# Air Construction Permit Application

for

## Pan-Glo, A Division of
## R.T. Bundy Associates, Inc.

## 5200 Shawland Road
## Jacksonville, FL

**October 2016**

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# Table of Contents


Section 1 Introduction ..... 1

1.1 Purpose of the Permit Application ..... 1

1.2 Summary of Emission Sources and Facility Emissions ..... 1

1.3 Permitting and Regulatory Applicability ..... 2

1.3.1 Operating Permit Applicability ..... 2

1.3.2 PSD Applicability ..... 2

1.3.3 Regulatory Applicability ..... 3

1.4 Fee Calculation ..... 3

1.5 Permit Application Forms ..... 4

1.6 Supplemental Information ..... 4

Section 2 Process Description ..... 5

Section 3 Basis for Emissions Calculations ..... 8


## List of Tables


Table 1 Facility Emissions and Permitting Thresholds

Table 2 Facility Emission Units and Processing Fees


## List of Appendices


Appendix A FDEP Forms

Appendix B Emission Calculations

Appendix C Supplemental Information – Figures

# Section 1
# Introduction

## 1.1 Purpose of the Permit Application

Pan-Glo, a Division of R.T. Bundy Associates, Inc., is requesting an air construction permit for a new facility located at 5200 Shawland Road, Jacksonville, Florida, 32254. Pan-Glo currently owns and operates a facility in the City of Jacksonville that cleans and reglazes commercial bakery pans (bread, buns, cake, etc.). The facility receives used pans, removes old silicone release coatings, reapplies new silicon coating and returns the reconditioned pans to their customers. The new facility will have similar operations and ultimately replace the existing facility that will be shut down.

## 1.2 Summary of Emission Sources and Facility Emissions

The primary emission sources at the new facility are as follows:

- Pan Coating Process: The pan coating process will be comprised of the glaze spray machine coater, flashoff booth, and (5) batch cure ovens.
- Pan Cleaning Process: The pan cleaning process will be comprised of the east and west dip tank lines, a pan washer, and a pan dryer. The dip tank lines is a series of tanks that deglaze, rinse, soak, bleach, rinse, and neutralize.
- Storage Tanks: There will be two bulk storage tanks for the two solvent components used in the deglaze tanks: hexylene glycol (HEG) and diethylene glycol (DEG). The tanks are exempt from permitting per FAC Rule 62-210.300(3)(b)1.
- Boiler: A natural gas-fired boiler will be used to provide steam for the facility. The boiler is exempt from permitting per FAC Rule 62-210.300(3)(a)33.
- Tin Melt Pot: The melting pot will have a natural gas-fired burner to provide heat to melt tin. The melt pot/burner is exempt from permitting per FAC Rule 62-210.300(3)(a)33.

A summary of the facility emissions is listed below in Table 1.

**Table 1**
**Facility Emissions and Permitting Thresholds**

| Pollutant | Requested Allowable Emissions with limits (tpy) | Title V Major Source Threshold (tpy) | PSD Major Source Threshold (tpy) |
|---|---|---|---|
| $PM_{10}$ | 0.30 | 100 | 250 |
| $PM_{2.5}$ | 0.30 | - | - |
| $SO_2$ | 0.02 | 100 | 250 |
| $NO_x$ | 3.9 | 100 | 250 |
| CO | 3.3 | 100 | 250 |
| VOC | 27.8 | 100 | 250 |
| Single HAP | 2.4 | 10 | - |
| Total HAP | 2.5 | 25 | - |
| GHG (CO2e) | 4,667 | 100,000 | - |

## 1.3 Permitting and Regulatory Applicability

The Pan-Glo facility is located in Duval County, Florida. Duval County is designated an attainment or unclassified area for all criteria pollutants [oxides of nitrogen ($NO_x$), volatile organic compounds (VOCs), carbon monoxide (CO), sulfur dioxide ($SO_2$), total suspended particulate matter (PM), particulate matter with an aerodynamic diameter of 10 micrometers or less ($PM_{10}$), and particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$)].

### 1.3.1 Operating Permit Applicability

As shown in Table 1 the facility emissions for all pollutants are below the Title V major source threshold; therefore the facility will be a true minor source.

### 1.3.2 PSD Applicability

Pan-Glo potential facility emissions are less than the major source threshold; therefore, PSD review is not required.

### 1.3.3 Regulatory Applicability

Emission limits and work practice standards for the pan coating process and pan cleaning process include:

- FAC Rule 62-296.513 Surface Coating of Miscellaneous Metal Parts and Products: In the glaze spray machine coater, the coating is limited to 3.5 pounds per gallon of coating, excluding water, as delivered to the coating applicator. Pan-Glo will use compliant coatings, to comply with this standard. An MSDS for Cerama Glaze (coating with the highest VOC content) is included with the calculations in Appendix B.

- FAC Rule 62-296.511 Solvent Metal Cleaning: Tanks in the pan cleaning process are subject to various work practice standards including: the use of covers that can be operated with one hand, allowing for draining of cleaned parts, labeling tanks with operating requirements, storing waste solvent in covered containers, keeping covers closed when parts are not being transferred, and draining cleaned parts. The tanks in the pan cleaning process will comply with these work practice standards.

- FAC Rule 62-296.500 RACT – VOC and NOx Emitting Facilities: Records must be kept for at least two years for the amount of materials (release coating, deglazing solution, and solvents), VOC content of materials, and pounds of VOC per gallon for the materials.

## 1.4 Fee Calculation

The emission units included in application that require a processing fee are listed below in Table 2.

**Table 2**
**Facility Emission Units and Processing Fees**

| Emission Unit ID | Emission Unit | Permit Type | Processing Fee |
|---|---|---|---|
| 1 | Pan Coating Process | AC1E* | $1,000 |
| 2 | Pan Cleaning Process | AC1E* | $1,000 |
| | | Total = | $2,000 |

* Construction permit for emissions units having potential emissions of 5 tpy or more, but less than 25 tpy of any single pollutant.

Based on the number of sources and their total annual emissions (in tpy), the permit renewal fee was determined to be $2,000. A check has been enclosed with the application which is made payable to "Tax Collector, City of Jacksonville, Florida".

## 1.5 Permit Application Forms

Pan-Glo is requesting an air construction permit for the new facility. As previously discussed, the facility will be a true minor (non-Title V) source. As such, DEP Form No. 62-210.900(3) has been completed and is contained in Appendix A of this application.

## 1.6 Supplemental Information

DEP Form No. 62-210.900(3) requires specific supplemental information to be submitted with the application. This information is included in Appendix C and is described below.

Figure 1 – Area Map showing facility location: The area map includes a true north arrow, an accurate scale, and the approximate location of the plant property relative to prominent geographical features.

Figure 2 – Facility Plot Plan: The plot plan illustrates the site orientation, the property boundary, and the building location on the property. The property boundary includes survey information.

Figure 3 – Building Layout: The building layout shows the proposed location of the emission sources within the building along with the approximate locations of the stacks/exhaust vents.

Figure 4 – Process Flow Diagram: The process flow diagram shows the proposed new significant emission units. The diagram shows the flow pans that are cleaned and coated along with inputs of process materials and fuel.

# Section 2
# Process Description

Pan Glo Florida cleans food residue and a spent silicone release coating from commercial and retail bakery pans and then reapplies a new film of silicone release coating after the pans are clean. The bakery pans are made from stamped and folded aluminum and aluminized steel.

Pan Glo Florida services the state of Florida, southern Georgia, southern Alabama, and some of the bakeries from a few islands in the Caribbean. Bakery pans from customers in these areas are transported to our Jacksonville facility by use of tractor trailers or in the case of the island countries by ocean containers.

The cleaning process requires Pan Glo personnel to place the pans into large steel baskets which are then placed into a dip tank system for removing the old silicone coating and any baking residues from the pans.

The facility will utilize 2 dip tank lines utilizing cold solvent cleaners (de-glazers), aqueous detergents (soak tanks), fresh water rinses, stain removers (bleach tank), and pH neutralizers (citric acid).

The east dip tank line (#1) contains 2 – 3 cavity (holds 3 baskets) de-glazers, 1 – 2 cavity drain tank, 2 rinse (fresh water) tanks, 1 – 3 cavity soak (detergent cleaner), 1 rinse tank, 1 – 4 cavity soak, 1 – bleach (stain remover) tank, 1 – rinse tank, 1 – neutralizer (citric acid) tank.

The west dip tank line (#2) contains 3 – 2 cavity deglazers, 1 – cavity drain tank, 2 – rinse tanks, 3 – 2 cavity soak tanks, 1 – bleach tank, 1 – rinse tank, 1 – neutralizer tank.

The first set of dip tanks in both lines is our primary cleaner (de-glazer) and is a blend of hexylene glycol, diethylene glycol, and potassium hydroxide. This solution is heated to a maximum temperature of 220°F by the use of a closed loop steam system supplied by a 70 hp high pressure steam boiler. The de-glazers are used to remove the spent silicone release coating, carbonized vegetable and animal oils/fats/greases from the pans. The minimum time required to remove these materials is 2 hours. However the time can vary depending on the amount of soil buildup on the pans and may take up to 24 hours before the pans are removed from this solution.

Loading the dip tanks with the baskets of pans is accomplished by the use of 2 ton electric chain hoists. Once the baskets have been filled with pans the basket(s) is/are raised with the hoist to above the top of the tank, the lid of the tank is opened and the basket is moved into position and then lowered into the tank, the hoist is disconnected from the basket and the lid is then closed. The lids are opened and closed by the use of pneumatic cylinders.

After the allotted time for "de-glazing" the lid on the de-glazer tank cavity is opened, the hoist re-connected to the basket and the basket is raised from the solution. The pans are allowed to drain above the tank cavity until the bulk of the solution has drained from the pans (approximately 5 minutes) and are moved to a drain tank to complete the draining process. The drain tank is also equipped with pneumatic lids which are opened to allow insertion of the "de-glazed" basket of pans, the hoist disconnected, and the lid then is closed. The basket of pans will remain in this covered tank until the de-glazing solution has completely drained from the pans (approximately 15 minutes or more). (All de-glazing solution that accumulates in the drain tank is then pumped back into the de-glazers for reuse).

Once the pans have finished draining the drain tank lid is opened and the basket is removed from the tank and the tank lid is closed. The basket is then inserted into the first rinse tank for rinsing. Air agitation is used to help the rinsing process and takes approximately one minute. After the first rinse the pans are then rinsed in the second rinse tank to complete the rinsing process.

After the pans have been rinsed thoroughly the pans are then inserted into one of the soak (detergent, caustic soda, sodium metasilcate) tanks to remove any remaining soils from the pans. Depending on the remaining soils this could be 15 to 60 minutes or more.

After soaking the basket is then removed from the tank and then if any organic stains remain on the pans they are inserted into the bleach (1% sodium hypochlorite) tank to remove them. Bleaching can take 1 to 5 minutes.

Once bleached the pans are then rinsed in fresh water and then are moved to the neutralizer tank (citric acid). The neutralizer is used to bring the pH of the pans down to between 4 and 5 pH as the cleaners being used were alkaline.

Once the pans have been processed through dip tank line(s) the clean pans are removed from the baskets and are processed through a conveyorized pan washer one pan at a time. The pan washer uses hot water (heated by the closed loop steam system) under high pressure to "wash" the pans. This process removes the last remaining food particles that have not been dissolved in the dip tanks. From the wash section the pans pass through a blow off tunnel utilizing rapid air movement to remove the excess water from the pans. After the pans have been washed they are stacked on carts in preparation for drying.

When full, the carts are inserted into one of 5 natural gas fired batch ovens to dry the water from the pans.

After drying the pans are allowed to cool and are then processed through a conveyorized coating machine where the silicone release coating is applied. The coating is sprayed on the

pans using Nordson Airless Spray equipment. The coating sprayed is less than 3.5 pounds per gallon of coating, excluding water and exempt solvents.

After coating the pans are once again stacked onto the oven carts and are reinserted into the batch ovens for curing.

Once all the pans are coated and cured the pans are removed from the batch ovens and loaded onto tractor trailers (or ocean container) for delivery back to the customer.

The Pan Glo Florida operation averages 2 – 12 hour shifts per day, 5 days per week, 12 months per year.

Pan Glo also offers a pan straightening service for customers that need their pans straightening. This process involves the use of a hydraulic press to apply the force needed to straighten the pans but also involves the use of tin molds or dies. To make a mold Pan Glo uses a 300,000 Btu melting pot which holds 500 pounds of food grade tin. To make the die a pan is straightened by hand to insure that the mold will accomplish what is needed once the die is mounted in the press and the pan is straightened hydraulically.

Once the pan is straightened by hand the melting pot is turned on and filled with tin. Once the tin melts the molten tin is poured into the pan and allowed to cool and harden. Steel fixtures are imbedded in the molten tin which when hardens around the steel fixes them to the die.

The steel fixtures embedded in the tin mold are then bolted to the hydraulic press once the die has cooled and is placed in the press. Once bolted in place and the press turned on the pans are placed on the mold and when actuated the hydraulics sandwich the pan between the male and female molds pushing out dents, removing warpage, etc. from the pans.

A process flow diagram is provided as Figure 4 in Appendix C.

# Section 3
# Basis for Emissions Calculations

Emission estimates have been completed for three discrete categories of emissions sources: pan coating process; pan cleaning process, and natural gas combustion sources. Methodology and assumptions are described in the sections below. Detailed calculations are in Appendix B.

**Pan Coating Emissions:**

Emissions from pan coating is based on the assumption that all volatiles, organic and non-organic, contained in the coatings will be emitted during the process. There are a number of compliant coatings available for use, however, Cerama Glaze has the highest VOC content of these coatings. As it is the worse-case coating available Cerama Glaze was used as the example coating for the emission calculations. The VOC emissions from mineral spirits cleanup solvent is also based on mass balance with the usage based on company knowledge from operations at other facilities.

**Pan Cleaning Emissions:**

Emissions from the deglazing operations are based on a maximum of 600 pans per hour and 1,700,000 pans per year. Process bottlenecks limit the annual production. The emission factor for VOC loss while the deglaze tank lid is open is based on test data from similar equipment using the same chemicals at another Pan-Glo facility. The time the deglaze tank lid is open for each transfer is approximately 10 minutes. To be conservative the open lid time of the deglazer/drip tank basket exchange has been estimated to be 15 minutes.

**Natural Gas Combustion:**

The only fuel utilized at the facility is natural gas. Combustion sources include: the boiler, curing ovens, and tin melting pot burner. All emission calculations were based on the maximum heat input rating for each burner and 8,760 hours of operation per year. Actual hours of operation are expected to be much less than the potential calculated due to total pan throughput restrictions. Standard emission factors for natural gas combustion from AP-42, Section 1.4, were used to estimate emissions.

**Storage Tanks:**

VOC are emitted from the two storage tanks for HEG and DEG. Emissions are calculated with the use of US EPA's TANKS emissions estimation software. Annual usage rates are input into TANKS.

