050-0330

TNEMEC COMPANY, INC.
 MATERIAL SAFETY DATA SHEET

mists, or dusts. Prevent contact with skin and eyes. Do not take internally. Keep out of reach of children. Do not reuse or alter containers without proper industrial cleaning. Do not weld or flame cut empty, uncleaned containers due to potential fire and explosion hazard. Consult product data sheet for proper application instructions.

SECTION 8 - SAFE HANDLING AND USE INFORMATION

HYGIENIC PRACTICES:

Wash hands and other contaminated skin areas with warm soap and water before eating.

EYE PROTECTION:

Use chemical resistant splash type goggles.

RESPIRATORY PROTECTION:

Respiratory protective devices must be used when engineering and administration controls are not adequate to maintain Threshold Limit Values (TLV) and Permissible Exposure Limits (PEL) of airborne contaminants below the listed values for those hazardous ingredients identified in Section II of this MSDS. Observe OSHA regulations for respirator use (CFR 29, 1910.134) whenever a respirator is used. Particulate, chemical cartridge, air purifying half-mask respirators can be used within certain limitations; consult the respirator manufacturer for specific uses and limitations. Where airborne contaminant concentrations are unknown, the use of a NIOSH/MSHA approved fresh-air supplied respirator is mandatory. Where the isocyanate concentration exceeds the TLV or is unknown, or where there is spray application, the use of a NIOSH/MSHA approved fresh-air supplied respirator is mandatory.

OTHER PROTECTION:

Use Chemical resistant gloves.
 Use protective cream where skin contact is likely.
 Use chemical resistant coveralls or apron to protect against skin and clothing contamination.

VENTILATION:

Sufficient ventilation, in volume and pattern, should be provided through both local and general exhaust to keep the air contaminant concentration below current applicable OSHA Permissible Exposure Limits (PEL) and ACGIH's Threshold Limit Values (TLV). Appropriate ventilation should be employed to remove hazardous decomposition products formed during welding or flame cutting operations of surfaces coated with this product. Heavier than air solvent vapors should be removed from lower levels of work area due to potential explosion hazard and all ignition sources (non-explosion proof equipment) should be eliminated if flammable mixtures will be encountered.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Vapor Pressure	:	5.10	
Vapor Density	:	-N/A	
Boiling Range	:	Lower -	280.0 °F
		Higher -	395.0 °F
Formula Weight per Volume	:	9.1855	LB/GL
VOC IN LBS PER GALLON	:	3.543	
Evaporation Rate	:	9.200	(Ether = 1)
% Volatile by weight	:	38.577	
% Volatile by volume	:	50.020	

SECTION 10 - STABILITY AND REACTIVITY

INCOMPATIBILITIES:

Strong oxidizing agents.
 Water, alcohols, amines, strong bases, metal components, surface active materials.

Acids.

Bases.

Alkalis.

DECOMPOSITION:

Carbon monoxide, carbon dioxide, hydrocarbon fragments
 Nitrogen monoxide, nitrogen dioxide
 Trace amounts of HCN.

CONDITIONS TO AVOID:



Jeb Bush
Governor

Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Mr. Robert Klingel, President
TSE Industries, Inc.
5260 113th Avenue North
Clearwater, FL 33760

September 8, 2000

Dear Mr. Klingel:

Re: Air Construction Permit Application, Dated February 15, 2000
Project: Batch Reactor System
DEP Project No.: 1030207-003-AC
Location: TSE Industries, Inc., 5260 113th Avenue North, Clearwater, Pinellas County.

On August 10, 2000, a response was received to a Department request for information on the above referenced air permit application. In order to continue processing the application, the Department will need the following additional information pursuant to Rule 62-4.070(1), F.A.C.

1. Please address the questions in the attached letter from Bureau of Air Regulation, Air Toxics Permitting Unit.
2. Attached is a Maximum Achievable Control Technology (MACT) determination information sheet. Please submit the information listed in the "application requirements for a case-by-case MACT determination" section.

"NOTICE: Pursuant to the provisions of Section 120.60, F.S. and Chapter 62-12.070(5), F.A.C., if the Department does not receive a response to this request for information within 90 days of the date of this letter, the Department will issue a final order denying your application. You need to respond within 30 days after you receive this letter, responding to as many of the information requests as possible and indicating when a response to any unanswered question will be submitted. If the response will require longer than 90 days to develop, an application for new construction should be withdrawn and resubmitted when completed information is available. Or for operating permits, you should develop a specific timetable for the submission of the requested information for Department review and consideration. Failure to comply with a timetable accepted by the Department will be grounds for the Department to issue a Final Order of Denial for lack of timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant can reapply as soon as the requested information is available."

NOTE: Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature.

TSE Industries, Inc.

DEP File No. 1030207-003-AC

Page 2 of 2


Provide a copy of your response to:

Bureau of Air Regulation, Air Toxics Permitting Unit
Florida Department of Environmental Protection
Mail Station #5505
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Pinellas County Department of Environmental Management
Air Quality Division
300 South Garden Avenue
Clearwater, FL 33756

Question regarding the MACT determination should be directed to Cindy Phillips, P.E. at 850/488-1344. If you should have any other questions, please call Eric Peterson at 813-744-6100, ext. 112.

Sincerely,



W.C. Thomas, P.E.
District Air Program Administrator
Southwest District

cc:

Ms. Cindy Phillips, P.E., DARM
Mr. Gary Robbins, PCDEM
Mr. Cory Houchin, ESG

FDEP Project No.: 1030207-003-AC
TSE Industries, Inc.
Request for additional information

1. Please submit a detailed process diagram showing the points where the 23.75 tons/year of toluene are expected to be emitted.

2. In accordance with 40 CFR 63 Subpart B, which was adopted in Florida Administrative Code Chapter 62-204, *Maximum Achievable Control Technology (MACT) emission limitation for new sources* means the emission limitation which is not less stringent than the emission limitation achieved by the best controlled *similar source*, and which reflects the maximum degree of reduction in emissions that the permitting authority, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable by the constructed source. *Similar source* means a stationary source or process that has comparable emissions and is structurally similar in design and capacity to a constructed or reconstructed source such that the source could be controlled using the same control technology. In addition, the regulations state that in making the MACT Determination, the Department should give consideration to:
 - (a) Any Environmental Protection Agency proposed relevant emission standard pursuant to section 112(d) or section 112(h) of the Act or an adopted presumptive MACT determination for the source category which includes the constructed or reconstructed major source.
 - (b) Available information as defined in 40 CFR 63.41.

The USEPA is currently working on a federal emission standard, which will require MACT for Miscellaneous Organic Chemical Production and Processes. It is probable that this standard will apply to your facility. At this point in the development of the federal standard, equipment leaks, storage vessels, and process wastewater are expected to be regulated by MACT similar to that found in 40 CFR 63 Subparts G and H. Process vents are expected to be regulated by MACT similar to that found in 40 CFR 63 Subpart GGG. Please review these subparts and propose MACT for this facility.

