

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b> <i>Large Coating, Printing and Chemical Operations Team</i> <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGE	1 of 8
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	PROCESSED BY	Todd Iwata
	REVIEWED BY	
	DATE	8/24/2011

**Permit to Construct/Operate Evaluation  
(BASKET MILL)**

**Applicant's Name**

DEFT INC.

**Company I.D.**

000772

**Mailing Address**

17451 VON KARMAN AVE., IRVINE, CA 92614

**Equipment Address**

17451 VON KARMAN AVE., IRVINE, CA 92614

**EQUIPMENT DESCRIPTION**

Application No. 519917 (New Construction,-P/C-P/O)

BASKET MILL, PREMIER MILL, MODEL PSM-400, 8' – 0" L. X 3' – 8" W. X 7' – 0" H. (OVERALL DIMENSIONS), WITH A 30 H.P. AGITATOR MOTOR, TWO 10 H.P. SIDE AGITATOR MOTORS AND A HYDRAULIC LIFT.

Application No. 519915

TITLE V PERMIT REVISION

**CONDITIONS**

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.  
[RULE 204]
2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.  
[RULE 204]
3. NO SOLIDS OR LIQUID MATERIALS SHALL BE ADDED TO THE TANK AT THIS MILLING STATION.  
[RULE 1303(b)(2)-OFFSET]
4. THE TANK CONTAINING THE COATING SHALL BE KEPT COVERED AT ALL TIMES EXCEPT TO LOWER OR REMOVE THE BASKET MILL.  
[RULE 1303(a)(1)-BACT]
5. MATERIALS USED IN THIS EQUIPMENT SHALL NOT CONTAIN ANY TOXIC COMPOUNDS IDENTIFIED IN RULE 1401, TABLE I, WITH AN EFFECTIVE DATE OF SEPTEMBER 10, 2010 OR

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EARLIER, WITH THE EXCEPTION OF HEXAVALENT CHROMIUM AND CHROMIUM COMPOUNDS (CAS# 18540-29-9), GLYCOL ETHERS (CAS# 107-21-1, 111-76-2, 110-80-5, 111-15-9, 109-86-4, 110-49-6), ISOPROPYL ALCOHOL (CAS# 67-63-0), METHYL ETHYL KETONE (CAS# 78-93-3), NICKEL AND NICKEL COMPOUNDS (CAS# 7440-02-0), TOLUENE (108-88-3) AND XYLENES (1330-20-7).  
[RULE 1401]

6. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THIS EQUIPMENT IS NOT COMPLETE WITHIN ONE YEAR FROM THE P/C-P/O ISSUANCE DATE, UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER  
[RULE 205]

**Periodic Monitoring:**

7. THE OPERATOR SHALL PERFORM SEMI-ANNUAL INSPECTIONS OF THE EQUIPMENT TO ENSURE THAT THE MOVEABLE COVERS ARE CLOSED. THE OPERATOR SHALL KEEP RECORDS, IN A MANNER APPROVED BY THE DISTRICT, FOR THE FOLLOWING PARAMETER(S) OR ITEM(S):
  - A. NAME OF THE PERSON PERFORMING THE INSPECTION OF THE COVER.
  - B. DATE, TIME AND RESULT OF THE INSPECTION.
[RULE 3004(a)(4)]
8. THE OPERATOR SHALL KEEP RECORDS, IN A MANNER APPROVED BY THE DISTRICT, FOR THE CLEANING LOG THAT INCLUDES A STATEMENT OF THE APPROVED CLEANING METHOD.  
[RULE 3004(a)(4)]

**Emissions and Requirements:**

9. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

VOC: RULE 109  
VOC: RULE 1141.1  
VOC: RULE 1171, SEE APPENDIX B FOR EMISSIONS LIMITS

<b>HISTORY</b>
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The above application was filed with the District by Deft, Inc. to install a new basket mill to serve its customers' special needs. This mill is identical to another basket mill permitted under A/N 491370 P/O G1161. The mills are used to mill the coatings in their production lines. Deft, Inc. is a major coating manufacturer for military and aerospace applications. The facility has a number of active permits to operate paint mixing tanks, storage tanks, spray booths and dust collectors.

District data does not show any notices of violation issued against this facility in the last two years. Also, there were no records of any complaints for visible emissions or odor nuisance in the District database in the last two years. The facility is located within an industrial area. It is not located within 1,000 feet from any school and there will not be any emission increases exceeding the threshold

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levels under this project, hence, this application will not require a public notification per Rule 212. Deft, Inc. is a Title V facility. A Title V renewal permit was issued to this facility on August 1, 2007. This proposed second permit revision is considered a “de minimis significant permit revision” to the Title V renewal permit, as described in the Regulation XXX evaluation.

<b>PROCESS DESCRIPTION</b>
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This company manufactures industrial coatings, primarily polyurethanes, epoxy and water based coatings from raw materials for application on wood, glass, metal and plastic, etc. As part of the manufacturing process, the raw materials are batch mixed to meet customer material specifications. Each customer specification is unique and requires a unique mix recipe. Coatings contain resins, pigments, solvents and additives. Typical organic compounds used in the paint mixes can include, but are not limited to acetone, MEK, toluene, butyl acetate and xylene.