# Appendix A
# FDEP Forms

# Department of Environmental Protection

## Division of Air Resources Management

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Environmental Quality Division

## APPLICATION FOR AIR PERMIT - NON-TITLE V SOURCE

See Instructions for Form No. 62-210.900(3)

### I. APPLICATION INFORMATION

**Identification of Facility**

| | |
|---|---|
| 1. Facility Owner/Company Name:<br>Pan-Glo, A Division of R.T. Bundy Associates, Inc. | |
| 2. Site Name:<br>Pan-Glo | |
| 3. Facility Identification Number: [X ] Unknown | |
| 4. Facility Location:<br>Street Address or Other Locator: 5200 Shawland Road<br>City: Jacksonville County: Duval Zip Code: 32254 | |
| 5. Relocatable Facility?<br>[ ] Yes [X ] No | 6. Existing Permitted Facility?<br>[ ] Yes [X ] No |

**Application Contact**

| |
|---|
| 1. Name and Title of Application Contact:<br><br>Scott Mouton, Vice-President of Operations |
| 2. Application Contact Mailing Address:<br>Organization/Firm: Pan-Glo<br>Street Address: 417 East Water Street<br>City: Urbana State: OH Zip Code: 43078 |
| 3. Application Contact Telephone Numbers:<br>Telephone: ( 937 ) 652 - 2151 Fax: ( 937 ) 652 - 1787 |
| 4. Application Contact E-mail Address: |

**Application Processing Information (DEP Use)**

| | |
|---|---|
| 1. Date of Receipt of Application: | |
| 2. Permit Number: | |

**Purpose of Application**

**Air Operation Permit Application**

This Application for Air Permit is submitted to obtain: (Check one)

[ ] Initial non-Title V air operation permit for one or more existing, but previously unpermitted, emissions units.

[ ] Initial non-Title V air operation permit for one or more newly constructed or modified emissions units.

Current construction permit number:_____

[ ] Non-Title V air operation permit revision to address one or more newly constructed or modified emissions units.

Current construction permit number:_____

Operation permit number to be revised:_____

[ ] Initial non-Title V air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s):

_____

[ ] Non-Title V air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g., to address one or more newly constructed or modified emissions units.

Operation permit number to be revised:_____

Reason for revision:_____

**Air Construction Permit Application**

This Application for Air Permit is submitted to obtain: (Check one)

[ X ] Air construction permit to construct or modify one or more emissions units.

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

**Owner/Authorized Representative**

| | |
|---|---|
| 1. | Name and Title of Owner/Authorized Representative:<br>Scott Mouton, Vice-President of Operations |
| 2. | Owner/Authorized Representative Mailing Address:<br>Organization/Firm: Pan-Glo<br>Street Address: 417 East Water Street<br>City: Urbana State: OH Zip Code: 43078 |
| 3. | Owner/Authorized Representative Telephone Numbers:<br>Telephone: ( 937 ) 652 - 2151 Fax: ( 937 ) 652 - 1787 |
| 4. | Owner/Authorized Representative E-mail Address: Scott.m@pterandy.com |
| 5. | Owner/Authorized Representative Statement:<br>*I, the undersigned, am the owner or authorized representative* of the facility addressed in this application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*<br>Signature Date 10-13-16 |

* Attach letter of authorization if not currently on file.

**Professional Engineer Certification**

| | |
|---|---|
| 1. | Professional Engineer Name: David R. Heitz<br>Registration Number: 77804 |
| 2. | Professional Engineer Mailing Address:<br>Organization/Firm: TRC<br>Street Address: 11231 Cornell Park Drive<br>City: Cincinnati State: OH Zip Code: 45242 |
| 3. | Professional Engineer Telephone Numbers:<br>Telephone: ( 513 ) 489 - 2255 Fax: ( 513 ) 489 - 2533 |
| 4. | Professional Engineer E-mail Address: dheitz@trcsolutions.com |

5. Professional Engineer Statement:

*I, the undersigned, hereby certify, except as particularly noted herein*, that:*

*(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and*

*(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.*

*If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [ ], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.*

*If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.*

DAVID R. HEILY LICENSE No. 77804 STATE OF FLORIDA PROFESSIONAL ENGINEER

Signature 10/12/2016 Date

(seal)

* Attach any exception to certification statement.

**Scope of Application**

| Emissions Unit ID | Description of Emissions Unit | Permit Type | Processing Fee |
|---|---|---|---|
| 1 | Pan Coating Process | AC1E | $1,000 |
| 2 | Pan Cleaning Process | AC1E | $1,000 |
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**Application Processing Fee**

Check one: [ X ] Attached - Amount: $ 2,000.00 [ ] Not Applicable

**Construction/Modification Information**

| |
|---|
| 1. Description of Proposed Project or Alterations:<br><br>Pan-Glo proposes to construct a used baking pan cleaning and recoating plant. Used baking pans from commercial and retail bakeries will be cleaned and have silicone release coatings removed in a pan cleaning process. Then a new silicone release coating (or "glaze") will be applied in a pan coating process. |
| 2. Projected or Actual Date of Commencement of Construction: 1/1/2017 |
| 3. Projected Date of Completion of Construction: 12/31/2017 |

**Application Comment**

The primary applicable requirements are listed below and discussed further in the application document:

- FAC Rule 62-296.513 Surface Coating of Miscellaneous Metal Parts and Products/JEPB Rule 2.1101 will apply to the pan coating process.

- FAC Rule 62-296.511 Solvent Metal Cleaning/JEPB Rule 2.1101 will apply to the pan cleaning process.

- FAC Rule 62-296.500 RACT – VOC and NOx Emitting Facilities/JEPB Rule 2.1101 will apply to both the pan coating and pan cleaning processes.

## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

**Facility Location and Type**

| | | | |
|---|---|---|---|
| 1. Facility UTM Coordinates:<br>Zone: East (km): North (km): | | | |
| 2. Facility Latitude/Longitude:<br>Latitude (DD/MM/SS): 30° 20' 29.1" N Longitude (DD/MM/SS): 81° 44' 08.9" W | | | |
| 3. Governmental Facility Code:<br>0 | 4. Facility Status Code:<br>C | 5. Facility Major Group SIC Code:<br>76 | 6. Facility SIC(s):<br>7699 |
| 7. Facility Comment (limit to 500 characters): | | | |

**Facility Contact**

| |
|---|
| 1. Name and Title of Facility Contact: Ralph Buckner, Plant Manager |
| 2. Facility Contact Mailing Address:<br>Organization/Firm: Pan-Glo<br>Street Address: 5200 Shawland Road<br>City: Jacksonville State: FL Zip Code: 32254 |
| 3. Facility Contact Telephone Numbers:<br>Telephone: ( 904 ) 356 - 3111 Fax: ( 904 ) 355 - 0240 |
| 4. Facility Contact E-mail Address: |

**Facility Regulatory Classifications**

**Check all that apply:**

| | |
|---|---|
| 1. [ ] Small Business Stationary Source? | [ ] Unknown |
| 2. [ ] Synthetic Non-Title V Source? | |
| 3. [ ] Synthetic Minor Source of Pollutants Other than HAPs? | |
| 4. [ ] Synthetic Minor Source of HAPs? | |
| 5. [ ] One or More Emissions Units Subject to NSPS? | |
| 6. [ ] One or More Emission Units Subject to NESHAP Recordkeeping or Reporting? | |
| 7. Facility Regulatory Classifications Comment (limit to 200 characters):<br><br>The facility will be a (non-Title V) minor source. | |

**Rule Applicability Analysis**

| |
|---|
| |

## B. FACILITY POLLUTANTS

**List of Pollutants Emitted**

| 1. Pollutant Emitted | 2. Pollutant Classif. | 3. Requested Emissions Cap | | 4. Basis for Emissions Cap | 5. Pollutant Comment |
|---|---|---|---|---|---|
| | | lb/hour | tons/year | | |
| PM/PM10 | B | | | | PTE less than major source threshold |
| SO2 | B | | | | PTE less than major source threshold |
| NOX | B | | | | PTE less than major source threshold |
| CO | B | | | | PTE less than major source threshold |
| VOC | B | | | | PTE less than major source threshold |
| HAP | B | | | | PTE less than major source threshold |
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## C. FACILITY SUPPLEMENTAL INFORMATION

**Supplemental Requirements**

| |
|---|
| 1. Area Map Showing Facility Location:<br>[ X ] Attached, Document ID: Fig 1 [ ] Not Applicable [ ] Waiver Requested |
| 2. Facility Plot Plan:<br>[ X ] Attached, Document ID: Fig 2/3 [ ] Not Applicable [ ] Waiver Requested |
| 3. Process Flow Diagram(s):<br>[ X ] Attached, Document ID: Fig 4 [ ] Not Applicable [ ] Waiver Requested |
| 4. Precautions to Prevent Emissions of Unconfined Particulate Matter:<br>[ ] Attached, Document ID:_____ [ X ] Not Applicable [ ] Waiver Requested |
| 5. Supplemental Information for Construction Permit Application:<br>[ ] Attached, Document ID:_____ [ X ] Not Applicable |
| 6. Supplemental Requirements Comment: |

## III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through G as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

### A. GENERAL EMISSIONS UNIT INFORMATION

**Emissions Unit Description and Status**

1. Type of Emissions Unit Addressed in This Section: (Check one)

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

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

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

2. Description of Emissions Unit Addressed in This Section (limit to 60 characters):
Pan Coating Process

3. Emissions Unit Identification Number:
ID:

[ X ] No ID
[ ] ID Unknown

| 4. Emissions Unit Status Code: | 5. Initial Startup Date: | 6. Emissions Unit Major Group SIC Code: |
|---|---|---|
| C | 1/1/2018 | 76 |

7. Emissions Unit Comment: (Limit to 500 Characters)

The pan coating process consists of the following operations: glaze spray machine coater, flash off booth, and (5) batch cure ovens.

**Emissions Unit Information Section 1 of 2**

**Emissions Unit Control Equipment**

| |
|---|
| 1. Control Equipment/Method Description (limit to 200 characters per device or method): |
| 2. Control Device or Method Code(s): |

**Emissions Unit Details**

| | | |
|---|---|---|
| 1. Package Unit: NA<br>Manufacturer: | Model Number: | |
| 2. Generator Nameplate Rating: NA | MW | |
| 3. Incinerator Information:<br>Dwell Temperature:<br>Dwell Time:<br>Incinerator Afterburner Temperature: | | <br>°F<br>seconds<br>°F |

**Emissions Unit Operating Capacity and Schedule**

| | | |
|---|---|---|
| 1. Maximum Heat Input Rate: | 2.5 (batch cure ovens: 5 @ 0.5) | mmBtu/hr |
| 2. Maximum Incineration Rate: NA | lb/hr | tons/day |
| 3. Maximum Process or Throughput Rate: | | |
| 4. Maximum Production Rate: 600 units/hr & 1.7 million units/yr. | | |
| 5. Requested Maximum Operating Schedule: | | |
| | 24 hours/day | 7 days/week |
| | 52 weeks/year | 8,760 hours/year |
| 6. Operating Capacity/Schedule Comment (limit to 200 characters):<br><br>The pan coating process has a production rate of 600 units per hour. Due to facility bottlenecks, it has a maximum annual production rate of 1,700,000 units. | | |

**Emissions Unit Information Section 1 of 2**

## B. EMISSION POINT (STACK/VENT) INFORMATION

**Emission Point Description and Type**

| | |
|---|---|
| 1. Identification of Point on Plot Plan or Flow Diagram? GC1S; FO1S; and BO1S-BO5S | 2. Emission Point Type Code: 1 |

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):

GC1S: stack for the glaze spray machine coater;
FO1S: stack for the flash off booth; and
BO1S-BO5S: stack for each of the 5 batch cure ovens.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:
All the emission points are associated with the pan coating process.

| | | |
|---|---|---|
| 5. Discharge Type Code: V | 6. Stack Height: 25 feet | 7. Exit Diameter: See below feet |
| 8. Exit Temperature: See below °F | 9. Actual Volumetric Flow Rate: see below acfm | 10. Water Vapor: saturated % |

| | |
|---|---|
| 11. Maximum Dry Standard Flow Rate: dscfm | 12. Nonstack Emission Point Height: feet |

13. Emission Point UTM Coordinates: TBD

Zone: 17 East (km): see below North (km): see below

14. Emission Point Comment (limit to 200 characters):

Stack locations and parameters are listed below:

| Stack | Exit Diameter | Exit Temp | Flow Rate (scfm) | East | North |
|---|---|---|---|---|---|
| GC1S | 12" | Ambient | 2,000 | 429279.17 | 3356835.83 |
| FO1S | 16" | Ambient | 3,000 | 429278.91 | 3356840.12 |
| BO1S | 8" | 450 °F | 1,000 | 429279.08 | 3356851.24 |
| BO2S | 8" | 450 °F | 1,000 | 429279.15 | 3356848.54 |
| BO3S | 8" | 450 °F | 1,000 | 429279.21 | 3356843.49 |
| BO4S | 8" | 450 °F | 1,000 | 429279.83 | 3356827.64 |
| BO5S | 8" | 450 °F | 1,000 | 429280.01 | 3356825.88 |

**Emissions Unit Information Section 1 of 2**

## C. SEGMENT (PROCESS/FUEL) INFORMATION

**Segment Description and Rate:** Segment 1 of 2

| | | |
|---|---|---|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br>Glaze spray machine coater | | |
| 2. Source Classification Code (SCC):<br>4-02-025-33 | 3. SCC Units:<br>Lb/1,000 $ft^2$ surface are coated | |
| 4. Maximum Hourly Rate:<br>6 gallon of glaze | 5. Maximum Annual Rate:<br>17,000 gallon of glaze | 6. Estimated Annual Activity Factor: NA |
| 7. Maximum % Sulfur:<br>NA | 8. Maximum % Ash:<br>NA | 9. Million Btu per SCC Unit:<br>NA |
| 10. Segment Comment (limit to 200 characters):<br><br>Emissions are calculated on a mass balance basis based on the VOC content of the coating applied at the maximum hourly production. | | |

**Segment Description and Rate:** Segment 2 of 2

| | | |
|---|---|---|
| 1. Segment Description (Process/Fuel Type ) (limit to 500 characters):<br><br>Natural gas usage | | |
| 2. Source Classification Code (SCC):<br>1-03-006-03 | 3. SCC Units:<br>Million scf of natural gas | |
| 4. Maximum Hourly Rate:<br>0.002 | 5. Maximum Annual Rate:<br>21.5 | 6. Estimated Annual Activity Factor: NA |
| 7. Maximum % Sulfur:<br>AP-42 default | 8. Maximum % Ash:<br>NA | 9. Million Btu per SCC Unit:<br>1,020 Btu/scf |
| 10. Segment Comment (limit to 200 characters):<br><br>Segment is the natural gas combustion in the pan coating process. Combined total heat input is 2.5 MMBtu/hr (batch cure ovens: 5 @ 0.5 MMBtu/hr). | | |