What Information is Needed from the Applicant for a Case-by-Case MACT Determination?

(REFERENCE: Federal Register / Vol. 61, No. 250 / Friday, December 27, 1996 / Rules and Regulations)

63.43 (d) Principles of MACT determinations. The following general principles shall govern preparation by the owner or operator of each permit application or other application requiring a case-by-case MACT determination concerning construction or reconstruction of a major source, and all subsequent review of and actions taken concerning such an application by the permitting authority:

(1) The MACT emission limitation or MACT requirements recommended by the applicant and approved by the permitting authority shall not be less stringent than the emission control which is achieved in practice by the best controlled similar source, as determined by the permitting authority.

(2) Based upon available information, as defined in this subpart, the MACT emission limitation and control technology (including any requirements under paragraph (d)(3) of this section) recommended by the applicant and approved by the permitting authority shall achieve the maximum degree of reduction in emissions of HAP which can be achieved by utilizing those control technologies that can be identified from the available information, taking into consideration the costs of achieving such emission reduction and any non-air quality health and environmental impacts and energy requirements associated with the emission reduction.

(3) The applicant may recommend a specific design, equipment, work practice, or operational standard, or a combination thereof, and the permitting authority may approve such a standard if the permitting authority specifically determines that it is not feasible to prescribe or enforce an emission limitation under the criteria set forth in section 112(h)(2) of the Act.

(4) If the Administrator has either proposed a relevant emission standard pursuant to section 112(d) or section 112(h) of the Act or adopted a presumptive MACT determination for the source category which includes the constructed or reconstructed major source, then the MACT requirements applied to the constructed or reconstructed major source shall have considered those MACT emission limitations and requirements of the proposed standard or presumptive MACT determination.

(e) Application requirements for a case-by-case MACT determination.

(1) An application for a MACT determination (whether a permit application under title V of the Act, an application for a Notice of MACT Approval, or other document specified by the permitting authority under paragraph (c)(2)(ii) of this section) shall specify a control technology selected by the owner or operator that, if properly operated and maintained, will meet the MACT emission limitation or standard as determined according to the principles set forth in paragraph (d) of this section.

(2) In each instance where a constructed or reconstructed major source would require additional control technology or a change in control technology, the application for a MACT determination shall contain the following information:

- (i) The name and address (physical location) of the major source to be constructed or reconstructed;
- (ii) A brief description of the major source to be constructed or

reconstructed and identification of any listed source category or categories in which it is included;

(iii) The expected commencement date for the construction or reconstruction of the major source;

(iv) The expected completion date for construction or reconstruction of the major source;

(v) the anticipated date of start-up for the constructed or reconstructed major source;

(vi) The HAP emitted by the constructed or reconstructed major source, and the estimated emission rate for each such HAP, to the extent this information is needed by the permitting authority to determine MACT;

(vii) Any federally enforceable emission limitations applicable to the constructed or reconstructed major source;

(viii) The maximum and expected utilization of capacity of the constructed or reconstructed major source, and the associated uncontrolled emission rates for that source, to the extent this information is needed by the permitting authority to determine MACT;

(ix) The controlled emissions for the constructed or reconstructed major source in tons/yr at expected and maximum utilization of capacity, to the extent this information is needed by the permitting authority to determine MACT;

(x) A recommended emission limitation for the constructed or reconstructed major source consistent with the principles set forth in paragraph (d) of this section;

(xi) The selected control technology to meet the recommended MACT emission limitation, including technical information on the design, operation, size, estimated control efficiency of the control technology (and the manufacturer's name, address, telephone number, and relevant specifications and drawings, if requested by the permitting authority);

(xii) Supporting documentation including identification of alternative control technologies considered by the applicant to meet the emission limitation, and analysis of cost and non-air quality health environmental impacts or energy requirements for the selected control technology; and

(xiii) Any other relevant information required pursuant to subpart A.

(3) In each instance where the owner or operator contends that a constructed or reconstructed major source will be in compliance, upon startup, with case-by-case MACT under this subpart without a change in control technology, the application for a MACT determination

shall contain the following information:

(i) The information described in paragraphs (e)(2)(i) through (e)(2)(x) of this section; and

(ii) Documentation of the control technology in place.



RECEIVED

OCT 30 2000

BUREAU OF AIR REGULATION

October 27, 2000

Mr. W.C. Thomas, P.E.
Florida Department of Environmental Protection
Division of Air Resources Management - Permitting Section
3804 Coconut Palm Drive
Tampa, Florida 33619

**RE: Request for Information Regarding Application to Construct a Batch Reactor System
TSE Industries, Inc.; DEP Project No. 1030207-003-AC**

Dear Mr. Thomas:

This is in response to your letter of September 8, 2000 addressed to Mr. Robert Klingel of TSE Industries, Inc. (TSE) requesting further information necessary for completing the referenced application. This response will adopt the numerology of your request.

1. 1. Please find enclosed a detailed process flow diagram showing the toluene emissions points. Be aware that the requested emissions limit of 23.75 tons was derived from an overall mass balance and the amount of toluene emitted at each point has not been determined (i.e., no point source testing has been done).
2. Acknowledged. As you are aware, 60.480(d)(2) of Subpart VV, 40 CFR 60 exempts facilities from all aspects of *Equipment Leaks of VOC* regulation except the record keeping requirements given in 60.486(i) if that facility produces less than 1,000 metric tons (Mg). Therefore, TSE will be required to maintain production records and keep them in a readily accessible place. Should the new standard reduce the production limitation, TSE will be required to meet the remainder of requirements given for equipment leaks. Regarding storage vessels, Subpart Kb, 40 CFR 60, exempts tanks storing VOL with a capacity of less than 10,567 gallons. TSE does not store VOL in tanks with a capacity of greater than 6,000 gallons. Therefore, it does not appear that TSE will be governed by this subpart. Should the new standard reduce the storage tank limitation, TSE will be required to meet the remainder of requirements given for this subpart, as well.

Please be aware that TSE welcomes the promulgation of the new federal standard for *Miscellaneous Organic Chemical Production and Processes* as it eliminates the need for a time consuming, labor intensive MACT determination. TSE proposes that MACT for this facility be derived from the new standard in the event it is promulgated. In the event that the new standard is not placed into regulation, TSE suggests that the Department determine a source that is similar enough to meet the definition given in 40 CFR 63 Subpart B and relieve some of the burden placed upon them to scour every process in the United States that may produce a product similar to [1,3-Bis(3-Isocyanato-4-methylphenyl)-1,3-Diazetidino-2,4-dione] in a similar process. Upon identification of such a source (if it exists), TSE will

adopt those control standards. If such a source cannot be identified, TSE believes that the toluene vapor condensation and the distillation of spent solvent processes already in place, coupled with the nitrogen blankets, bottom filling and check valve systems utilized for filling, storage and the reacting system are adequate control devices. Of course, routine monitoring and inspections of the system must be conducted to make sure the process operates properly and the product meets specification.