The majority of the organic raw materials are charged into existing, permitted paint mixing/blending tanks through a fixed pump and piping system. Some organic materials and powdered solid materials may be added in these tanks through access hatches affixed to the top the tanks. The mixed batch is then sent to the mill to grind the particulates to produce paint with a particular uniform particle size. VOC emissions are expected from this milling operation. VOC emissions from these tanks are the result of vapor displacement during filling operations as well as due to breathing and open hatch losses.

The basket mill provides better quality to the paint in less time, with almost no increase in the emissions when compared to vertical or horizontal mills now being operated at the facility. Enclosed premixed liquid coatings, in batch tanks, will be transported to the basket mill by fork-lifts from existing permitted mixing stations. A built-in hydraulic lift will lower the basket mill into the tank and the tank will be covered again. The milling operation is performed with the cover on, for 2 to 6 hours depending on the type of the coating. The basket mill is filled with titanium beads which reduces the size of the particles in the coating.

There will not be any loading/unloading of raw materials during the milling process. Due to independent variable speed mixing shafts, this equipment can process a wide range of batch sizes and product viscosity. The mixing shafts provide even circulation throughout the batch tank to ensure uniform dispersion and consistent product. The power and speed of the milling chamber media agitator mechanism is controlled separately from the mixers. Thus, the milling action is adjusted independently of mixing action and provides enhanced manufacturing conditions. The average throughput will be 1000 gallons/day with maximum throughput of 2000 gallons/day.

After the basket mill is removed from a batch tank, a 55-gallon drum containing a solvent blend will be brought in and the basket will be lowered in for the cleaning operation. This cleaning operation will be performed in a closed drum. This solvent is used again numerous times before being disposed

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as hazardous waste. Based on past experience and testing, the applicant indicated that a very little solvent loss is expected in the cleaning operation.

**OPERATING HOURS**

Average : 16 hour/day, 7 day/week, 52 weeks/year  
Maximum: 24 hour/day, 7 days/week, 52 weeks/year

**EMISSION CALCULATIONS**

This is a major coating manufacturer in the District where a number of permitted tanks are being operated to mix the various ingredients for different coatings. All the mixing and thinning will be done separately from this milling equipment. The current coating manufacturing operation uses horizontal or vertical milling equipment. This basket mill will replace the old milling equipment for certain coatings. Thus, with no loading of solids, liquids or powders in the tanks during the milling process, negligible VOC emissions are expected from this basket milling operation. Also, these emissions are already accounted for at the coating mixing stations. The facility has developed and uses a VOC emission factor (1.05 lbs/1000 gallons-solvent) under the following EPA guidelines for total emissions from the coating manufacturing operation which includes loading, mixing, milling and cleaning.

As of February 2005, EPA published the Emission Inventory Improvement Program, Volume II (EIIP) that contained emission models and equations to more accurately estimate solvent losses from paint manufacturing operations. These updated emission models take into account solvent type, process conditions, solvent volumes, vapor pressures, operating temperature and various other process specific factors. EPA recommends that in lieu of developing emission factors for every single coating or formulation, the facility should develop models based on representative formulations. The EIIP provides equations for material loading losses (Equation 8.4-1) and heat up losses (Equation 8.4-10).

The emission calculations prepared by the applicant's consultant, were reviewed, and found to be acceptable by the District. Emission calculations utilized EPA guidelines and emission factors for VOC from paint mixing operations. VOC emissions are 1.98 lb/month or 0.066 lb/day (1.98 lb/month ÷ 30 day/month) based on producing 120 batches per month. Using the minimum mill time of 2 hours per batch, a maximum of 12 batches could be processed in a day, or 360 batches per month. This is three times more than the calculated emissions, which would result in VOC emissions of 0.2 lb/day (0.066 lb/day x 3). Since emissions at the maximum possible throughput are below 0.5 lb/day, a permit condition limiting batches per month is not necessary. Emissions of other criteria pollutants (PM10, NOx, SOx and CO) are not expected from this basket mill.

Max VOC R1 = R2 lb/day = 12 batches/day x 1.98 lb VOC/120 batches = 0.2 lb/day, 0.008 lb/hr  
Ave VOC R1 = R2 lb/day = 4 batches/day x 1.98 lb VOC/120 batches = 0.066 lb/day, 0.008 lb/hr  
Max lb/yr @ 360 batches/month = 1.98 lb/120 batches x 360 batches x 12 mo = 71.28 lb/yr

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**RISK ASSESSMENT**

The basket mill will be operated as the existing basket mill. The batches in the new mill will contain the same materials as found in the existing mill. The batches contain the following toxic air contaminants: hexavalent chromium, glycol ethers, isopropyl alcohol, methyl ethyl ketone, nickel, toluene and xylene. Emissions of the vaporous contaminants are considered negligible since they are a portion of VOC emissions which are slight and the heavy contaminants (hexavalent chromium and nickel) are not expected to be air borne emissions. Emissions of these contaminants will not cause an acute or chronic health hazard risk equal or greater than one based on the screening levels. Assuming all the VOC is the worst case TAC, the lowest screening levels are 0.0528 lb/hr and 1,980 lb/yr for EGME, and the maximum expected VOC emissions from this equipment are 0.0083 lb/hr and 71.3 lb/yr. None of the volatile toxics are carcinogenic. A permit condition will restrict the use of materials containing Rule 1401 toxic air contaminants with the exception of these seven contaminants.