**Emissions Unit Information Section** 1 **of** 2

**Pollutant Detail Information Page** 1 **of** 2

## D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

**Potential Emissions**

| | | |
|---|---|---|
| 1. Pollutant Emitted: VOC | 2. Pollutant Regulatory Code: NS | |
| 3. Primary Control Device Code: NA | 4. Secondary Control Device Code: NA | 5. Total Percent Efficiency of Control: NA |
| 6. Potential Emissions:<br>5.8 (point source) lb/hour 8.3 (10.4 with fugitives) tons/year | | 7. Synthetically Limited?<br>[ ] |
| 8. Emission Factor: mass balance<br>Reference: VOC content/MSDS | | 9. Emissions Method Code:<br>2 |
| 10. Calculation of Emissions (limit to 600 characters):<br><br>See attached calculations. | | |
| 11. Pollutant Potential Emissions Comment (limit to 200 characters):<br><br>Mass balance emission calculations based on process knowledge at other company facilities. | | |

**Allowable Emissions** Allowable Emissions _____ of _____

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Requested Allowable Emissions and Units: | 4. Equivalent Allowable Emissions:<br>lb/hour tons/year |
| 5. Method of Compliance (limit to 60 characters): | |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br>Pollutant emissions are not limited by rules and no limit is requested. Emissions are based on maximum production and natural bottlenecks. | |

**Emissions Unit Information Section** 1 **of** 2

**Pollutant Detail Information Page** 2 **of** 2

## D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

**Potential Emissions**

| | | |
|---|---|---|
| 1. Pollutant Emitted: H186 [xylene] | 2. Pollutant Regulatory Code: NS | |
| 3. Primary Control Device Code: NA | 4. Secondary Control Device Code: NA | 5. Total Percent Efficiency of Control: NA |
| 6. Potential Emissions: NA lb/hour 2.4 tons/year | | 7. Synthetically Limited? [ ] |
| 8. Emission Factor: mass balance<br>Reference: knowledge of process | | 9. Emissions Method Code: 2 |
| 10. Calculation of Emissions (limit to 600 characters):<br>See attached calculations. | | |
| 11. Pollutant Potential Emissions Comment (limit to 200 characters):<br>Mass balance emission calculations based on process knowledge at other company facilities. | | |

**Allowable Emissions** Allowable Emissions _____ of _____

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Requested Allowable Emissions and Units: | 4. Equivalent Allowable Emissions: lb/hour tons/year |
| 5. Method of Compliance (limit to 60 characters): | |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br>Pollutant emissions are not limited by rules and no limit is requested. Emissions are based on maximum production and natural bottlenecks. | |

## E. VISIBLE EMISSIONS INFORMATION
**(Only Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation _____ of _____

| | |
|---|---|
| 1. Visible Emissions Subtype: | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: % Exceptional Conditions: %<br>Maximum Period of Excess Opacity Allowed: min/hour | |
| 4. Method of Compliance: | |
| 5. Visible Emissions Comment (limit to 200 characters):<br><br>No visible emissions limit. | |

## F. CONTINUOUS MONITOR INFORMATION
**(Only Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor _____ of _____

| | |
|---|---|
| 1. Parameter Code: | 2. Pollutant(s): |
| 3. CMS Requirement: | [ ] Rule [ ] Other |
| 4. Monitor Information:<br>Manufacturer:<br>Model Number: Serial Number: | |
| 5. Installation Date: | 6. Performance Specification Test Date: |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br>No continuous monitoring required. | |

## G. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

**Supplemental Requirements**

| |
|---|
| 1. Process Flow Diagram<br>[ X ] Attached, Document ID: Fig 4 [ ] Not Applicable [ ] Waiver Requested |
| 2. Fuel Analysis or Specification<br>[ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested |
| 3. Detailed Description of Control Equipment<br>[ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested |
| 4. Description of Stack Sampling Facilities<br>[ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested |
| 5. Compliance Test Report<br>[ ] Attached, Document ID:_____<br>[ ] Previously submitted, Date:_____<br>[ ] Not Applicable |
| 6. Procedures for Startup and Shutdown<br>[ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested |
| 7. Operation and Maintenance Plan<br>[ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested |
| 8. Supplemental Information for Construction Permit Application<br>[ ] Attached, Document ID:_____ [ ] Not Applicable |
| 9. Other Information Required by Rule or Statute<br>[ ] Attached, Document ID:_____ [ ] Not Applicable |
| 10. Supplemental Requirements Comment: |

## III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through G as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

### A. GENERAL EMISSIONS UNIT INFORMATION

**Emissions Unit Description and Status**

1. Type of Emissions Unit Addressed in This Section: (Check one)

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

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

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

2. Description of Emissions Unit Addressed in This Section (limit to 60 characters):

Pan Cleaning Process

3. Emissions Unit Identification Number:
ID:

[ X ] No ID
[ ] ID Unknown

| 4. Emissions Unit Status Code: | 5. Initial Startup Date: | 6. Emissions Unit Major Group SIC Code: |
|---|---|---|
| C | 1/1/2018 | 76 |

7. Emissions Unit Comment: (Limit to 500 Characters)

Pan cleaning process consists of the following operations: east and west dip tank lines (2); pan washer; and pan dryer.

**Emissions Unit Information Section 2 of 2**

**Emissions Unit Control Equipment**

| |
|---|
| 1. Control Equipment/Method Description (limit to 200 characters per device or method):<br><br>NA |
| 2. Control Device or Method Code(s): |

**Emissions Unit Details**

| | | |
|---|---|---|
| 1. Package Unit: NA<br>Manufacturer: | Model Number: | |
| 2. Generator Nameplate Rating: NA | MW | |
| 3. Incinerator Information: NA<br>Dwell Temperature:<br>Dwell Time:<br>Incinerator Afterburner Temperature: | | °F<br>seconds<br>°F |

**Emissions Unit Operating Capacity and Schedule**

| | | |
|---|---|---|
| 1. Maximum Heat Input Rate: | | mmBtu/hr |
| 2. Maximum Incineration Rate: NA | lb/hr | tons/day |
| 3. Maximum Process or Throughput Rate: 600 units/hr & 1,700,000 units/yr | | |
| 4. Maximum Production Rate: | | |
| 5. Requested Maximum Operating Schedule:<br>24 hours/day<br>52 weeks/year | | 7 days/week<br>8,760 hours/year |
| 6. Operating Capacity/Schedule Comment (limit to 200 characters):<br><br>The pan cleaning process has a throughput rate of 600 units per hour. Due to facility bottlenecks, it has a maximum annual throughput rate of 1,700,000 units. | | |

**Emissions Unit Information Section 2 of 2**

## B. EMISSION POINT (STACK/VENT) INFORMATION

**Emission Point Description and Type**

| | |
|---|---|
| 1. Identification of Point on Plot Plan or Flow Diagram? RE1 – RE6 | 2. Emission Point Type Code: 1 |

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):

Six roof exhausts for the pan cleaning process.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

All the emission points are associated with the pan cleaning process.

| | | |
|---|---|---|
| 5. Discharge Type Code: R | 6. Stack Height: feet | 7. Exit Diameter: feet |
| 8. Exit Temperature: ambient °F | 9. Actual Volumetric Flow Rate: acfm | 10. Water Vapor: % |

| | |
|---|---|
| 11. Maximum Dry Standard Flow Rate: dscfm | 12. Nonstack Emission Point Height: 25 feet |

13. Emission Point UTM Coordinates: TBD

Zone: 17 East (km): 429289.06 North (km): 3356839.64

14. Emission Point Comment (limit to 200 characters):

Dip tanks, pan washer, and pan dryer are all vented in the building with the air exhausting through the six roof exhausts RE1, RE2, RE3, RE4, RE5, and RE6. (coordinate in 13. is approximate central location of the 6 exhausts.)

**Emissions Unit Information Section 2 of 2**

## C. SEGMENT (PROCESS/FUEL) INFORMATION

**Segment Description and Rate:** Segment 1 of 1

| | | |
|---|---|---|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br>East and west dip tank line deglaze tanks (2 on east and 3 on west). | | |
| 2. Source Classification Code (SCC):<br>4-01-002-16 | 3. SCC Units:<br>lb/1,000 $ft^2$ surface area degreased | |
| 4. Maximum Hourly Rate: | 5. Maximum Annual Rate:<br>40,800 gallon solvent | 6. Estimated Annual Activity Factor: NA |
| 7. Maximum % Sulfur:<br>NA | 8. Maximum % Ash:<br>NA | 9. Million Btu per SCC Unit:<br>NA |
| 10. Segment Comment (limit to 200 characters):<br><br>Emissions are estimated on a mass balance basis based on the maximum hourly throughput and the company derived emission factor developed from source testing. | | |

**Segment Description and Rate:** Segment _____ of _____

| | | |
|---|---|---|
| 1. Segment Description (Process/Fuel Type ) (limit to 500 characters): | | |
| 2. Source Classification Code (SCC): | 3. SCC Units: | |
| 4. Maximum Hourly Rate: | 5. Maximum Annual Rate: | 6. Estimated Annual Activity Factor: |
| 7. Maximum % Sulfur: | 8. Maximum % Ash: | 9. Million Btu per SCC Unit: |
| 10. Segment Comment (limit to 200 characters): | | |

**Emissions Unit Information Section** 2 **of** 2

**Pollutant Detail Information Page** 1 **of** 1

## D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

**Potential Emissions**

| | | |
|---|---|---|
| 1. Pollutant Emitted: VOC | 2. Pollutant Regulatory Code: NS | |
| 3. Primary Control Device Code: NA | 4. Secondary Control Device Code: NA | 5. Total Percent Efficiency of Control: NA |
| 6. Potential Emissions: 17.5 tons/year | | 7. Synthetically Limited? [ ] |
| 8. Emission Factor: 3.03 lb VOC/basket<br>Reference: company testing | | 9. Emissions Method Code: 1 [emission testing] |
| 10. Calculation of Emissions (limit to 600 characters):<br><br>See attached calculations | | |
| 11. Pollutant Potential Emissions Comment (limit to 200 characters):<br><br>Emissions calculated based on company derived emission factor along with facility throughput limits. | | |

**Allowable Emissions** Allowable Emissions _____ of _____

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Requested Allowable Emissions and Units: | 4. Equivalent Allowable Emissions:<br>lb/hour tons/year |
| 5. Method of Compliance (limit to 60 characters): | |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br>Pollutant emissions are not limited by rules and no limit is requested. Emissions based on maximum hourly throughputs and process bottlenecks. | |

## E. VISIBLE EMISSIONS INFORMATION
**(Only Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation _____ of _____

| | |
|---|---|
| 1. Visible Emissions Subtype: | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: % Exceptional Conditions: %<br>Maximum Period of Excess Opacity Allowed: min/hour | |
| 4. Method of Compliance: | |
| 5. Visible Emissions Comment (limit to 200 characters):<br><br>No visible emissions limit. | |

## F. CONTINUOUS MONITOR INFORMATION
**(Only Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor _____ of _____

| | |
|---|---|
| 1. Parameter Code: | 2. Pollutant(s): |
| 3. CMS Requirement: | [ ] Rule [ ] Other |
| 4. Monitor Information:<br>Manufacturer:<br>Model Number: Serial Number: | |
| 5. Installation Date: | 6. Performance Specification Test Date: |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br>No continuous monitoring required. | |

## G. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

**Supplemental Requirements**

| |
|---|
| 1. Process Flow Diagram<br>[ X ] Attached, Document ID: Fig 4 [ ] Not Applicable [ ] Waiver Requested |
| 2. Fuel Analysis or Specification<br>[ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested |
| 3. Detailed Description of Control Equipment<br>[ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested |
| 4. Description of Stack Sampling Facilities<br>[ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested |
| 5. Compliance Test Report<br>[ ] Attached, Document ID:_____<br>[ ] Previously submitted, Date:_____<br>[ ] Not Applicable |
| 6. Procedures for Startup and Shutdown<br>[ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested |
| 7. Operation and Maintenance Plan<br>[ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested |
| 8. Supplemental Information for Construction Permit Application<br>[ ] Attached, Document ID:_____ [ ] Not Applicable |
| 9. Other Information Required by Rule or Statute<br>[ ] Attached, Document ID:_____ [ ] Not Applicable |
| 10. Supplemental Requirements Comment: |

# Appendix B
# Emission Calculations

**Pan-Glo**
**Facility Potential Emissions**

| | Emissions (tpy) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | $PM_{10}/PM_{2.5}$ | $SO_2$ | $NO_x$ | CO | VOC | $CO_2e$ | Ind HAP | Total HAP |
| Cleaning Lines[1] | | | | | 17.2 | | | |
| Coating Lines[1] | | | | | 10.4 | | 2.4 | 2.4 |
| Storage Tanks | | | | | 0.002 | | | |
| Combustion Sources | 0.30 | 0.023 | 3.9 | 3.3 | 0.21 | 4,667 | 0.07 | 0.07 |
| Total | 0.30 | 0.023 | 3.9 | 3.3 | 27.8 | 4,667 | 2.4 | 2.5 |

[1] Process emissions only. Emissions from combustion sources listed separately.

# Pan-Glo
# VOC Emissions From Deglaze Tanks

## Calculation of emissions from clean/deglaze tanks

| | | |
|---|---|---|
| Pan unit processing rate | 600 | units/hr - max capacity |
| | 1.70 | million units/yr - proposed annual production |
| Deglaze tank basket capacity | 150 | units/basket (average) |
| Basket processing rate | 4 | baskets/hr - max capacity |
| | 96 | baskets/day - max capacity |
| | 11,333 | baskets/yr |
| VOC emissions/loss | 3.03 | lbs VOC/basket[1] |
| | 2.79 | lbs hexylene glycol/basket |
| | 0.24 | lb diethylene glycol/basket |
| VOC emission rate | 17.2 | tons/yr |

| Organic solvent description | Annual usage rate, gal/yr | lbs/yr[2] | Chemical-specific emissions, tpy |
|---|---|---|---|
| Hexylene glycol (HEG) | 23,800 | 182,784 | 15.8 |
| Diethylene glycol (DEG) | 17,000 | 158,270 | 1.3 |
| **Total Usage** | **40,800** | **Total VOC** | **17.2** |

[1] The emission factor is derived from emissions tests conducted at Pan Glo's Atlanta facility on similar deglazing units. Emissions are assumed only when the deglaze tank lid is open.

[2] Based on densities: HEG = 7.68 lbs/gal and DEG = 9.31 lbs/gal.

**Pan Glo**
**VOC Emissions from Glaze Machine/Coating Line**

| | | |
|---|---|---|
| **Maximum production rate** | 600 | pans/hr |
| **Projected production rate** | 141,667 | pans/month |
| | 1,700,000 | pans/year |

| Source description | VOC content lbs VOC/gal | Coating usage, gal/hr | gal/mo | gal/year | VOC emissions: Point source lb/hour | Point source lbs/month[2] | Point source lbs/year[2] | Fugitive source lb/hour | Fugitive source lbs/month | Fugitive source lbs/year |
|---|---|---|---|---|---|---|---|---|---|---|
| Cerama Glaze | 0.97 | 6.0 | 1,417 | 17,000 | 5.8 | 1,376 | 16,516 | - | - | - |
| Solids Reconstituting Solvent (AmeriSolv) | 0[1] | - | 935 | 4,590 | | - | - | - | - | - |
| Cleanup Solvent - Mineral Spirits | 6.57 | - | 55.0 | 660 | | - | - | - | 361 | 4,336 |
| | | | | **Totals** | **5.8** | **1,376** | **16,516** | | **361** | **4,336** |

[1] Material is reconstituted coating solids from overspray into usable coating. Reconstituting solvent is 100 pct. exempt non-VOC solvents - 75 wt. pct acetone and 25 wt. pct. tert-butyl acetate (6.8 lb/gal).