Please appreciate that toluene is an expensive raw material and TSE is taking every economically feasible opportunity to reduce the need to purchase it. A high percentage loss of toluene in the reacting system cannot be tolerated financially.

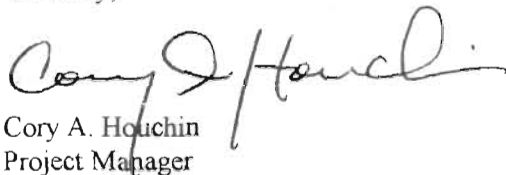
2. (1) The entire reacting system, as well as the majority of filling and material transfer points maintain a nitrogen blanket so that in the event the system is exposed to atmospheric pressure, any emissions loss from the process would be nitrogen. A refrigerated condenser is used to collect and condense toluene vapor generated during drying of the reactor product after centrifugation. All spent solvent is distilled by a contractor for reuse in the process.
- (2)(i) TSE Industries, Inc., 5260 113th Ave. N., Clearwater, FL 33760.
- (ii) TSE has constructed a batch reaction system for the production of *Thanacure T9* [1,3-Bis(3-Isocyanato-4-methylphenyl)-1,3-Diazetid-2,4-dione] via the reaction of toluene and toluene diisocyanate monomer under pressure. TSE has determined that excess toluene is needed in the reaction to obtain adequate conversion (@ 40°F. Most of the toluene can be recovered and reused, but some loss does occur during product drying and removal. Additionally, losses are expected from the condenser vacuum exhaust. A listed source category has not been identified for the process.
- (iii) A pilot plant was constructed in early 1997.
- (iv) Scale-up from the original pilot plant was completed at the end of last year.
- (v) The plant is operational, however, desired production depends on demand; to date, the market has not been completely established and full production may never be achieved.
- (vi) At full capacity, the reacting system may emit up to 20 tons of toluene, annually.
- (vii) Toluene is a Hazardous Air Pollutant regulated through Title V and toluene emissions of 10 tons per year or more constitute that facility as a major source of air pollution.
- (viii) Uncontrolled emissions are unknown. The maximum amount of economically feasible control has always been in place (even during pilot studies) to minimize raw material costs.
- (ix) A production rate of 300,000 pounds annually may emit up to 20 tons of toluene.
- (x) TSE requests an emissions limitation of 23.75 tons toluene annually.
- (xi) The control technology described in (1) above should be sufficient to meet MACT when coupled with an adequate monitoring and inspection program. The monitoring and inspection program utilizes monthly inspections of the system's lines, valves, joints, flanges, etc. to ensure that no leaks or product losses are occurring. No technical information exists on the condenser, however monitoring of its efficiency through source testing is proposed. As noted above, a contractor is used to conduct the distillation of spent toluene for reuse.

Service reports of the results of the distillation process issued to TSE by the contractor have been enclosed as Attachment 2. The reports demonstrate that the distillation unit typically generates better than 90 % recovery.

This response is only a clarification of the data previously submitted in the original application and is therefore not considered to be of an engineering nature.

Thank you for your continued cooperation in this matter. Please feel free to contact this office at any time should you have questions or comments.

Sincerely,



Cory A. Houchin
Project Manager

Attachments

cc: Dave Richcreek, TSE Industries, Inc.
Gary Robbins, PCDEM
Cindy Phillips, P.E., DARM-Tallahassee

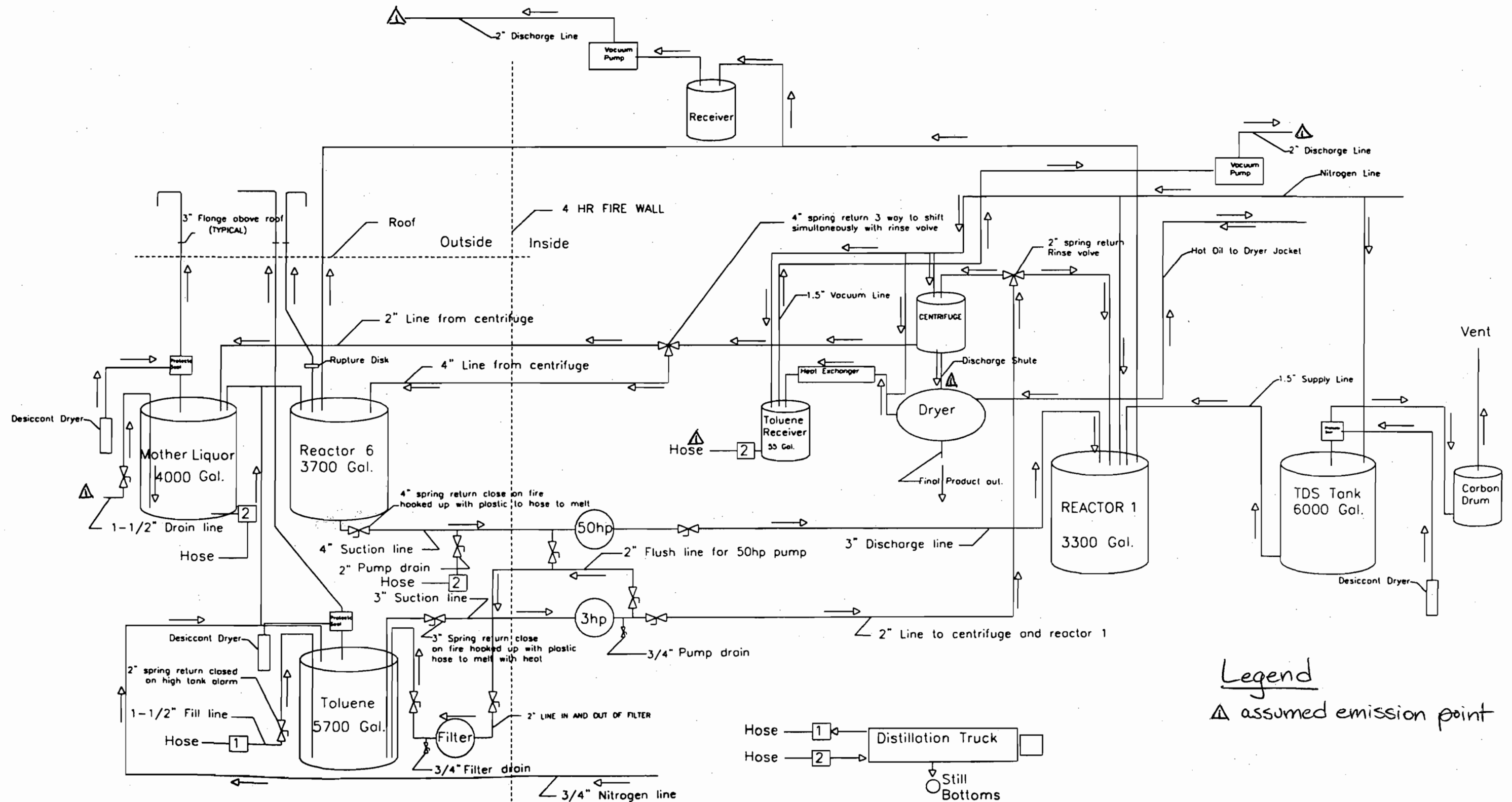
TSE Industries, Inc.
DEP Project No. 1030207-003-AC