**RULES/REGULATION EVALUATIONS**

▣ **RULE 212, PUBLIC NOTIFICATION**

v **SECTION 212(c)(1):**

This section requires a public notice for all new or modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school. This source is not located within 1,000 feet from the outer boundary of a school. Therefore, public notice will not be required by this section.

v **SECTION 212(c)(2):**

This section requires a public notice for all new or modified facilities which have on-site emission increases exceeding any of the daily maximums as specified in subdivision (g). As shown in the following table, the emission increases from this facility are below the daily maximum limits specified by Rule 212(g). Therefore, this application will not be subject to this section.

<b>LB/DAY</b>	<b>CO</b>	<b>NOX</b>	<b>PM<sub>10</sub></b>	<b>ROG</b>	<b>Lead</b>	<b>SOX</b>
<b>MAX. LIMIT</b>	220	40	30	30	3	60
<b>INCREASES</b>	0	0	0	< 0.5	0	0

v **SECTION 212(c)(3):**

See Rule 1401 evaluation section. No carcinogenic emissions expected; HIA and HIC < 1.

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▼ **SECTION 212(g):**

This section requires a public notice for all new or modified sources which undergo construction or modifications resulting in emission increases exceeding any of the daily maximum specified in the table below. As shown in the following table, the emission increases from this project are below the daily maximum limits specified by paragraph (g). Therefore, public notice will not be required by this section.

<b>LB/DAY</b>	<b>CO</b>	<b>NOX</b>	<b>PM<sub>10</sub></b>	<b>ROG</b>	<b>Lead</b>	<b>SOX</b>
<b>MAX. LIMIT</b>	220	40	30	30	3	60
<b>INCREASES</b>	0	0	0	< 0.5	0	0

▣ **RULE 401, VISIBLE EMISSIONS**

No visible emissions are expected from the operation of this equipment.

▣ **RULE 402, PUBLIC NUISANCE**

The District database did not show any violation notice or nuisance complaints against this equipment.

▣ **RULE 1141.1, COATINGS AND INKS MANUFACTURING**

The enclosed milling and cleaning operations minimize VOC emissions, which provides compliance with these requirements. Compliance is expected.

▣ **RULE 1171, SOLVENT CLEANING OPERATIONS**

Cleaning operations covered by Rule 1141.1 are exempt from this rule under (g)(2).

▣ **RULE 1303(a), BEST AVAILABLE CONTROL TECHNOLOGY (BACT)**

(a) **VOC EMISSIONS**

The VOC emissions are expected to be well below 1 lb/day, therefore BACT is not triggered.

▣ **RULE 1303(b)(1), MODELING**

Modeling not required for VOC emissions only.

▣

**RULE 1303 (b)(2), EMISSION OFFSETS**

The VOC emissions are expected to be less than 0.5 lb/day. Thus, offsets are not required.

▣ **RULE 1401, NEW SOURCE REVIEW OF CARCINOGENIC AIR CONTAMINANTS**

The basket mill is expected to be operated in compliance with this rule, as described in the RISK ASSESSMENT section. There are no carcinogenic emissions expected, and HIA/HIC are below 1.

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## REGULATION XXX

This facility is not in the RECLAIM program. The proposed project is considered as a “de minimis significant permit revision” to the Title V permit for this facility.

Rule 3000(b)(6) defines a “de minimis significant permit revision” as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAPs) from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

Air Contaminant	Daily Maximum (lbs/day)
HAP	30
VOC	30
NO <sub>x</sub>	40
PM <sub>10</sub>	30
SO <sub>x</sub>	60
CO	220

To determine if a project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project is the 2<sup>nd</sup> permit revision to the Title V renewal permit issued to this facility on August 1, 2007. The following table summarizes the cumulative emission increases resulting from all permit revisions since the Title V renewal permit was issued:

Revision	HAP	VOC	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	CO
1 <sup>st</sup> Permit revision, addition of basket mill P/C-P/O for A/N 491370	0	0	0	0	0	0
2 <sup>nd</sup> Permit revision, addition of basket mill P/C-P/O for A/N 519917	0	0	0	0	0	0
Cumulative Total	0	0	0	0	0	0
Maximum Daily	30	30	40	30	60	220

Since the cumulative emission increases resulting from all permit revisions are not greater than any of the emission threshold levels, this proposed project is considered as a “de minimis significant permit revision”.

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## **RECOMMENDATION**

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “de minimis significant permit revision”, it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not have any objections within the review period, a revised Title V permit will be issued to this facility with a P/C-P/O for this equipment in Section D.

*Deft – Basket Mill 519917*