[2] VOC emissions from spraying reconstituted solids coating are already counted in the total VOC emissions from spraying the original coating (Cerama Glaze).

| | | | | | |
|---|---|---|---|---|---|
| **Cerama Glaze usage** | 7.16 | lbs/gal | | | |
| | 6.0 | gal/hr | 43.0 | lbs/hr | |
| | 1,417 | gal/month | 10,143 | lbs/month | |
| | 17,000 | gal/year | 121,720 | lbs/year | |
| **VOC emissions** | | | 8.26 | tpy | point source loss |
| | | | 2.17 | tpy | fugitive loss (mineral spirits cleanup) |
| | | | **10.43** | **tpy** | **total** |
| **HAP (xylene) emissions** | 3.97 | wt. pct. | 1.71 | lbs/hr | point source loss |
| | | | 4,835 | lbs/year | |
| | | | **2.42** | **tpy** | |

**Pan Glo**
**Calculation of As-Applied Coating VOC Content**

## WACKER SILICONES - CERAMA GLAZE

| Component | Composition lbs | Composition gal | Material density lbs/gal | Material Content wt. pct. | Material Content vol. pct. |
|---|---|---|---|---|---|
| Resin solids | 156.58 | 14.88 | 10.52 | 21.87 | 14.88 |
| Acetone | 264.15 | 40.15 | 6.58 | 36.89 | 40.15 |
| Silicone Fluid AK 0.65[1] | 198.12 | 31.31 | 6.33 | 27.67 | 31.31 |
| Xylene | 28.44 | 3.93 | 7.24 | 3.97 | 3.93 |
| Isobutyl isobutyrate | 66.04 | 9.31 | 7.09 | 9.22 | 9.31 |
| Mineral spirits | 2.67 | 0.42 | 6.36 | 0.37 | 0.42 |
| Total coating | 716.0 | 100 | 7.16 | 100 | 100 |

[1] Material is 100 pct. hexamethyldisiloxane.

| | | | |
|---|---|---|---|
| Solids content | wt. pct | 21.87 | |
| | vol. pct. | 14.88 | **[gallon solids/gallon coating]** |
| Exempt solvents (ES) | wt. pct. | 64.56 | |
| | vol. pct. | 71.46 | |
| VOC content | wt. pct. | 13.57 | |
| | vol. pct. | 13.66 | |
| Solvent (VOC) density | lbs/gal | 7.11 | |
| VOC content | lbs/gal | 0.97 | |
| | lbs/gal-ES | 3.40 | |
| | **lbs/gal solids** | **6.53** | **[= X lbs VOC/gal ctg ÷ Y gal solids/gal ctg]** |

Note: Acetone and hexamethyldisiloxane are exempt non-VOC organic compounds.

**Pan Glo**
**Criteria Pollutant Emissions from Natural Gas Combustion**

| Source description | Total heat input | Operation | Natural gas usage rate | | Potential criteria pollutant emissions, tons per year[c] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (hrs/year) | ($ft^3$/hr)[a] | (million $ft^3$/yr)[b] | $PM/PM_{10}$ | | $SO_2$ | | NOx | | CO | | VOC | |
| Emission Factor (lb/MMcf) | (MMBtu/hr) | | | | 7.6 | | 0.6 | | 100 | | 84 | | 5.5 | |
| | | | | | tpy | lb/hr | tpy | lb/hr | tpy | lb/hr | tpy | lb/hr | tpy | lb/hr |
| Boiler (1 @ 6.3 MMBtu/hr) | 6.3 | 8,760 | 6,176 | 54.11 | 0.21 | 0.05 | 0.016 | 0.004 | 2.71 | 0.62 | 2.27 | 0.52 | 0.15 | 0.034 |
| Despatch batch curing ovens (5 @ 0.5 MMBtu/hr) | 2.5 | 8,760 | 2,451 | 21.47 | 0.08 | 0.02 | 0.006 | 0.001 | 1.07 | 0.25 | 0.90 | 0.21 | 0.06 | 0.013 |
| Tin Melting Pot (1 @ 0.3 MMBtu/hr) | 0.3 | 8,760 | 294 | 2.58 | 0.01 | 0.00 | 0.001 | 0.000 | 0.13 | 0.03 | 0.11 | 0.02 | 0.01 | 0.002 |
| **Totals** | **9.10** | | **8,922** | **78.15** | **0.30** | **0.07** | **0.023** | **0.005** | **3.91** | **0.89** | **3.28** | **0.75** | **0.21** | **0.049** |

[a] Based on a nominal 1,020 Btu/scf for natural gas.
[b] Based on a 8,760 potential hrs/yr operation.
[c] Emissions based on EPA AP-42 Section 1.4 (7/98) factors.

## Pan Glo
## HAP and GHG Emissions from Natural Gas Combustion Units

| Emission Unit(s) | Heat Input | Units |
|---|---|---|
| Boiler | 6.3 | MMBtu/hr |
| Despatch curing ovens | 2.5 | MMBtu/hr |
| Tin Melting Pot | 0.3 | MMBtu/hr |
| Total | 9.1 | MMBtu/hr |
| Annual heat input | 79,716 | MMBtu/yr |

| Natural gas | | | Operating schedule | |
|---|---|---|---|---|
| heat content | 1,020 | Btu/ft$^3$ | 24 | hrs/day |
| max. hourly usage | 8,922 | ft$^3$/hr | 365 | days/yr |
| annual usage | 78.15 | million ft$^3$/yr | 8,760 | hrs/yr |

| Pollutant | Emission factor | Units | Potential emission rates | |
|---|---|---|---|---|
| | | | lbs/hr | tpy |
| lead | 0.0005 | lb/million ft$^3$ | 4.46E-06 | 1.95E-05 |
| benzene | 2.10E-03 | lb/million ft$^3$ | 1.87E-05 | 8.21E-05 |
| dichlorobenzene | 1.20E-03 | lb/million ft$^3$ | 1.07E-05 | 4.69E-05 |
| formaldehyde | 0.075 | lb/million ft$^3$ | 6.69E-04 | 2.93E-03 |
| n-hexane | 1.80 | lb/million ft$^3$ | 0.02 | 0.07 |
| naphthalene | 6.10E-04 | lb/million ft$^3$ | 5.44E-06 | 2.38E-05 |
| toluene | 3.40E-03 | lb/million ft$^3$ | 3.03E-05 | 1.33E-04 |
| total PAH | 8.82E-05 | lb/million ft$^3$ | 7.87E-07 | 3.45E-06 |
| metal HAPs | 5.56E-03 | lb/million ft$^3$ | 4.96E-05 | 2.17E-04 |
| Total HAPs | - | - | 0.02 | 0.07 |
| $CO_2$ | 117.0 | lb/MMBtu | - | 4,662 |
| $CO_{2e}$ ($CO_2$) | 1 | GW potential | - | 4,662 |
| $CH_4$ | 2.20E-03 | lb/MMBtu | - | 0.1 |
| $CO_{2e}$ ($CH_4$) | 25 | GW potential | - | 2.2 |
| $N_2O$ | 2.20E-04 | lb/MMBtu | - | 0.01 |
| $CO_{2e}$ ($N_2O$) | 298 | GW potential | - | 2.6 |
| Total $CO_{2e}$ | - | - | - | 4,667 |

Notes:
1. HAP natural gas emission factors taken from AP-42, Section 1.4 (7/98).
2. Metal HAPS emission factor does not include the separate emission factor given for lead.
3. GHG emission factors for natural gas are based on default factors taken from EPA GHG Mandatory Reporting at 40 CFR Part 98, Subpart C, Tables C-1 and C-2.

# Material Safety

# Data Sheets

WACKER SILICONES



# Cerama Glaze

## Thermoset Bakeware Release Coating

## General Information

*Cerama Glaze* has been formulated at a reduced VOC level to less than 3.5 lbs/gallon. The coating provides a non-stick surface and is suited in applications for release of baked bread type products. The formulated coating is a low solids polysiloxane, which cures to hard films due to its silanol functionality.

## Specifications

Typical Property values are not intended for use in the preparation of specifications. Please contact Wacker Silicones Corporation for assistance and recommendations before writing specifications on this product.

**FDA Status**

Wacker *Cerama Glaze* is suitable for coatings in contact with food per 21CFR175.300 provided all the solvent is removed from the final coating in contact with food, the coating is cured per the instructions in this Technical Data Sheet and all the use and extractive limits are met as specified in 175.300.*

* Under Title 21 "Food and Drugs," Part 175.300, Resinous and Polymeric Coatings." Because this contains limitations, compliance to the regulation is the responsibility of the user.

## Typical Properties

| Properties | Characteristics |
|---|---|
| Appearance | Amber Liquid |
| Specific Gravity @25ºC (77ºF)(lb/gal) | 0.86(7.16) |
| Zahn Cup # 2 @25ºC (77ºF) | 13-15 |
| Nonvolatile Content[1] % | 22 |
| VOC[2] (Volatile Organic Compounds), g/L (lb/gal) | 408.00( 3.40) |
| VOC[3], g/L (lb/gallon) | 402.14 (3.36) |
| Flash Point, closed cup, ºC (ºF) | Less Than 32'F |

1. Determined by WSTM 3218: heating 1.0 gram for 1 hour at 150ºC
2. Determined by density of raw materials used. Theoretical.
3. Determined according to EPA Method 24.

## Use Information

| Composition For 100 Gallons of Coating | | | |
|---|---|---|---|
| Ingredients | Lbs #s | Gallons | Wt. % |
| Resin Solids | 156.58 | 14.88 | 21.86 |
| Acetone | 264.15 | 40.15 | 36.89 |
| Silicone Fluid AK 0.65 | 198.12 | 31.31 | 27.67 |
| Xylene | 28.44 | 3.93 | 3.97 |
| Isobutyl Isobutyrate | 66.04 | 9.31 | 9.22 |
| Odorless Mineral Spirits | 2.67 | 0.42 | 0.39 |
| TOTAL | 716.00 | 100.00 | 100.00 |

The optimum cure schedule for this product is as follows:

- 60 minutes minimum at 204ºC (400ºF), peak metal temperature
- 30 minutes minimum at 218ºC (425ºF), peak metal temperature
- 15 minutes minimum at 232ºC (450ºF), peak metal temperature

If this product is cured below these temperatures or has less dwell time at peak metal temperature the product may become soft and ultimately result in poor release properties.

***Coating Removal***

Removal of *Cerama Glaze* coating can be accomplished by immersion in 93 to 104ºC (200 to 220ºF) glycol ether solvents such as Dowanol™ TPM, Dowanol™ EPH, hexylene glycol containing one ounce of caustic potash (KOH) per gallon. The solution must not contain water.

**CAUTION: Caustic potash causes severe burns to skin and eyes. Always observe the manufacture's handling precautions.**

**Reducing Solvent - Blend of Exempt VOC Solvents**

Recovered *Cerama Glaze* overspray material will require reduction to proper solids level prior to re-use. The solvent blend ratios are shown below. Note that both Acetone and Tertiary Butyl Acetate are considered as VOC compliant solvents.

| SOLVENT | % by Weight | % by Volume |
|---|---|---|
| Acetone | 75 | 77 |
| Tertiary Butyl Acetate | 25 | 23 |

Solids levels from 20.0 % to 25.0 % usually give the best coating properties. Solids levels above 25 percent may result in streaks, drip marks or poor release properties. In addition higher film thickness can cause the coating to become soft. To determine solids, heat a 1.0 gram sample for 1 hour at 150ºC (302ºF). Run duplicate determinations.

## Safety and Handling

For specific information regarding safe handling of this material, please refer to the Material Safety Data Sheet.

## Storage and Shelf-Life

*Cerama Glaze* has a shelf life of 1 year (12 months) if stored at room temperature.

WACKER SILICONES

## Ordering Information

*Cerama Glaze* is available in 374 pound drums. Truckload orders and technical inquiries may be directed to:

Wacker Silicones Division
3301 Sutton Road
Adrian, Michigan 49221-9397
Phone: 1 866 260-4538
In Michigan: (517) 264-8569

For information on other Wacker products call toll free 1 800 248-0063.

Wacker Silicones Division is a domestic manufacturer of basic silicone materials for industry. Products include silicone fluids and emulsions, antifoam and release agents, room temperature vulcanizing (RTV) sealants and adhesives, heat curable rubber (HCR), liquid silicone rubber (LSR), masonry water repellents, paint raw materials, paper release coatings, and textile finishes.

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Because we cannot foresee the varied conditions under which this information and our materials may be used, we do not guarantee the applicability or accuracy of this information or the suitability of our materials in any specific situation. Samples are provided and users should make their own tests to determine the suitability of our materials for their specific purposes. These materials are provided without warranty, either expressed or implied, of fitness for a specific purpose and nothing herein shall be construed as a recommendation for uses, which infringe valid patents, or as extending a license under valid patents.

The management system has been certified according to ANSI/ISO/ASQ Q 9001 and ANSI/ISO 14001 and are registered trademarks of Wacker Chemie AG.
WACKER

For technical, quality, or product safety questions please contact:

WACKER SILICONES
Wacker Chemical Corporation
3301 Sutton Road
Adrian, MI 49221

TEL: + 1 517 264 8500
FAX: + 1 517 264 8246
Email:
customercare@wacker.com

www.wacker.com
silicones@wacker.com

WACKER SILICONES

# Material Safety Data Sheet

Material: 60075095 CERAMA GLAZE

Version: 1.3 (US) Date of print: 03/26/2010 Date of last alteration: 03/02/2010

## 1 Product and company identification

### 1.1 Identification of the substance or preparation:

| | |
|---|---|
| Commercial product name: | CERAMA GLAZE |
| Use of substance / preparation | Industrial.<br>Modifying agent for: Household products |

### 1.2 Company/undertaking identification:

| | |
|---|---|
| Manufacturer/distributor: | Wacker Chemical Corporation<br>3301 Sutton Road<br>Adrian, MI 49221-9397<br>USA |
| Customer information: | InfoLine:<br>Tel (517) 264-8240, Fax (517) 264-8740<br>Hours of operation:<br>Monday - Friday, 8 am to 5 pm (eastern standard time)<br>Corporate website: www.wackersilicones.com |
| Emergency telephone no. (24h): | (517) 264-8500 |
| Transportation emergency: | (800) 424-9300 (CHEMTREC, USA)<br>(703) 527-3887 (CHEMTREC, international) |

This MSDS was prepared by the Regulatory Affairs and Product Safety Department (RAPS) of Wacker Chemical Corporation.

## 2 Composition/information on ingredients

### 2.1 Chemical characterization (preparation)

| Chemical characteristics |
|---|
| hydrocarbon |

### 2.2 Information on ingredients:

| Type | CAS No. | Substance | Content [wt. %] | | Note |
|---|---|---|---|---|---|
| | | | Lower | Upper | |
| INHA | 67-64-1 | Acetone | 30.0 | 60.0 | |
| INHA | 107-46-0 | Hexamethyl disiloxane | 30.0 | 60.0 | |
| INHA | 1330-20-7 | Xylene | 1.0 | 5.0 | |
| INHA | 100-41-4 | Ethyl benzene | 1.0 | 5.0 | C1 C3 |
| INHA | 97-85-8 | 2-Methylpropyl 2-methylpropanoate (IBIB) | 10.0 | 30.0 | |

Type: HYD - by-product upon hydrolysis, INHA - ingredient, NEBR - by-product, MONO - residual monomer, VERU - impurity, VUL - by-product upon vulcanization. *** Note: C1 - IARC carcinogen, C2 - NTP carcinogen, C3 - OSHA carcinogen, NH - non-hazardous, R - reproductive toxin.