ATTACHMENT 1

Process Description and Flow Diagram

TSE Industries, Inc.'s (TSE) batch reactor system is used to produce *Thanacure T9* [1,3-Bis(3-Isocyanato-4-methylphenyl)-1,3-Diazetid-2,4-dione] (T9), a plastics & rubber adhesion promoter, via the reaction of toluene and toluene diisocyanate monomer under pressure. TSE has determined that excess toluene is needed in the reaction to obtain adequate conversion @ 40°F. The batch reactor (please refer to the process diagram) is charged with 6,000 lb. TDI and 22,600 lb. toluene and contacted for 12 – 48 hours under a N₂ blanket. The contents of the reactor are fed to a centrifuge in approximately 4,000 lb. aliquots. The supernatant, as well as the first toluene rinse of the product, is directed back to the "mother liquor" storage tank for reuse in the batch reactor (the "mother liquor" tank maintains a N₂ blanket, as does the virgin toluene storage tank). Further toluene rinses of the product are sometimes necessary. These rinses are directed from the centrifuge to the "Rinse" Storage Tank, also under N₂ blanket. These rinses are also reused in the batch reactor. Distillation of the mother liquor is conducted when the toluene rinse becomes too heavily laden with the unreacted monomer. A knife is used to scrape the contents from the drum of the centrifuge into a tumbling dryer located directly below the centrifuge. The dryer is jacketed and hot oil is circulated throughout the jacket to effectively dry the product. Toluene vapors generated during drying are drawn off through a condenser with a vacuum pump. The toluene recovered in the condensation process is transferred to the Rinse Tank. Once the product is dry, the contents of the dryer is dumped into drums for specification testing and resale.

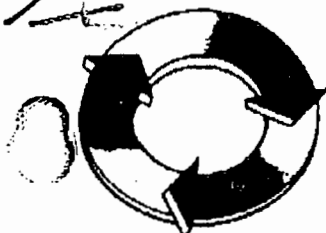
TSE Industries, Inc.
 Process Flow Diagram
 Batch Reactor System



TSE Industries, Inc.
DEP Project No. 1030207-003-AC

ATTACHMENT 2

First Source Service Reports of Distillation Process



FIRST SOURCE, Inc.

ON-SITE SOLVENT RECYCLING

Regional Office: Winston-Salem, NC Phone: 336-767-0058
Address: 3845 Patterson Ave., Winston-Salem, NC 27105

CLIENT: USL City Environmental Serv SERVICE DATE: 4/27/00
7202 East 8th Avenue CONTRACT NUMBER:
Tampa, FL 33619 PURCHASE ORDER:
TECHNICIAN JC/RH

LOCATION: TSE Industries, Inc
5260 113th Ave. N.
Clearwater, FL 33760

DIRECTIONS:

I inspected distillate in clean solvent tank. Quality approved.
Signature [Signature]

CHECK ONE:

Pot Still Truck #001
 Thin Film Truck #

Day	Time In	Initials	Time Out	Initials
1	<u>1300</u>	<u>HD</u>	<u>1815</u>	<u>KW</u>
2			<u>2015</u>	
3			<u>CORRECT TIME DR</u>	

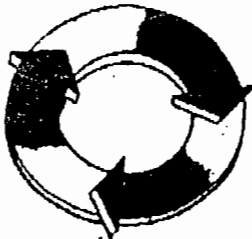
98%

	Materials Processed Each Shift	Solvent		Residue		Labels	
		Gals.	Gals. Drums	Gals.	Drums	Solv.	Resid.
Day 1	<u>Toluene</u>	1000	<u>1065</u> <u>20</u>	<u>24</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Day 2	<u>1000gal Trial</u>	<u>1089</u>					
Day 3							
Total		1000 <u>1089</u>	<u>1065</u> <u>20</u>	<u>24</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Received By: [Signature] Date: 4-27-00

Name (Printed): DAVE RICHCREEK

SERVICE REPORT
CUSTOMER



FIRST SOURCE, Inc.

ON-SITE SOLVENT RECYCLING

Regional Office: Georgia Phone: 706-276-6338

Address: 731 Progress Rd. Ellijay, Ga. 30540

CLIENT: TSE Industries
5260 113th. Ave. N.
Clearwater, Fl. 33760

SERVICE DATE: 10-3-00
CONTRACT NUMBER:
PURCHASE ORDER:
TECHNICIAN CG & RC

LOCATION:

DIRECTIONS:

CHECK ONE:

Pot Still Truck # TEG2
 Thin Film Truck # _____

Day	Time In	Initials	Time Out	Initials
1	<u>16:00</u>	<u>CG</u>	<u>08:00</u>	<u>CG</u>
2	_____	_____	_____	_____
3	_____	_____	_____	_____

	Materials Processed Each Shift	Solvent		Residue		Labels	
		Gals.	Gals. Drums	Gals.	Drums	Solv.	Resid.
Day 1	<u>TO/WGVS</u>	<u>3271</u>	<u>3021</u>	<u>T A N K</u>	<u>250</u>	<u>6</u>	
Day 2							
Day 3							
Total		<u>3271</u>	<u>3021</u>		<u>250</u>	<u>6</u>	

Received By: [Signature] Date: 10-4-00

Name (Printed): DAVE RICHCREEK

SERVICE REPORT
CUSTOMER

Phillips, Cindy

From: Mcdonald.Randy
Sent: Tuesday, November 28, 2000 1:53 PM
To: Cindy.Phillips
Subject: Re: MON



ATT1490.PPT



ATT1491.TXT

This is a presentation I recently gave. It includes only the information on the TTN. The package that went to OMB has a TRE of 2.6 instead of 2.8 for continuous vents. I'll be happy to answer any questions. Penny doesn't think we can release the package until OMB completes their review.

(See attached file: capca-revision2 by JDH.ppt)

Miscellaneous Organic Chemical Manufacturing

Miscellaneous Coating Manufacturing

National Emission Standards for Hazardous Air Pollutants (NESHAP)

Presented at CAPCA Conference – October 26, 2000

Randy McDonald, ESD, OAQPS, US EPA
Jim Honeycutt, Honeycutt Engineering, Inc.