Substances listed in the Subsections "HAPS" and "California Proposition 65 Carcinogens / Reproductive Toxins" that are not listed in Section 2 are only present at quantities below 0.1% for California Proposition 65 listed toxins or below 1% for non-carcinogenic HAPS or they are inextricably bound in the product.

## 3 Hazards identification

### 3.1 Hazards classifications

HMIS® rating (product as packaged):

Health: 2 * Fire: 3 Reactivity: 0 PPE: H

(HMIS codes are based on contact with the product as packaged and any hydrolysis by-products, if present.) Note: Respiratory protection is only recommended in the event that ventilation or engineering controls are unable to maintain exposures below recommended levels; or in the event of a spill or other emergency response situation. Hazardous Materials Identification System and HMIS are registered trademarks of the National Paint and Coatings Association.

Canadian WHMIS Classification: B2, D2B, D2A

3.2 Emergency overview and potential hazards
Signal Word:
WARNING
Physical Hazards:
Flammable liquid and vapor.

Acute health effects
Route of entry or possible contact:
eyes , skin , inhalation (aerosol) .
Eye contact:
Causes eye irritation.
Skin contact:
Causes skin irritation. May be absorbed through the skin in harmful (Toxic) amounts.
Inhalation:
May cause respiratory tract irritation. Inhalation may cause central nervous system effects.
Ingestion:
Small amounts of the liquid aspirated into the respiratory tract during ingestion or vomiting may cause damage to lungs.
Additional information on acute health effects:
Ingestion is not expected during industrial use.

3.3 Further information:
Chronic health effects:
Prolonged and repeated skin exposure may cause defatting, drying, and cracking. Based on animal tests. Possible risk of impaired fertility.
Medical conditions which may be aggravated by exposure:
none known .
Target organs affected:
Liver, Kidneys, Blood and Blood Producing Organs, Heart and Circulatory System.
Signs and Symptoms of Exposure:
Refer to Acute Health Effects, listed above.
Carcinogens/Reproductive toxins:
This material contains >= 0.1% of a substance which may cause cancer. This material does not contain any reproductive toxins at or above OSHA or WHMIS reportable levels.

See Section 11 for Toxicological Information, if any.

## 4 First-aid measures

4.1 General information:
Get medical attention if irritation occurs or if breathing becomes difficult. Remove contaminated clothing and shoes.

4.2 After inhalation
If inhaled remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult give oxygen.

4.3 After contact with the skin
For skin contact, immediately wipe away excess material. Use a waterless hand cleaner to remove as much of the remaining material as possible. Wash with soap and water.

4.4 After contact with the eyes
If contact with eyes, immediately hold eyelids apart and flush with plenty of water for at least 15 min.

4.5 After swallowing
For ingestion, if conscious, give several glasses of water but do not induce vomiting. If vomiting does occur, give additional fluids. Danger of aspiration.

4.6 Advice for the physician
Treat symptomatically.

## 5 Fire-fighting measures

5.1 Flammable properties:

| | | |
|---|---|---|
| Flash point..... | < 0 °C (< 32 °F) | Method (ASTM D3278, DIN 55680, ISO 3679) |

Boiling point / boiling range.....: not determined
Lower explosion limit (LEL).....: not determined
Upper explosion limit (UEL).....: not determined
Ignition temperature .....: not determined
NFPA Hazard Class (comb./flam.liquid): IB

**5.2 Fire and explosion hazards:**

Flammable liquid and vapor. Vapors are heavier than air and may travel along the ground, be moved by ventilation systems, settle in pits or low areas, and be ignited by ignition sources distant from the handling point. The material is lighter than water, burning spilled material will float on top of any water released from hose or sprinkler systems spreading the fire beyond the initial fire response area. Spontaneous ignition is possible due to electrostatic discharge. Heavy soot formation during combustion.

**5.3 Recommended extinguishing media:**

AFFF alcohol compatible foam. Carbon dioxide.

**5.4 Unsuitable extinguishing media:**

sharp water jet , dry chemical , halones .

**5.5 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases**

Hazardous combustion products: Various hydrocarbon fragments , carbon dioxide , formaldehyde , carbon monoxide , silicon dioxide . Heavy soot formation during combustion.

**5.6 Fire fighting procedures:**

Fires may require significantly more extinguishing agent than a hydrocarbon fire of similar size. Cool endangered containers with water. Fire fighters should wear full protective clothing including a self-contained breathing apparatus. In case of fire remove container out of endangered area.

## 6 Accidental release measures

**6.1 Precautions:**

Warn others in the area and notify appropriate response personnel, if necessary. Have any persons who are not involved in the spill response leave the area. Turn on all exhaust ventilation units and open any outside doors and windows to help clear vapors from the area. Shut down all sources of ignition in the area of the spill. Secure the area. Do not walk through spilled material. Do not inhale gases/vapours/aerosols. Avoid contact with eyes and skin. Obtain appropriate PPE, supplies, and equipment prior to attempting any response.
HAZWOPER PPE Level: C

**6.2 Containment:**

Use loose absorbant material or prefabricated socks to dike around small quantities of spilled material (incidental spills). If safe to do so, stop the leak at its source. Cover openings to underground drains and sewers.
Spills of material which could reach surface waters must be reported to the United States Coast Guard National Response Center's toll free phone number (800) 424-8802.

**6.3 Methods for cleaning up**

In the event of a large spill, this material will float on the water's surface. Use non-sparking equipment to clean up spills of flammable materials. Liquids may be recovered using suction devices or pumps. If flammable, only air driven or properly rated electrical equipment should be used. Use absorbant materials to pick up residual liquids.

## 7 Handling and storage

7.1 Handling

Precautions for safe handling:

Keep away from heat, sparks and flame. Keep container closed when not in use. When filling containers of flammable liquids use a dip tube to bottom fill the container and minimize free fall and splashing which could lead to a build up of static electricity. When transferring flammable liquids between metal containers, ground and bond the containers to drain off and equalize their static electric charges and reduce the potential for static sparks to occur. Use with adequate ventilation. Where possible, inert process equipment and blanket vessels, tanks and containers with nitrogen to reduce the available oxygen level.

Precautions against fire and explosion:

Flammable, combustible or explosive air-vapor mixtures may be present in partial or uncleaned empty containers. Where feasible maintain the temperature of flammable or combustible liquids at least 30° F below their flash Point. Do not weld, cut, or grind on empty containers. Protect against the build-up and discharge of static electricity by grounding and bonding all processing vessels and transfer equipment.

7.2 Storage

Conditions for storage rooms and vessels:

Nitrogen blanket, pad, or purge containers to prevent flammable air-vapor mixtures from forming in the container headspace. Do not store flammable liquids in plastic IBCs (i.e. Intermediate Bulk Containers or plastic tote tanks). Containers used to dispense flammable liquids should be equipped with flash arrestors and self closing spigots.

Advice for storage of incompatible materials:

No restriction.

Further information for storage:

Store flammable liquids in a cool, dry, fire protected storage area, free from sources of ignition, away from compressed or liquid oxygen, other oxidizing agents (e.g. organic peroxides) or strong inorganic acids. Store in the original container.

## 8 Exposure controls and personal protection

8.1 Engineering controls

Ventilation:

General ventilation sufficient to provide 1 CFM per square foot of floor area or 6 room air exchanges per hour is recommended.

Local exhaust:

Local exhaust ventilation which meets the requirements of ANSI Z9.2 is recommended to control airborne contaminants at the point of use.

8.2 Associate substances with specific control parameters such as limit values

Maximum airborne concentrations at the workplace:

| CAS No. | Material | Type | mg/m³ | ppm | Dust fract. |
|---|---|---|---|---|---|
| 1330-20-7 | Xylene | OSHA PEL | 435.0 | 100.0 | |
| 67-64-1 | Acetone | OSHA PEL | 2,400.0 | 1,000.0 | |
| 1330-20-7 | Xylene | ACGIH TWA | | 100.0 | |
| 67-64-1 | Acetone | ACGIH TWA | | 500.0 | |

Re Xylene (CAS no. 1330-20-7): STEL is 150 ppm, carcinogenicity: A4 (ACGIH).

Re Acetone (CAS no. 67-64-1): STEL is 750 ppm, carcinogenicity: A4 (ACGIH).

8.3 Personal protection equipment (PPE)

Respiratory protection:

A NIOSH approved air purifying respirator equipped with universal multi-contaminant, multi-gas/vapor cartridges and at least P-99 solid/aerosol particulate filters is recommended if overexposure to dusts, mists, or vapors could occur. If eye-irritating dusts or vapors are present, a full-face respirator should be worn.

Hand protection:

neoprene or nitrile rubber gloves

Eye protection:

Safety glasses with side shields. Additional eye and face protection, splash-proof goggles, hood, full-faced respirator, or face shield is recommended if splashing could occur.

Other protective clothing or equipment:
Additional skin protection, such as SARANEX coated Tyvek apron, over-sleeves, lab coat, coveralls, or protective suit should be worn if splashing could occur. Provide eye bath and safety shower.

8.4 General hygiene and protection measures:
Avoid breathing dust/vapor/mist/gas/aerosol. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Do not eat, drink or smoke when handling. Follow standard industrial hygiene practices when using this material.

## 9 Physical and chemical properties

9.1 Appearance

| | |
|---|---|
| Physical state / form.....: | liquid |
| Colour.....: | amber |
| Odour.....: | petroleum hydrocarbon (solvent) |

9.2 Safety parameters

| | | Method |
|---|---|---|
| Melting point / melting range.....: | not determined | |
| Boiling point / boiling range.....: | not determined | |
| Flash point.....: | < 0 °C (< 32 °F) | (ASTM D3278, DIN 55680, ISO 3679) |
| Ignition temperature .....: | not determined | |
| Lower explosion limit (LEL).....: | not determined | |
| Upper explosion limit (UEL).....: | not determined | |
| Vapour pressure.....: | not determined | |
| Density.....: | 0.87 g/cm³ at 22 °C (71 °F) | |
| Water solubility / miscibility.....: | insoluble | |
| pH-Value.....: | not applicable | |
| Viscosity (dynamic).....: | not determined | |

9.3 Further information

| | |
|---|---|
| Percent Volatiles .....: | 80 % |

## 10 Stability and reactivity

10.0 General information:
Stable under normal conditions of use.

10.1 Conditions to avoid
Keep away from incompatible substances. Heat, open flames, and other sources of ignition. Although this product is not expected to react with commonly used materials of construction and process equipment, it is advised that any rubber or plastic items such as hoses and gaskets be tested prior to large scale processing to ensure there is no degradation of performance or durability.

10.2 Materials to avoid
strong oxidizing agents , acids , chlorine

10.3 Hazardous decomposition products
None

10.4 Further information:
Hazardous polymerization cannot occur.

## 11 Toxicological information

11.1 General information:
No toxicological data exists for this material.

11.2 Toxicological data:

Experience with man
-

## 12 Ecological information

**12.1 Information on elimination (persistence and degradability)**

**Biodegradation / further information:**
Silicone content: Biologically not degradable.

**12.2 Behaviour in environmental compartments**

**Mobility**
Silicone content: Absorbed by floating particles. Separation by sedimentation.

**Further information:**
Polymer component: Bioaccumulation is not expected to occur.

**12.3 Ecotoxicological effects:**

According to past experience toxicity to fish is improbable.

**Effects in sewage treatment plants (bacteria toxicity: respiration-/reproduction inhibition):**

Do not introduce large amounts into purification plants.

**12.4 Additional information**

**Other harmful effects**
none known

**General information:**
Prevent material from entering surface waters and soil.

## 13 Disposal considerations

**13.0 RCRA Waste Classification:**
D001 (Ignitable)
This classification applies only to the material as it was originally produced.

**13.1 Product disposal**
**Recommendation:**
If this material becomes a waste, it is considered a hazardous waste due to its ignitability. Material designated for disposal should be segregated from any substances or materials specified in Sect. 10 "Stability and reactivity". Material that cannot be used or chemically reprocessed should be disposed of at an approved facility in accordance with any applicable governmental regulations. State and local regulations may be more stringent than Federal regulations.

**13.2 Packaging diposal**
**Recommendation:**
Uncleaned packaging should be treated with the same precautions as the material. Uncleaned containers should not be reused to hold another material due to the potential for reaction between residual product and incompatible materials. After emptying contaminated containers may be cleansed and recycled.

## 14 Transport information

**14.1 US DOT & CANADA TDG SURFACE**

Valuation.....: Hazardous product
Proper Shipping Name.....: Flammable liquid, n.o.s.
Technical name.....: (Contains hexamethyldisiloxane and acetone)
Class.....: 3
UN no. .....: 1993
Packaging Group.....: II
Label.....: **TL:flammable liquid/3
NAERG Page.....: 128

**14.2 Transport by sea IMDG-Code**

Valuation.....: Hazardous product
Class.....: 3
Packaging Group.....: II

UN no. .....: 1993
Proper Shipping Name.....: Flammable liquid, n.o.s.
Technical name.....: (Contains hexamethyldisiloxane and acetone)
EmS No. .....: F-E,S-E
Marine Pollutant.....: no

14.3 Air transport ICAO-TI/IATA-DGR
Valuation.....: Hazardous product
Class.....: 3
UN no. .....: 1993
Proper Shipping Name.....: Flammable liquid, n.o.s.
Technical name.....: (Contains hexamethyldisiloxane and acetone)
Packaging Group.....: II

## 15 Regulatory information

### 15.1 U.S. Federal regulations

**TSCA inventory status and TSCA information:**
This material or its components are listed on or are in compliance with the requirements of the TSCA Chemical Substance Inventory.

**TSCA 12(b) Export Notification:**

| CAS No. | Chemical | Reporting required under TSCA |
|---|---|---|
| 1330-20-7 | Xylene | One-Time 12(b) Export Notification Required under Section 4 of TSCA. |

**CERCLA Regulated Chemicals:**

| CAS No. | Chemical | RQ | Upper limit wt. % |
|---|---|---|---|
| 67-64-1 | Acetone | 5,000 lbs | 50.0 |
| 1330-20-7 | Xylene | 100 lbs | 4.6875 |
| 100-41-4 | Ethyl benzene | 1,000 lbs | 1.5625 |

**SARA 302 EHS Chemicals:**
This material does not contain any SARA extremely hazardous substances.

**SARA 311/312 Hazard Class:**
Fire hazard. Immediate (acute) health hazard. Delayed (chronic) health hazard.

**SARA 313 Chemicals:**

| CAS No. | Chemical | Upper limit wt. % |
|---|---|---|
| 1330-20-7 | Xylene | 4.6875 |
| 100-41-4 | Ethyl benzene | 1.5625 |

SARA 313 information included on this MSDS should be included in all MSDSs that are copied from and distributed for this material.

**HAPS (Hazardous Air Pollutants):**
108-88-3 Toluene
1330-20-7 Xylene
100-41-4 Ethyl benzene

### 15.2 U.S. State regulations

**California Proposition 65 Carcinogens:**
100-41-4 Ethyl benzene

**California Proposition 65 Reproductive Toxins:**
108-88-3 Toluene

**Massachusetts Substance List:**
67-64-1 Acetone
1330-20-7 Xylene
100-41-4 Ethyl benzene

**New Jersey Right-to-Know Hazardous Substance List:**

| | |
|---|---|
| 67-64-1 | Acetone |
| 1330-20-7 | Xylene |
| 100-41-4 | Ethyl benzene |
| 97-85-8 | 2-Methylpropyl 2-methylpropanoate (IBIB) |

**Pennsylvania Right-to-Know Hazardous Substance List:**

| | |
|---|---|
| 67-64-1 | Acetone |
| 1330-20-7 | Xylene |
| 100-41-4 | Ethyl benzene |

**15.3 Canadian regulations**

This product has been classified in accordance with the Hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

**WHMIS Hazard Classes:**
B2, D2B, D2A

**DSL Status:**
This material or one or more of its components is not listed on the Canadian Domestic Substances List. However, the material or some of it's components are listed on the NDSL (Non-Domestic Substances List).

**Non-DSL Chemicals:**

| CAS No. | Chemical | Upper limit wt. % |
|---|---|---|
| 68201-81-0 | Hexanoic acid, 2-ethyl-, iron(2+) iron(3+) salt | 0.1184 |

**Canadian Ingredient Disclosure List:**

| | |
|---|---|
| 67-64-1 | Acetone |
| 1330-20-7 | Xylene |
| 100-41-4 | Ethyl benzene |

**15.4 Other international regulations**

**EU Hazard Symbols:**

| | | |
|---|---|---|
| | F | Highly flammable |
| | Xi | Irritant |

**EU Risk Phrases:**

| R-Phrase | Description |
|---|---|
| R11 | Highly flammable. |
| R36 | Irritating to eyes. |
| R66 | Repeated exposure may cause skin dryness or cracking. |
| R67 | Vapours may cause drowsiness and dizziness. |

**EU Safety Phrases:**

| S-Phrase | Description |
|---|---|
| S9 | Keep container in a well-ventilated place. |
| S16 | Keep away from sources of ignition - No smoking. |
| S25 | Avoid contact with eyes. |
| S26 | In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. |
| S33 | Take precautionary measures against static discharges. |

Details of international registration status
Listed on or in accordance with the following inventories:
EINECS - Europe
TSCA - USA
AICS - Australia
ECL - Korea
PICCS - Philippines

## 16 Other information

### 16.1 Additional information:

This Material Safety Data Sheet (MSDS) meets the requirements of the Federal OSHA Hazard Communication Standard (29 CFR 1910.1200). This product has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR. This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief accurate and reliable as of the date compiled. However, no representation, warranty or guarantee expressed or implied, is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information. Nothing herein shall be construed as a recommendation for uses which infringe valid patents or as extending a license under valid patents. This MSDS provides selected regulatory information on this product, including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.

Vertical lines in the left-hand margin indicate changes compared with the previous version.

### 16.2 Glossary of Terms:

ACGIH - American Conference of Governmental Industrial Hygienists
DOT - Department of Transportation
hPa - Hectopascals
mPa*s - Milli Pascal-Seconds
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
ppm - Parts per Million
SARA - Superfund Amendments and Reauthorization Act
STEL - Short Term Exposure Limit
TSCA - Toxic Substances Control Act
TWA - Time Weighted Average
WHMIS - Canadian Workplace Hazardous Materials Identification System

| Flash point determination methods | Common name |
|---|---|
| ASTM D56 | Tagliabue (Tag) closed cup |
| ASTM D92, DIN 51376, ISO 2592 | Cleveland open cup |
| ASTM D93, DIN 51758, ISO 2719 | Pensky-Martens closed cup |
| ASTM D3278, DIN 55680, ISO 3679 | Setaflash or Rapid closed cup |
| DIN 51755 | Abel-Pensky closed cup |

### 16.3 Conversion table:

Pressure: 1 hPa * 0.75 = 1 mm Hg = 1 torr; 1 bar = 1000 hPa
Viscosity: 1 mPa*s = 1 centipoise (cP)

# Material Safety Data Sheet

MSDS Revision Date: June 7, 2010

**PRODUCT: Pan Glo Ameri Solv Blend**

BRENNTAG

## 1. Product and Company Identification

| | |
|---|---|
| Product Identity: Pan Glo Ameri Solv Blend | Chemical Formula: mixture<br>Molecular Weight: mixture |
| Synonyms: n.a. | |

| | |
|---|---|
| Brenntag Mid-South Inc.<br>1405 Hwy 136 W<br>Henderson, KY 42420 | Technical Information: 270-838-1222<br>Emergency Number: 800-424-9300 (CHEMTREC)<br>Emergency Number: 703-5273887 (International) |

## 2. Hazards Identification

**Emergency Overview** DANGER! Extremely flammable liquid; vapor may cause flash fire or explosion! Mist o· vapor may irritate the eyes, mucous membranes, and respiratory tract! Liquid contact may cause minimal to moderate eye and/or mild to severe skin irritation and inflammation! May be harmful if inhaled or absorbed through the skin! Overexposures may cause central nervous system (CNS) depression and/or other target organ effects! May be harmful or fatal if ingested! Aspiration into the lungs can cause pulmonary edema and chemical pneumonia! Prolonged and/or repeated inhalation may increase the heart's susceptibility to arrhythmias (irregular beats)!

### Potential Health Effects

**Inhalation:** Vapors may be irritating to the respiratory tract, nose and throat. High vapor concentrations may produce central nervous system depression with symptoms such as headaches, dizziness, anesthesia, drowsiness, unconsciousness, brain damage and possibly death. Chronic hydrocarbon abuse (for example sniffing glue or light hydrocarbons such as contained in this material) has been associated with irregular heart rhythms and potential cardiac arrest. Intentional abuse of solvent vapors may cause damage to brain, liver, and kidney and cause death.

**Ingestion:** Small amounts of this product aspirated into the respiratory system during ingestion or vomiting may cause mild to severe pulmonary injury, possibly progressing to death.

**Skin Contact:** Frequent or prolonged contact may irritate and cause dermatitis. Occasional brief contact with the liquid will not result in significant irritation unless evaporation is impeded. Skin contact may aggravate an existing dermatitis condition.

**Eye Contact:** Severely irritating. Symptoms include stinging, watering, redness and swelling.

**Chronic Exposure:** Prolonged or repeated exposure may cause dermatitis and skin defatting; conjunctivitis and cataracts; inflammation of the respiratory tract, weakness, drowsiness, vertigo, hematological changes; anemia, liver and kidney damage.

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## 3. Composition/Information on Ingredients

| CAS# | Chemical Name | Percent by Weight |
|---|---|---|
| 67-64-1 | Acetone | 74 – 76 |
| 540-88-5 | Tert-Butyl Acetate | 24-26 |

## 4. First Aid Measures

**Inhalation:** Using proper respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing has stopped. Keep at rest. Obtain prompt medical attention.

**Ingestion:** Do not induce vomiting. If spontaneous vomiting occurs, lower head between knees to minimize risk of aspiration into the lungs. It is important to obtain immediate medical attention.

**Skin Contact:** Flush skin with large amounts of water while removing contaminated clothing. Do not reuse clothing until cleaned.

**Eye Contact:** Flush eyes with plenty of water while holding eyelids open. If irritation persists, get medical attention.

## 5. Fire Fighting Measures

**Go to Section 9 for Flammable Properties.**

**Fire:** CAUTION: Flammable. Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back. Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coat, gloves, and rubber boots), including a positive pressure, NIOSH-approved self-contained breathing apparatus. Cool fire-exposed containers with water. Evacuate immediately if tanks are discolored or if a rising sound is emitted from tank.

**Explosion:** Containers exposed to intense heat should be cooled with large amounts of water to prevent vapor pressure build-up, which could result in container rupture. Areas where containers are stored that are exposed to direct flame should be cooled with large quantities of water to prevent weakening of container structure. This product may produce a floating fire hazard in extreme fire conditions. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

**Fire Extinguishing Media:** Use water spray, foam, carbon dioxide, dry chemicals. Direct stream of water may be ineffective.

**Special Information:** Keep container closed. Handle and open containers with care. Store in a cool, well ventilated place away from incompatible materials. Do not handle near open flames or other sources of ignition. Protect material from sunlight.

**Material Safety Data Sheet**
MSDS Revision Date: June 7, 2010

**PRODUCT: Pan Glo Ameri Solv Blend**

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## 6. Accidental Release Measures

Danger! Extremely flammable. Eliminate all source of ignition. Personnel with proper protective equipment should dike and contain spill. Remove spilled material to containers for recovery/disposal. Soak up residue (small spill) with absorbent. Place in containers for disposal.

## 7. Handling and Storage

Keep liquid and vapor away from heat, sparks and flame. Surfaces that are sufficiently hot may ignite even liquid product in the absence of sparks or flames. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapors are gone. Vapors may accumulate and travel to ignition sources distant from the handling site. Flash-fire can result. Keep containers closed when not in use. Use with adequate ventilation.
Containers, even those that have been emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers. Do not pressurize drum containers to empty them. Static electricity may accumulate and create a fire hazard. Ground fixed equipment. Bond and ground transfer containers and equipment.

## 8. Exposure Controls/Personal Protection

OSHA Permissible Exposure Limit (PEL): Acetone 1000 ppm

**Ventilation System:** Use explosion - proof ventilation as required to control vapor concentrations.

**Skin Protection:** Impervious clothing to prevent repeated or prolonged skin contact. Impervious gloves.

**Eye Protection:** Chemical splash goggles.

## 9. Physical and Chemical Properties

| | |
|---|---|
| Appearance: | clear, colorless |
| Odor: | Ketone odor |
| Physical State: | Liquid |
| pH: | No Information Found |
| Melting Point: | No Information Found |
| Boiling Point: | 56°C/ 133°F |
| Auto-ignition Temperature: | No Information Found |
| Flash Point: | 3.6°F |
| Upper Explosive Limit: | No Information Found |
| Lower Explosive Limit: | No Information Found |
| Vapor Pressure: | 204 mmHg @ 20°C |
| Vapor Density: | No Information Found |
| Specific Gravity: | 0.815 |
| Solubility in Water: | 75% miscible |
| Evaporation Rate: | No Information Found |

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## 10. Stability and Reactivity

**Chemical Stability:** Stable
**Conditions to Avoid:** Avoid heat, sparks, open flames and other ignition sources.
**Incompatible Materials:** Strong oxidizing agents, strong bases at high temperatures, and strong acids
**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide, smoke and irritating vapors as products of incomplete combustion.
**Polymerization:** Will not occur

## 11. Toxicological Information

**BASED ON 100% ACETONE:**
Acute Oral Toxicity: Low toxicity: LD50 >2000 mg/kg, Rat; Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
Acute Dermal Toxicity: Low toxicity: LD50 >2000 mg/kg, Rabbit; Acute Inhalation Toxicity: Low toxicity: LC50>5000 ppm / 1 hours, Rat; High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Skin Irritation: Not irritating to skin. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis.
Eye Irritation: Irritating to eyes.
Respiratory Irritation: Inhalation of vapors or mists may cause irritation to the respiratory system.
Sensitization: Not a skin sensitizer.
Repeated Dose Toxicity: Low systemic toxicity on repeated exposure.
Mutagenicity: Not mutagenic.
Carcinogenicity Classification: ACGIH Group A4: Not classifiable as a human carcinogen.
Reproductive and Developmental Toxicity: Causes slight fetotoxicity. Effects were seen at high doses only.
Additional Information: Exposure may enhance the toxicity of other materials. May potentiate the peripheral neurotoxicity of n-hexane, and the liver and kidney toxicity of some chlorinated hydrocarbons such as carbon tetrachloride.

**Tert Butyl Acetate:**
T-Butyl acetate is only slightly toxic following acute inhalation, oral or dermal exposure. Ingestion or inhalation of high doses may cause CNS depression. It is a very slight skin and moderate eye irritant. It is not a sensitizer, nor a genotoxic agent. Studies in animals indicate that t-butyl acetate is not a developmental or reproductive toxicant. Repeated inhalation exposure studies in animals indicate that t-butyl acetate may cause transient behavioral changes, increased liver, adrenal, and kidney weights, and possible kidney changes. However, the type of kidney changes observed is unique to the male rat kidney. There are no carcinogenicity data for t-butyl acetate. The primary metabolite of t-butyl acetate, t-butanol, is an animal carcinogen.
Acute toxicity Lethal dose: LC50 (vapor) Rat 4211 ppm 6 hours; LD50 (Oral) Rat 4500 mg/kg BWT; LD50 (Skin) Rabbit > 2000 mg/kg BWT.

## 12. Ecological Information

The following is based on 100% solutions:
**ACETONE:** This product is highly toxic to aquatic life. Environmental impact rating: 4 (0-4; 4 most hazardous); Ecotoxicity data: Fish toxicity: 4 ug/L 96 hr LC50 (mortality) Harlequinfish, red rasbora (Rasbora heteromorpha); Invertebrate toxicity: 35 ug/L 48 hr EC50 (immobilization) Water flea (Daphnia pulex); Algal toxicity: < 14 ug/L 11-14 hr MATC (growth) Red algae (Champia parvula); Other toxicity: 0.21 ug/L 96 week LC50 (mortality) Frog (Rana hexadactyla); Biochemical Oxygen Demand (BOD5 lb/lb; acclimated bacteria): 0.31-1.63; Chemical Oxygen Demand (COD lb/lb) 1.12-2.07; Octanol/water partition coefficient: 0.58; Fate and Transport: Bioconcentration: 100000 ug/L 32 hr BCF (Residue) Fathead minnow (Pimephales promelas0 4.3 ug/L

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## 12. Ecological Information

**Tert Butyl Acetate:**
Ecotoxicity:
Acute toxicity to fish: LC50/ 96 hours Oncorhynchus mykiss 240 mg/l Summary: Acute toxicity to fish is low.
Acute toxicity to aquatic invertebrates EC50/ 48 hours Daphnia magna 350 mg/l Summary: Low acute toxicity to aquatic invertebrates.
Toxicity to aquatic plants EC50/ 96 hours Pseudokirchneriella subcapitata 670 mg/l Summary: Low toxicity to algae
Toxicity to microorganisms EC3/16 hours Pseudomonas putida 78 mg/l EC3/72 hours Entosiphon sulcatum 970 mg/l Summary: Lot toxicity to bacteria.
Environmental fate and pathway: Expected to be emitted and partition predominantly to the atmosphere. Accidental releases to water or soil are expected to evaporate and undergo atmospheric decomposition processes.
Mobility: Transport between environmental compartments: Released material would be expected to show high soil mobility and to volatize readily from soil and surface waters, forming atmospheric vapor.
Persistance and degradability: Biodegradation: Expected to hydrolyze slowly in water (half-life ca. 0.5 years or longer). Not readily, but considered likely to be inherently biodegradable. Atmospheric vapors expected to be photochemically degraded by reaction with hydroxyl radicals (half-life 19.7 days). Bioaccumulation: This material is not expected to bioaccumulate.