Topics

- Source category list
- Applicability standards and MACT floors
- Alternative performance standards
- Other (non-performance) standards

Source Categories

- November 7, 1996 FR notice of combining 21 source categories
- November 18, 1999 FR notice of creating two source categories instead of one
 - Coating vs chemical manufacturing
 - Mixing vs chemical reactions

Miscellaneous Coating Manufacturing

- Coating manufacturing operations at major sources
- Focus is on paints, inks, and adhesives (SIC 285 and 289 or NAICS 3255)
- HAP concentration in coating \geq 5 percent by weight

Coating Manufacturing - MACT Floors for Existing Sources (September 1998)

- Portable process vessels > 250 gallons
 - Cover or lid required
- Stationary process vessels > 250 gallons
 - Control device achieving 60% reduction

MACT Floors (continued)

- Storage tanks - No control
- Wastewater streams with 10,000 ppmw HAP
 - Control sewers and remove HAP (HON)
- Equipment leaks – Sensory detection

Miscellaneous Organic Chemical Manufacturing

- Organic chemical manufacturing operations located at a major source
- Chemicals under SIC 282 thru 287, 289, or 386 or NAICS 3251 thru 3256 or 3259
- Quaternary ammonium and hydrazine
- Nondedicated solvent recovery operations
- Batch vents in units covered by subpart F

Organic Chemical Manufacturing -MACT Floors for Existing Sources (May 1999)

- Continuous process vents
 - 98% control if vent is at TRE of 2.6 or less
- Batch processes
 - 98% control of all vents if process emits 10,000 lbs/yr uncontrolled HAP

STPY

TOTAL RESOURCE

EFFECTIVENESS

COST EFFECTIVENESS
OF CONTROLLING

A-GTS SYSTEM

MACT Floors (continued)

- Storage tanks at 10,000 gallons and HAP at 1.0 psia
 - 95 percent control
 - Floating roof
- Wastewater with 10,000 ppmw HAP or 1,000 ppmw HAP at flowrate of 10 lpm
 - Control sewers and remove HAP (HON)

MACT Floors (continued)

- Equipment in 300 hrs/yr HAP service
 - Leak detection and repair (HON)

Alternative Performance Standards

- Alternative standard for vents and tanks
 - 20 ppmv TOC at outlet of combustion device
 - 50 ppmv TOC at outlet of combustion device
- Pollution prevention
 - Reduction in the ratio of kg HAP consumption per kg product for single process
- Emissions averaging

Other Standards (Not related to Performance)

- Equipment and Operating
- Performance Testing
- Monitoring
- Recordkeeping
- Notification and Reporting

Other Standards For Process Vents - Coatings & Chemical Mfg.

- Subpart SS (generic) for closed vent system

Other Standards For Storage Tanks –Chemical Mfg.

- Subpart WW (generic)
- Subpart GGG (pharma) for vapor balance

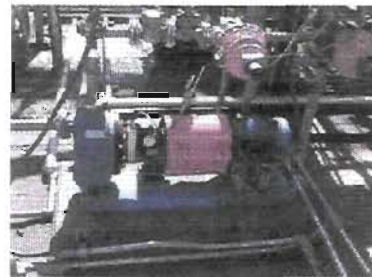
Other Standards For Wastewater - Coatings & Chemical Mfg.

- Subpart G (HON)



Other Standards For Equipment Leaks - Coatings & Chemical Mfg.

- Subpart UU (generic)



Other Standards For Heat Exchange Systems - Coatings & Chemical Mfg.

Subpart F (HON)



Environmental
Sciences
Group

RECEIVED

JAN 16 2001

BUREAU OF AIR REGULATION

January 8, 2001

Mr. W.C. Thomas, P.E.
Florida Department of Environmental Protection
Division of Air Resources Management - Permitting Section
3804 Coconut Palm Drive
Tampa, Florida 33619

**RE: Request for Information Regarding Application to Construct a Batch Reactor System
TSE Industries, Inc.; DEP Project No. 1030207-003-AC**

Dear Mr. Thomas:

This is in response to your letter of November 29, 2000 addressed to Mr. Robert Klingel of TSE Industries, Inc. (TSE) requesting further information necessary for completing the referenced application. This response will adopt the numerology of your request.

1. The Department must be more specific as to the information required. Obviously, the information previously submitted responding to 63.43(e)(2)(i) thru (ix) is adequate (i.e., name, location, process description, etc.). Pursuant to the meeting held December 7, 2000 between myself, Mr. Jerry Kissel, Mr. Henry Gotch (both of DARM-SW Dist), Mr. Gary Robbins (PCDEM) and Mr. Dave Richcreek (TSE), and the subsequent conference call to Ms. Cindy Philips (EPA IV), it appears that the most feasible method of achieving MACT at this time is to utilize the applicable standards set forth in 40 CFR 63 Subparts F, G & H (aka Hazardous Organic NESHAP, HON).

As you may recall from this office's correspondence of 10/27/00, TSE will be exempt from all aspects of *Equipment Leaks of VOC* (Subpart VV, 40 CFR 60) regulation except the record keeping requirements given in 60.486(i) as the facility produces less than 1,000 metric tons. Additionally, TSE does not store VOL in tanks with a capacity of greater than 6,000 gallons, therefore they will be exempt from Subpart Kb, 40 CFR 60, as they do not utilize tanks storing VOL with a capacity of 10,567 gallons.

The General Standards (63.102) and General Compliance, Reporting & Recordkeeping Provisions (63.103) of Subpart F will apply. However, the heat exchanger requirements of Subpart F (63.104) and subsequent wastewater requirements (63.105) do not apply as TSE does not use cooling water as the coolant in the heat exchange system or use water to clean/purge any part of the reacting system.

It appears that all of the applicable requirements of Subpart G will apply.

Most of the requirements of Subpart H will apply. TSE does not utilize compressors in the reacting system, nor do they use sampling connection systems. Therefore 63.164 & 63.166, respectively, will not apply. The entire reacting system is considered to be "*in light liquid*"

service”, therefore the requirements of 63.169 applicable to heavy liquid service will not apply. The equipment that **will not** be covered under Subpart H are listed below:

<u>Unit</u>	<u>Exemption</u>
Reactor One	In Vacuum Service
Heat Exchanger	In Vacuum Service
Dryer	In Vacuum Service
Line from Toluene Storage Tank to Reactor One	In Vacuum Service
Toluene Storage Tank Connections/Devices	Less Than 300 Hours Service

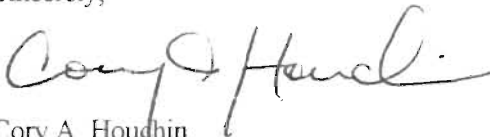
2. Toluene is not stored in the TDS tank therefore no toluene emissions will be given off through the carbon drum vent. Emissions from the toluene storage tank vents are assumed to be negligible as the tanks are blanketed with nitrogen therefore any discharge to the atmosphere should consist of nitrogen.

Please appreciate that the requirements detailed in the HON regulations are involved and the specific applicability of all aspects to TSE's process are not completely understood. TSE begs the Department's indulgence and requests that assistance be provided in sorting out exactly which requirements will be applicable should those requirements have been overlooked or misrepresented here.

This response is only a clarification of the data previously submitted in the original application and is therefore not considered to be of an engineering nature.

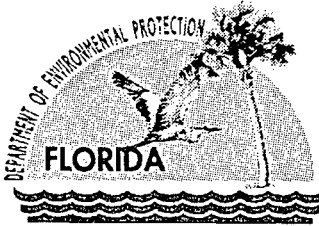
Thank you for your continued cooperation in this matter. Please feel free to contact this office at any time should you have questions or comments.

Sincerely,



Cory A. Houquin
Project Manager

cc: Dave Richcreek, TSE Industries, Inc.
Gary Robbins, PCDEM
Cindy Phillips, P.E., DARM-Tallahassee



Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Mr. Robert Klingel, President
TSE Industries, Inc.
5260 113th Avenue North
Clearwater, FL 33760

November 29, 2000

RECEIVED

DEC 04 2000

Dear Mr. Klingel:

BUREAU OF AIR REGULATION

Re: Air Construction Permit Application, Dated February 15, 2000
Project: Batch Reactor System
DEP Project No.: 1030207-003-AC
Location: TSE Industries, Inc., 5260 113th Avenue North, Clearwater, Pinellas County.

On October 30, 2000, a response was received to a Department request for information on the above-referenced air-permit application. In order to continue processing the application, the Department will need the following additional information pursuant to Rule 62-4.070(1), F.A.C.

1. Information regarding a fundamental issue has still not been provided to us. The Department needs information from you regarding a case-by-case MACT determination. (This was identified as question 2 on the Department's letter of 9/8/00.) Please review the attached letter entitled "What Information is Needed from the Applicant for a Case-by-Case MACT Determination?," then submit the necessary information so that the Department may complete its review of the application for permit.
2. The new, process flow diagram that you submitted with your letter of 10/30/00 does not identify some potential emission points. Please explain why you did not identify such points as the vents from the carbon drum of the TDS tank, mother liquor tank, reactor 1 tank, and reactor 6 tank.

"NOTICE: Pursuant to the provisions of Section 120.60, F.S. and Chapter 62-12.070(5), F.A.C., if the Department does not receive a response to this request for information within 90 days of the date of this letter, the Department will issue a final order denying your application. You need to respond within 30 days after you receive this letter, responding to as many of the information requests as possible and indicating when a response to any unanswered question will be submitted. If the response will require longer than 90 days to develop, an application for new construction should be withdrawn and resubmitted when completed information is available. Or for operating permits, you should develop a specific timetable for the submission of the requested information for Department review and consideration. Failure to comply with a timetable accepted by the Department will be grounds for the Department to issue a Final Order of Denial for lack of timely response. A denial for lack of information or response will be unbiased as to

the merits of the application. The applicant can reapply as soon as the requested information is available."

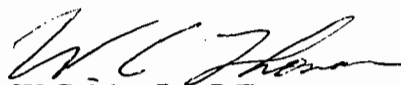
NOTE: Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Provide a copy of your response to:

Bureau of Air Regulation, Air Toxics Permitting Unit
Florida Department of Environmental Protection
Mail Station #5505
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Pinellas County Department of Environmental Management
Air Quality Division
300 South Garden Avenue
Clearwater, FL 33756

Question regarding the MACT determination should be directed to Cindy Phillips, P.E. at 850/488-1344. If you should have any other questions, please call Henry Gotsch at 813-744-6100, ext. 104.

Sincerely,



W.C. Thomas, P.E.
District Air Program Administrator
Southwest District

cc:

✓ Ms. Cindy Phillips, P.E., DARM
Mr. Gary Robbins, PCDEM
Mr. Cory Houchin, ESG

What Information is Needed from the Applicant for a Case-by-Case MACT Determination?

{REFERENCE: Federal Register / Vol. 61, No. 250 / Friday, December 27, 1996 / Rules and Regulations}

63.43 (d) Principles of MACT determinations. The following general principles shall govern preparation by the owner or operator of each permit application or other application requiring a case-by-case MACT determination concerning construction or reconstruction of a major source, and all subsequent review of and actions taken concerning such an application by the permitting authority:

(1) The MACT emission limitation or MACT requirements recommended by the applicant and approved by the permitting authority shall not be less stringent than the emission control which is achieved in practice by the best controlled similar source, as determined by the permitting authority.

(2) Based upon available information, as defined in this subpart, the MACT emission limitation and control technology (including any requirements under paragraph (d)(3) of this section) recommended by the applicant and approved by the permitting authority shall achieve the maximum degree of reduction in emissions of HAP which can be achieved by utilizing those control technologies that can be identified from the available information, taking into consideration the costs of achieving such emission reduction and any non-air quality health and environmental impacts and energy requirements associated with the emission reduction.

(3) The applicant may recommend a specific design, equipment, work practice, or operational standard, or a combination thereof, and the permitting authority may approve such a standard if the permitting authority specifically determines that it is not feasible to prescribe or enforce an emission limitation under the criteria set forth in section 112(h)(2) of the Act.

(4) If the Administrator has either proposed a relevant emission standard pursuant to section 112(d) or section 112(h) of the Act or adopted a presumptive MACT determination for the source category which includes the constructed or reconstructed major source, then the MACT requirements applied to the constructed or reconstructed major source shall have considered those MACT emission limitations and requirements of the proposed standard or presumptive MACT determination.

(e) Application requirements for a case-by-case MACT determination.

(1) An application for a MACT determination (whether a permit application under title V of the Act, an application for a Notice of MACT Approval, or other document specified by the permitting authority under paragraph (c)(2)(ii) of this section) shall specify a control technology selected by the owner or operator that, if properly operated and maintained, will meet the MACT emission limitation or standard as determined according to the principles set forth in paragraph (d) of this section.