## 13. Disposal Considerations

If this material becomes a waste material it would be an ignitable hazardous waste (hazardous waste number D001). Disposal is to be in accordance with all federal, state and local regulations.

## 14. Transport Information

DOT PROPER SHIPPING NAME: Flammable liquids, n.o.s. (Acetone) RQ: n.a.

HAZARD CLASS: 3 (Flammable) ID#: UN1993 PACKING GROUP: II

DOT LABEL OR PLACARD REQUIRED: Flammable HAZARDOUS MATERIAL: yes

## 15. Regulatory Information

TSCA (Toxic Substance Control Act): All components of this product are listed on the TSCA inventory.

SARA TITLE III: HAZARD CLASSIFICATIONS: Acute: Yes Chronic: no Fire: Yes Pressure: No Reactivity: No

| Name | CAS | TSCA | SARA 302 | SARA 304 | SARA 313 | CERCLA |
|---|---|---|---|---|---|---|
| Acetone | 67-64-1 | yes | — | — | — | 5000 |
| Tert-Butyl acetate | 540-88-5 | | | | | 5000 |

**Material Safety Data Sheet**
**MSDS Revision Date: June 7, 2010**

**PRODUCT: Pan Glo Ameri Solv Blend**

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## *16. Other Information*

HMIS HAZARD RATING: Health 1 Flammability 3 Reactivity 0

This MSDS is provided as an information resource only. It should not be taken as a warranty or representation for which Brenntag assumes legal liability. While Brenntag believes the information contained herein is accurate and compiled from sources believed to be reliable, it is the responsibility of the user to investigate and verify its identity. The buyer assumes all responsibility for using and handling the product in accordance with applicable international, federal, state, and local regulations.

Brenntag Mid-South Inc.
1405 Hwy 136 W
Henderson, KY 42420

PREPARED BY: APPROVED BY:

C:\RD1\WORD\MSDS\pan Glo Ameri Solv

# MATERIAL SAFETY DATA SHEET

SUPERIOR

APPROVED BY US DEPT OF LABOR, ESSENTIALLY SIMILAR TO FORM OSHA174

SUPERIOR SOLVENTS AND CHEMICALS
400 West Regent Street
Indianapolis, IN 46225
EMERGENCY PHONE NUMBER 317-781-4400

TRADE NAME: Mineral Spirits

## I. PHYSICAL DATA

| | |
|---|---|
| Boiling Point (degF): | 300 |
| Specific Gravity (Water = 1): | 0.790 |
| Pounds/Gallon: | 6.58 |
| Vapor Pressure (mm Hg @ 20 deg C | 0.38 |
| Vapor Density (Air = 1): | >1 |
| Solubility in Water (%): | 0.00 |
| Dry Time (Ether = 1): | >1 |
| % Volatile by Volume: | 100 |
| Appearance: | White Water Liquid |
| Odor: | Typical Solvent |

## II. HAZARDOUS INGREDIENTS

| MATERIAL | CAS # | VOL (%) | ACGIH (TWA) | OSHA (TWA) |
|---|---|---|---|---|
| ALIPHATIC NAPHTHA | 8052-41-3 | >29 | 100 | 500 |

## III FIRE & EXPLOSION HAZARD DATA

| | |
|---|---|
| LOWER EXPLOSIVE LIMIT IN AIR- (% BY VOLUME): | 0.8 |
| UPPER EXPLOSIVE LIMIT IN AIR- (% BY VOLUME): | 5.0 |
| FLASH POINT (T.C.C. deg F) | 105 (lowest flashing component) |
| EXTINGUISHING MEDIA: | Carbon Dioxide, Alcohol Foam, or Dry Chemical |
| SPECIAL FIRE FIGHTING PROCEDURES: | S.C.B.A. for fire fighting in enclosed areas. Water spray may be used to cool exposed containers and protect personnel. In advanced fires, maintain a safe distance from sealed containers. |
| UNUSUAL EXPLOSION AND FIRE PROCEDURES: | COMBUSTIBLE LIQUID! Use away from heat and open flame. Use only with adequate ventilation. Keep container closed when not in use. |

## IV. HEALTH HAZARD DATA

| | | | |
|---|---|---|---|
| ROUTES OF ENTRY: | INHALATION - YES | SKIN - YES | INGESTION - YES |

**EFFECTS OF ACUTE OVEREXPOSURE:** Material is an eye and skin irritant. Excessive vapor inhalation will lead to central nervous system depression. Harmful or fatal if swallowed.

**CHRONIC OVEREXPOSURE:** Material may defat the skin on repeated exposure leading to dermatitis.

**CARCINOGENICITY:** NTP: NO IARC: NO OSHA: NO

-THIS BLEND CONTAINS NO LISTED CARCINOGENS-

**SIGNS & SYMPTOMS OF EXPOSURE:** The signs of central nervous system depression begin with headache, dizziness, apparent intoxication, and progress through loss of consciousness.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin contact can aggravate existing dermatitis.

**EMERGENCY & FIRST AID PROCEDURE:**

| | |
|---|---|
| EYE CONTACT | --rinse with water for 15 minutes. If irritation persists call a physician. |
| SKIN CONTACT | --wash with plenty of soap and water. Wash contaminated clothing before reuse. |
| EXCESSIVE VAPOR | --remove victim to fresh air and restore breathing if necessary. Call a physician if there are signs of breathing difficulties. |
| IF SWALLOWED | Do not induce vomiting, call a physician immediately. If conscious, give large quantities of water to drink. Do Not give anything by mouth to an unconscious person. |

## V. REACTIVITY DATA

| | |
|---|---|
| STABILITY: | STABLE: X UNSTABLE: |
| CONDITIONS TO AVOID: | Isolate from heat, sparks, and open flames. |
| INCOMPATIBILITY: | Strong oxidizers. |
| HAZARDOUS DECOMPOSITION OR BYPRODUCTS: | Oxides of carbon (CO, CO2) |
| HAZARDOUS POLYMERIZATION: | Will not occur. |

## VI. PRECAUTIONS FOR SAFE HANDLING & USE

| | |
|---|---|
| STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: | Stop spill at the source, dike the area and contain the flow, mop up or absorb, and place in a suitable container. Notify proper authorities if an RQ is involved. |
| WASTE DISPOSAL METHOD: | As directed by local and federal pollution laws. |
| PRECAUTIONS TO BE TAKEN IN HANDLING & STORAGE: | Avoid free fall of liquid, ground containers when pouring. Store and use below 120F and away from direct heat or sources of ignition. |

## VII. CONTROL MEASURES

| | |
|---|---|
| RESPIRATORY PROTECTION: | Organic cartridge type respirator if ventilation or other mechanical means cannot keep air below TLV. |
| VENTILATION: | Local exhaust is preferable, but any mechanical means that will keep vapors below limits is acceptable. |
| PROTECTIVE GLOVES: | Recommended--must not dissolve in solvents. |
| OTHER PROTECTIVE CLOTHING OR EQUIPMENT: | Chemical goggles and apron are recommended if splashing is possible. An eye wash and safety shower should be available. |
| WORK/HYGIENIC PRACTICES: | Avoid breathing vapor or spray mist. Wash hands thoroughly after contact and before breaks or meals. |

## VIII. L313 LISTED MATERIALS

As per the requirements of 40 CFR 372.45, the following components of this blend are listed in Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986.

| MATERIAL | CAS # | MAXIMUM % BY WT |
|---|---|---|
| ALIPHATIC NAPHTHA | 8052-41-3 | 100 |

Aliphatic Naphtha contains up to 5% 1,2,4-Trimethyl benzene.

The act also requires that this notice accompany the MSDS in all redistributions and not be detached or omitted from future copies.

Legal responsibility is assumed only for the fact that all studies reported here and all opinions are those of qualified experts. Buyer assumes all risks and liabilities. The buyer accepts and uses this material on these conditions.

Print Date: 10/06/2008

Last Revision Date: 03/20/2006

# US EPA's TANKS

## Printouts

# TANKS 4.0.9d
## Emissions Report - Summary Format
## Tank Indentification and Physical Characteristics

**Identification**

| | |
|---|---|
| User Identification: | DEG Tank |
| City: | Jacksonville |
| State: | Florida |
| Company: | Pan-Glo |
| Type of Tank: | Vertical Fixed Roof Tank |
| Description: | tank for diethylene glycol |

**Tank Dimensions**

| | | |
|---|---|---|
| Shell Height (ft): | | 13.00 |
| Diameter (ft): | | 10.00 |
| Liquid Height (ft) : | | 12.00 |
| Avg. Liquid Height (ft): | | 7.00 |
| Volume (gallons): | | 7,500.00 |
| Turnovers: | | 2.27 |
| Net Throughput(gal/yr): | | 17,000.00 |
| Is Tank Heated (y/n): | N | |

**Paint Characteristics**

| | |
|---|---|
| Shell Color/Shade: | White/White |
| Shell Condition | Good |
| Roof Color/Shade: | White/White |
| Roof Condition: | Good |

**Roof Characteristics**

| | | |
|---|---|---|
| Type: | Cone | |
| Height (ft) | | 2.00 |
| Slope (ft/ft) (Cone Roof) | | 0.40 |

**Breather Vent Settings**

| | |
|---|---|
| Vacuum Settings (psig): | -0.03 |
| Pressure Settings (psig) | 0.03 |

Meterological Data used in Emissions Calculations: Jacksonville, Florida (Avg Atmospheric Pressure = 14.75 psia)

# TANKS 4.0.9d
## Emissions Report - Summary Format
## Liquid Contents of Storage Tank

**DEG Tank - Vertical Fixed Roof Tank**
**Jacksonville, Florida**

| Mixture/Component | Month | Daily Liquid Surf. Temperature (deg F) Avg. | Min. | Max. | Liquid Bulk Temp (deg F) | Vapor Pressure (psia) Avg. | Min. | Max. | Vapor Mol. Weight. | Liquid Mass Fract. | Vapor Mass Fract. | Mol. Weight | Basis for Vapor Pressure Calculations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEG | All | 69.96 | 64.29 | 75.63 | 68.02 | 0.0190 | 1.0000 | 1.0000 | 106.1400 | | | 0.00 | |

# TANKS 4.0.9d
## Emissions Report - Summary Format
## Individual Tank Emission Totals

### Emissions Report for: Annual

**DEG Tank - Vertical Fixed Roof Tank**
**Jacksonville, Florida**

| | Losses(lbs) | | |
|---|---|---|---|
| Components | Working Loss | Breathing Loss | Total Emissions |
| DEG | 0.82 | 2.61 | 3.43 |

# TANKS 4.0.9d
## Emissions Report - Summary Format
## Tank Indentification and Physical Characteristics

**Identification**

| | |
|---|---|
| User Identification: | HEG Tank |
| City: | Jacksonville |
| State: | Florida |
| Company: | Pan-Glo |
| Type of Tank: | Vertical Fixed Roof Tank |
| Description: | tank for hexylene glycol |

**Tank Dimensions**

| | | |
|---|---|---|
| Shell Height (ft): | | 13.00 |
| Diameter (ft): | | 10.00 |
| Liquid Height (ft) : | | 12.00 |
| Avg. Liquid Height (ft): | | 7.00 |
| Volume (gallons): | | 7,500.00 |
| Turnovers: | | 3.17 |
| Net Throughput(gal/yr): | | 23,800.00 |
| Is Tank Heated (y/n): | N | |

**Paint Characteristics**

| | |
|---|---|
| Shell Color/Shade: | White/White |
| Shell Condition | Good |
| Roof Color/Shade: | White/White |
| Roof Condition: | Good |

**Roof Characteristics**

| | | |
|---|---|---|
| Type: | Cone | |
| Height (ft) | | 2.00 |
| Slope (ft/ft) (Cone Roof) | | 0.40 |

**Breather Vent Settings**

| | |
|---|---|
| Vacuum Settings (psig): | -0.03 |
| Pressure Settings (psig) | 0.03 |

Meterological Data used in Emissions Calculations: Jacksonville, Florida (Avg Atmospheric Pressure = 14.75 psia)

# TANKS 4.0.9d
## Emissions Report - Summary Format
## Liquid Contents of Storage Tank

**HEG Tank - Vertical Fixed Roof Tank**
**Jacksonville, Florida**

| Mixture/Component | Month | Daily Liquid Surf. Temperature (deg F) Avg. | Min. | Max. | Liquid Bulk Temp (deg F) | Vapor Pressure (psia) Avg. | Min. | Max. | Vapor Mol. Weight. | Liquid Mass Fract. | Vapor Mass Fract. | Mol. Weight | Basis for Vapor Pressure Calculations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HEG | All | 69.96 | 64.29 | 75.63 | 68.02 | 0.0004 | 1.0000 | 1.0000 | 118.0000 | | | 86.09 | |

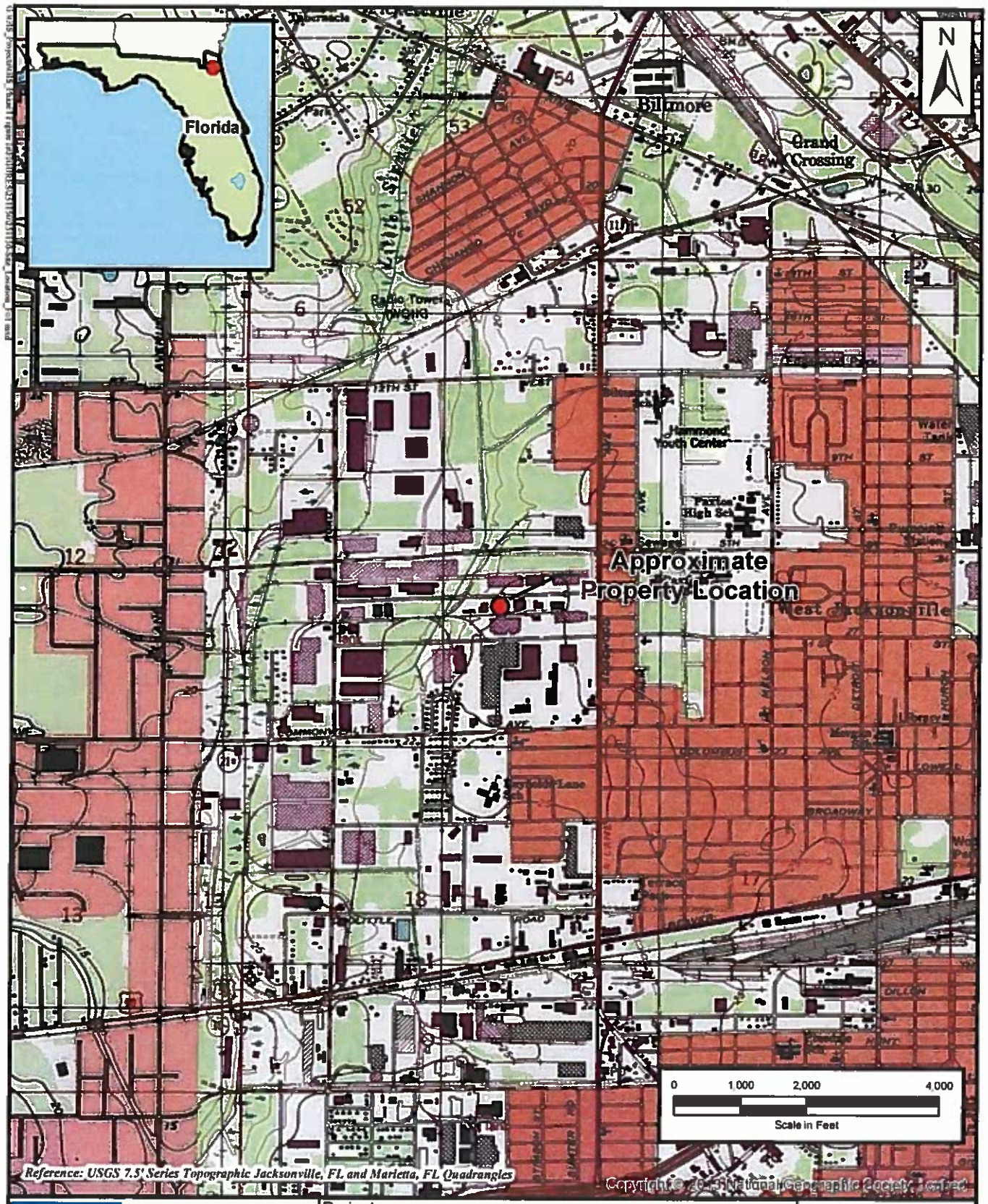
# TANKS 4.0.9d
## Emissions Report - Summary Format
## Individual Tank Emission Totals