(2) In each instance where a constructed or reconstructed major source would require additional control technology or a change in control technology, the application for a MACT determination shall contain the following information:

(i) The name and address (physical location) of the major source to be constructed or reconstructed;

(ii) A brief description of the major source to be constructed or

reconstructed and identification of any listed source category or categories in which it is included;

(iii) The expected commencement date for the construction or reconstruction of the major source;

(iv) The expected completion date for construction or reconstruction of the major source;

(v) the anticipated date of start-up for the constructed or reconstructed major source;

(vi) The HAP emitted by the constructed or reconstructed major source, and the estimated emission rate for each such HAP, to the extent this information is needed by the permitting authority to determine MACT;

(vii) Any federally enforceable emission limitations applicable to the constructed or reconstructed major source;

(viii) The maximum and expected utilization of capacity of the constructed or reconstructed major source, and the associated uncontrolled emission rates for that source, to the extent this information is needed by the permitting authority to determine MACT;

(ix) The controlled emissions for the constructed or reconstructed major source in tons/yr at expected and maximum utilization of capacity, to the extent this information is needed by the permitting authority to determine MACT;

(x) A recommended emission limitation for the constructed or reconstructed major source consistent with the principles set forth in paragraph (d) of this section;

(xi) The selected control technology to meet the recommended MACT emission limitation, including technical information on the design, operation, size, estimated control efficiency of the control technology (and the manufacturer's name, address, telephone number, and relevant specifications and drawings, if requested by the permitting authority);

(xii) Supporting documentation including identification of alternative control technologies considered by the applicant to meet the emission limitation, and analysis of cost and non-air quality health environmental impacts or energy requirements for the selected control technology; and

(xiii) Any other relevant information required pursuant to subpart A.

(3) In each instance where the owner or operator contends that a constructed or reconstructed major source will be in compliance, upon startup, with case-by-case MACT under this subpart without a change in control technology, the application for a MACT determination shall contain the following information:

(i) The information described in paragraphs (e)(2)(i) through (e)(2)(x) of this section; and

(ii) Documentation of the control technology in place.



Jeb Bush
Governor

Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

February 15, 2001

Mr. Robert Klingel, President
TSE Industries, Inc.
5260 113th Avenue North
Clearwater, FL 33760

RECEIVED

FEB 23 2001

BUREAU OF AIR REGULATION

Dear Mr. Klingel:

Re: Application dated February 15, 2000
Project: Batch Reactor System
DEP Project No. 1030207-003-AC
Location: 5260 113th Avenue North Clearwater

On January 16, 2001, the Department received your response to the Department's request for information on the above-referenced air-permit application. In order to continue processing the application, the Department will need the following additional information pursuant to Rules 62-4.055 and 62-4.070(1), F.A.C.:

1. During our meeting and walk-through at the facility, we found that the process-flow diagram submitted with the application (and, later, in response to a request for more information) was apparently incorrect with regard to flow directions, as we discussed. Please review the diagram, make the necessary corrections, and ensure that all relevant equipment, connections, and flow-directions are accurately represented.

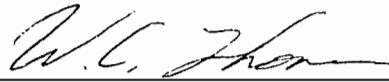
Your response should be submitted within 30 days after you receive this letter. If the response will require longer to develop, indicate when a response will be submitted. If you have any questions, please call Mr. Henry Gotsch, of my staff, at (813)744-6100 extension 104.

NOTE - Rule 62-4.050, F.A.C. requires applications of this type must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Therefore, your response to the above requests should be certified by a professional engineer.

TSE Industries, Inc.
DEP Project: 1030207-003-AC

Page 2 of 2

Sincerely,



W.C. Thomas, P.E.
District Air Program Administrator

cc: Gary Robbins, (PCDEM)
Cindy Phillips, P.E. (DARM)
Cory Houchin, (Environmental Sciences Group, PO Box 7495,
Tampa, FL 33673-7495)



March 12, 2001

Mr. W.C. Thomas, P.E.
Florida Department of Environmental Protection
Division of Air Resources Management - Permitting Section
3804 Coconut Palm Drive
Tampa, Florida 33619

**RE: Request for Information Regarding Application to Construct a Batch Reactor System
TSE Industries, Inc.; DEP Project No. 1030207-003-AC**

Dear Mr. Thomas:

This is in response to your letter of February 15, 2001 addressed to Mr. Robert Klingel of TSE Industries, Inc. (TSE) requesting further information necessary for completing the referenced application. This response will adopt the numerology of your request.

1. Please find enclosed the corrected process flow diagram incorporating the changes noted in our meeting and walk-through at the TSE facility on December 7, 2000.

This response is only a clarification of the data previously submitted in the original application and is therefore not considered to be of an engineering nature.

Thank you for your continued cooperation in this matter. Please feel free to contact this office at any time should you have questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Cory A. Houchin".

Cory A. Houchin
Project Manager

Enclosure

cc: Dave Richcreek, TSE Industries, Inc.
Gary Robbins, PCDEM
Cindy Phillips, P.E., DARM-Tallahassee

The Pharmaceutical MACT

WESTAR & CenSARA Workshop
May 4, 2001
Randy McDonald
ESD, OAR, EPA

Federal Register Dates

- Proposed Rule - April 2, 1997 62 FR 15754
- Promulgated Final Rule - September 21, 1999 63 FR 50280
- Proposed Amended Rule - April 10, 2000 65 FR 19152
- Promulgated Final Rule - August 29, 2000 65 FR 52588

Compliance Dates

- Existing Sources - October 21, 2002
- New and Reconstructed Sources - August 29, 2000 or startup, whichever is later

Applicability

- Affected Source
 - All pharmaceutical manufacturing operations at the plant site
 - Manufacture a pharmaceutical product
 - Are located at a plant site which is a major source
 - Process, use or produce HAP

Important Definitions

- Pharmaceutical Product
 - Any material described by SIC code 2833 and 2834
 - Any material whose process is described by NAICS code 325411 or 325412
 - A finished dosage of a drug
 - Any active ingredient or precursor that is produced at a facility whose primary operations are described by SIC 2833 or 2834
 - Any precursor whose primary use is as an active ingredient and is produced at a facility NOT described by SIC 2833 or 2843

Important Definitions

- Precursors
 - Material that is manufactured to undergo further chemical change or processing to ultimately manufacture an active ingredient or finished dosage form of a drug.
 - The term does NOT include commodity chemicals produced in the SOCMI.

Important Definitions

- Isolated Intermediate
 - The product of a process including precursors, active ingredients, or finished dosage forms of a drug.
 - Storage of an isolated intermediate marks the end of a process.

Important Definitions

- Process – all equipment which collectively function to produce a pharmaceutical product or isolated intermediate. Cleaning operations are part of the process

Important Definitions

- Process - Nondedicated solvent recovery and nondedicated formulation operations located within a contiguous area within then affected source are considered single processes.

Important Definitions

- QA/QC labs are not considered processes.
- Ancillary activities, such as HVAC, are not considered processes nor are part of any processes.