### Emissions Report for: Annual

**HEG Tank - Vertical Fixed Roof Tank**
**Jacksonville, Florida**

| | Losses(lbs) | | |
|---|---|---|---|
| Components | Working Loss | Breathing Loss | Total Emissions |
| HEG | 0.03 | 0.07 | 0.10 |

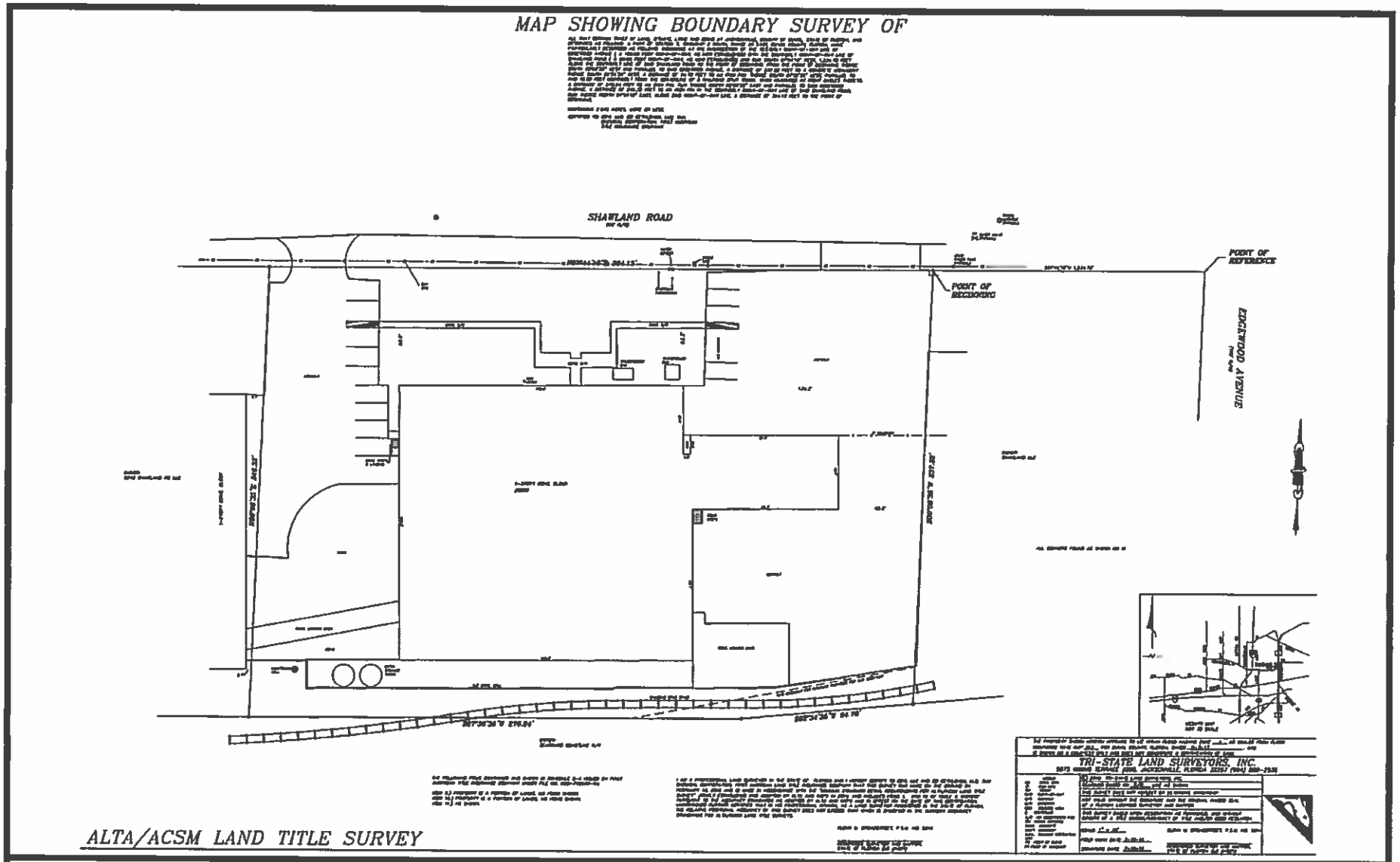
# Appendix C
# Supplemental Information – Figures




TRC

*11231 Cornell Park Drive*
*Cincinnati, Ohio 45242*
*513-489-2255*

| | |
|---|---|
| Project | Pan-Glo<br>5200 Shawland Road, Jacksonville, FL 32254 |
| Sheet Title | Site Location<br>Figure 1 |
| Drawn By | JRL |
| Approved By | GSK |
| Proj No | 261143.0000.0000 |
| File No | |
| Date | September 2016 |




TRC
Results you can rely on

11231 Cornell Park Dr.
Cincinnati, OH 45242
Phone: 513.489.2255
Fax: 513.489.2533

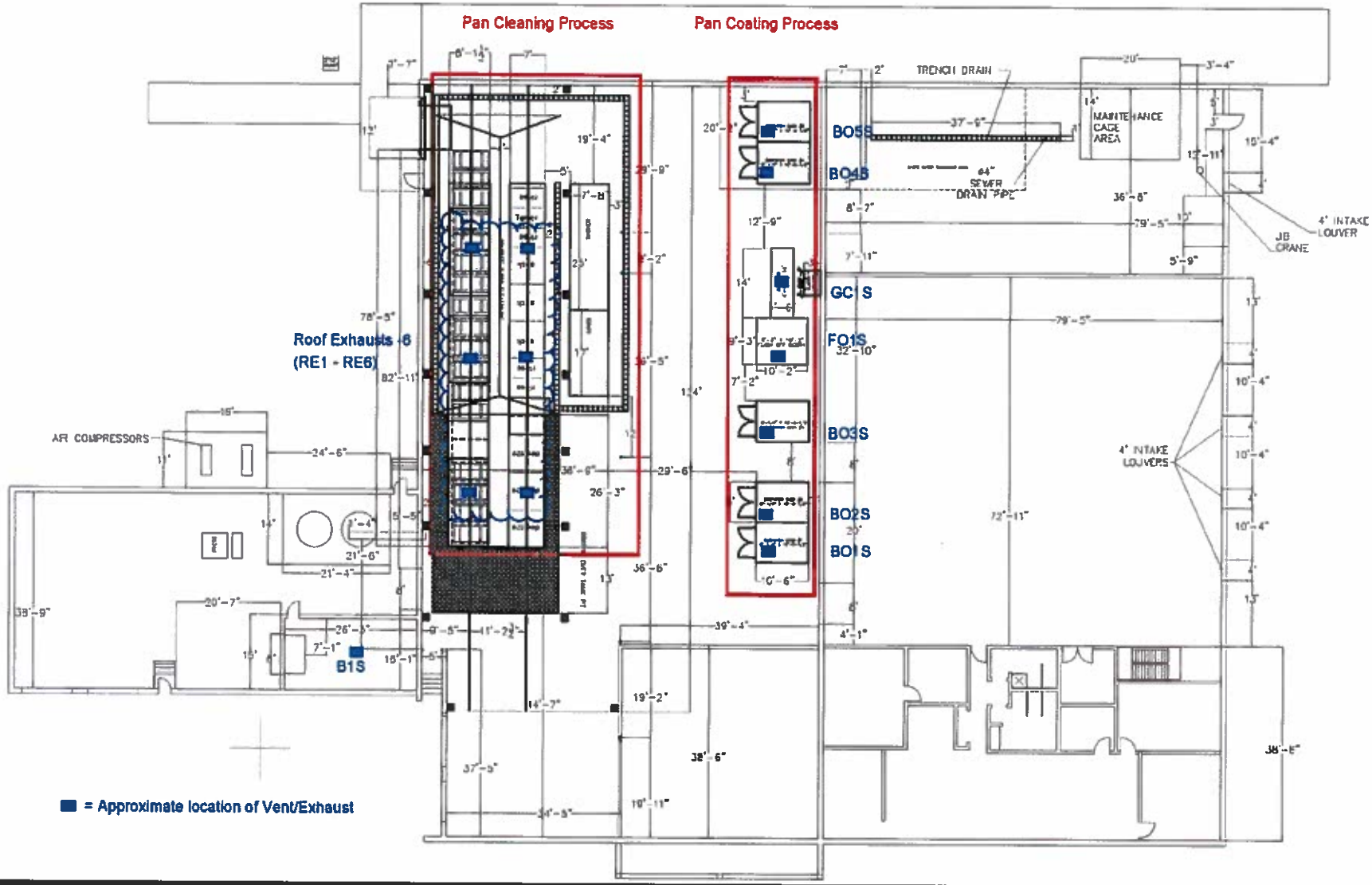
PROJECT

Pan-Glo
5200 Shawland Road, Jacksonville, FL 32254

SHEET TITLE

**Figure 2**
**Facility Plot Plan**

| | |
|---|---|
| DRAWN BY | DRH |
| APPROVED BY | JS |
| PROJ NO | 261143.0000 |
| FILE NO | |
| DATE | October 2018 |




TRC
Results you can rely on
11231 Cornell Park Dr.
Cincinnati, OH 45242
Phone: 513.489.2255
Fax: 513.489.2533

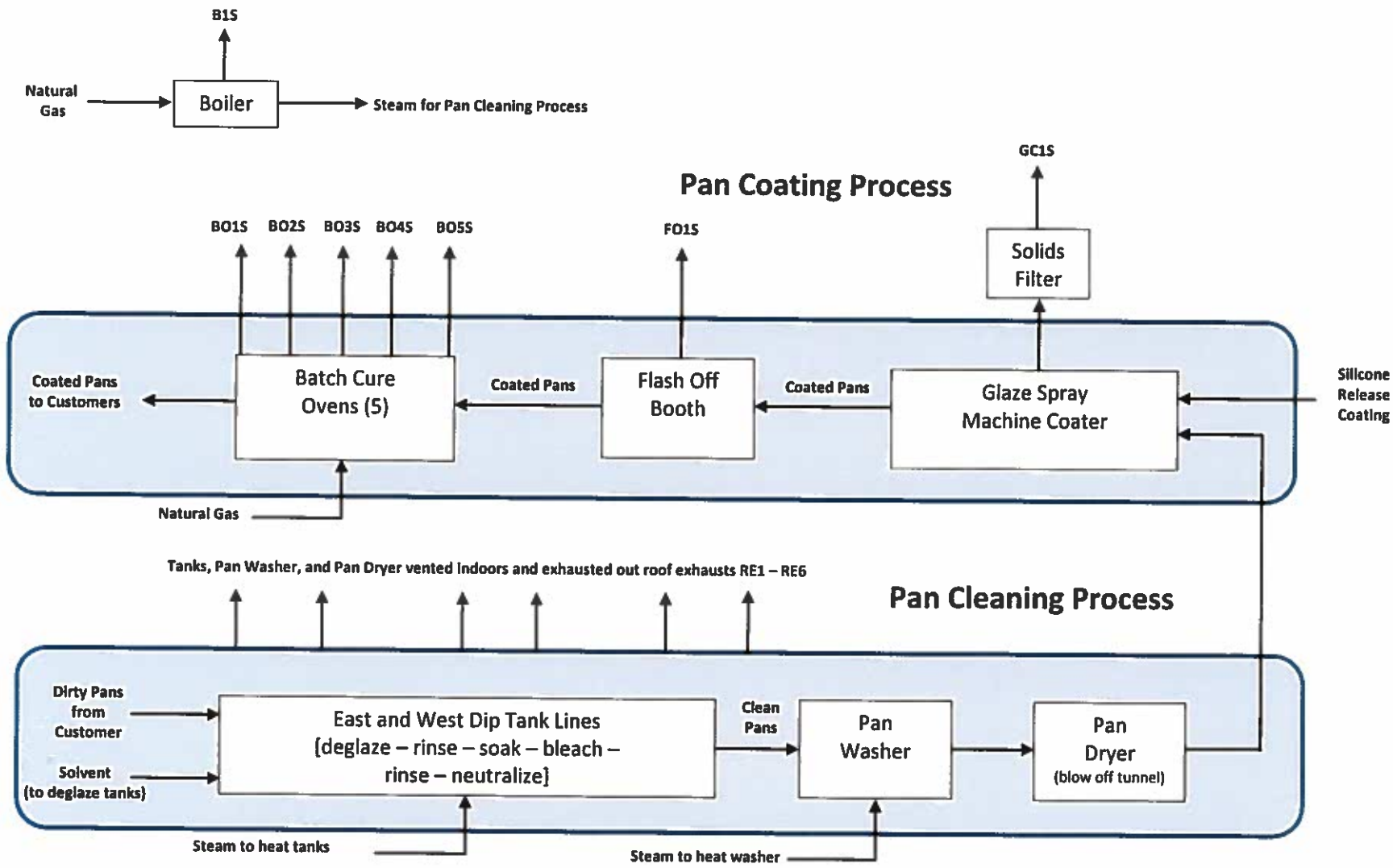
PROJECT

Pan-Glo
5200 Shawland Road, Jacksonville, FLsc 32254

SHEET TITLE

**Figure 3**
**Building Layout**

| | |
|---|---|
| DRAWN BY | DRH |
| APPROVED BY | JS |
| PROJ NO | 261143.0000 |
| FILE NO | |
| DATE | October 2016 |




TRC
Results you can rely on
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SHEET TITLE
Figure 4
Process Flow Diagram

| | |
|---|---|
| DRAWN BY | DRH |
| APPROVED BY | JS |
| PROJ NO | 261143.0000.0000 |
| FILE NO | |
| DATE | October 2016 |