Important Definitions

- Pharmaceutical Manufacturing Process Unit
 - The process and any associated storage tanks and equipment such as pumps, valves, and connectors
 - Does not include APCD or wastewater management units

Standards

- Covers New and Existing Sources
- Covers Batch and Continuous Operations
- Contains Standards for
 - Process Vents
 - Storage Tanks
 - Wastewater
 - Equipment Leaks

Process Vent Standards Existing Sources

- Process-based standard – 93% control
- Large vent standard – 98% control
 - HAP emissions exceed 25 ton per year
 - Flowrate is less than the flowrate index
- Alternative standard
 - 20 ppmv TOC limit for combustion device
 - 50 ppmv TOC limit for non-combustion device
- Pollution prevention – 75% kg/kg reduction
- Emissions averaging – discount factor of 1.1

Process Vent Standards New sources

- Process-based standard – 98% control
- Annual mass limit - 900 kg per facility
- Alternative Standard- 20 (or 50) ppmv

Storage Tanks

- Storage tanks contain raw materials, or
- Storage tanks contain used solvent
- Wastewater tanks are not storage tanks
- Process tanks (including product tanks and isolated intermediate tanks) are not storage tanks

Storage Tanks - "Small"

- 20,000 gals \leq Design Capacity \leq 10,000 gals
- Maximum True Vapor Pressure \geq 1.9 psia
- Compliance Options
 - Fixed Roof with Internal Floating Roof
 - External Floating Roof
 - External Floating Roof Converted to Internal Roof
 - Closed Vent System Routed to a Control Device
 - Comply with Alternative Standard

Storage Tanks - "Large"

- Capacity \geq 20,000 gals
- Vapor Pressure \geq 1.9 psia
- Control Options
 - Same as for small tanks

Storage Tanks

- Closed Vent System Routed to a Control Device
 - Reduce total HAP by atleast 90% for small and grandfathered tanks and 95% for large tanks
 - Route to an enclosed combustion device with a minimum residence time of 0.5 seconds and a minimum temperature of 1400° F
 - Comply with the Alternative Standard

Storage Tanks - "Large"

- Closed Vent System Routed to a Control Device
 - Reduce inlet emissions of total HAP by 95% or greater (unless grandfathered)
 - Route to an enclosed combustion device that provides a minimum residence time of 0.5 secs at a minimum temperature of 760 C
 - Route to a flare
 - Route to an exempted boiler, process heater or incinerator
- Comply with Alternative Standard

New or Existing Sources Process Vents or Tanks

- Route to a flare
- Route to an exempted boiler, process heater, or incinerator.

Storage Tanks - Planned Routine Maintenance

- Storage tanks are allowed up to 240 hours per year for periods of planned routine maintenance. During these periods, the control devices do not have to meet the performance specifications (i.e.% reduction, outlet ppmv, etc.)

Strategy for Managing Process Changes

- Objective is to provide operational flexibility for plants implementing subpart GGG without frequent revisions to title V operating permit
- General approach is to place requirements for current and future operations in the permit and record on-site when future operations come on line

Managing Process Changes

- EPA recommended an approach for managing reconfiguration of equipment subject to GGG through title V permits
- Miscellaneous Organic Chemical Manufacturing NESHAP (MON) will have similar provisions for batch processes


Title V Permit

- Terms and conditions that incorporate subpart GGG
- Incorporation of the NOCSR
- Reasonably anticipated operating scenarios



Reasonably Anticipated Operating Scenario

- Change must not exceed capacity of control device
- Change must be compatible with approved monitoring parameters
- Changes are limited to replicable operating procedures



Anticipated Operating Scenario - Examples

- Like-kind replacement of permitted process equipment
- Addition of process equipment already existing on-site
- Use of condensers (new and existing) for control purposes
- Use of the Alternative Standard

Phillips, Cindy

From: Mcdonald.Randy@epamail.epa.gov
Sent: Friday, May 25, 2001 12:12 PM
To: Phillips, Cindy
Subject: Misc Coating Neshap



westar.ppt

Cindy, attached is the latest presentation. It doesn't contain much on coating, but I've summarized the proposal. Let me know if you have any questions.

Process vessels -

(a) portable process vessel >250 gal at an existing source - equip the vessel with a cover or lid that must be in place at all times when the vessel contains a HAP.

(b) stationary process vessel >250 gal at an existing source - equip the vessel with a tightly fitting vented cover or lid that must be closed at all times when the vessel contains a HAP.

Route emissions through a closed-vent system to any of the following:

? a control device that reduces HAP emissions by 75 percent by weight, or

? a control device that reduces emissions to an outlet total organic HAP or TOC concentration #20 ppmv and an outlet hydrogen halide and halogen concentration #20 ppmv, both corrected for supplemental gases, or

? a flare that meets the performance requirements in §63.11(b), but you may not use a flare to control halogenated vent streams, or

? a control device such as boiler, process heater, or RCRA incinerator.

OR route emissions through a closed-vent system to a condenser that reduces the outlet gas temperature to:

? <10°C if the process vessels contains HAP with a partial pressure <0.7 kPa, or

? <2°C if the process vessel contains HAP with a partial pressure \$0.7 kPa and <17.2 kPa, or

? <-5°C if the process vessel contains HAP with a partial pressure \$17.2 kPa.

(c) portable and stationary process vessel >250 gal at a new or reconstructed source - equip the vessel with a tightly fitting vented cover or lid that must be closed at all times when the vessel contains a HAP.

Route emissions through a closed-vent system to any of the following:

? a control device that reduces HAP emissions by 95 percent by weight

Wastewater Streams, Waste Management Units, and Liquid Streams . . .

The HON is cross-referenced where "Group 1" streams in §63.138 mean wastewater streams with a "Table 9" HAP concentration \$4,000 ppmw at existing sources and \$2,000 ppmw at new sources for the purposes of this subpart.

Storage Tanks -

(a) storage tank \$20,000 gal storing material that has a maximum true vapor

pressure of total HAP ≤ 1.9 psia an existing source - route emissions through a closed-vent system to either:

- ? a control device that reduces organic HAP emissions by ≥ 90 percent by weight, or
- ? a control device that reduces emissions to an outlet total organic HAP or TOC concentration less than or equal to 20 ppmv and an outlet hydrogen halide and halogen concentration less than or equal to 20 ppmv, or

(b) floating roof, or

(c) vapor balance as in subpart GGG

Equipment Leaks -

Subpart UU

Transfer Operations -

for bulk loading of material containing ≥ 3.0 million gal/yr of HAP with a HAP partial pressure ≤ 1.5 psia use a vapor balancing system designed and operated to collect displaced emissions and route them to:

- ? the storage tank from which the liquid being loaded originated, or
- ? another storage tank connected to a common header, or
- ? compress and route to a process where the HAP in the emissions predominantly meet one of, or a combination of, the following ends:
 - ? recycled and or consumed in the same manner as a material that fulfills the same function in that process,
 - ? transformed by chemical reaction into materials that are not organic HAP,
 - ? incorporated into a product, and/or
 - ? recovered.

OR

route emission streams through a closed-vent system to:

- ? a control device that reduces HAP emissions by ≥ 75 percent by weight

(See attached file: westar.ppt)