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	REVIEWED BY	
	DATE	08/13/07

**PERMIT TO OPERATE EVALUATION
MODIFICATION OF RESIN BLENDERS**

Applicant's Name	CYTEC ENGINEERED MATERIALS
Company I.D.	099773
Mailing Address	1440 N. KRAEMER BLVD., ANAHEIM, CA 92806
Equipment Address	SAME AS ABOVE

EQUIPMENT DESCRIPTION

Application No. 471909 (Modification, Previous P/N F67213, A/N 418136)

MOREHOUSE MIXING SYSTEM NO. 6 CONSISTING OF:

1. MIXER/REACTOR TANK, MOREHOUSE-COWLES, JACKETED, 415-GALLON CAPACITY, WITH A DUAL-SHAFT AGITATOR, 80 TOTAL MAXIMUM H.P.
2. EXOTHERM QUENCH FLUID TANK, 275-GALLON CAPACITY.
3. PORTABLE FILTER VENT, 31 TOTAL MINIMUM SQ. FT. FILTER AREA.
4. REACTOR RUPTURE DISC, 15 PSIG, AND 0'-6" DIA. X 15'-0" H. VENT STACK

Application No. 471911 (Modification, Previous P/N F67216, A/N 418139)

MOREHOUSE MIXING SYSTEM NO. 7 CONSISTING OF:

1. MIXER/REACTOR TANK, MOREHOUSE-COWLES, JACKETED, 415-GALLON CAPACITY, WITH A DUAL-SHAFT AGITATOR, 80 TOTAL MAXIMUM H.P.
2. EXOTHERM QUENCH FLUID TANK, 275-GALLON CAPACITY.
3. PORTABLE FILTER VENT, 31 TOTAL MINIMUM SQ. FT. FILTER AREA.
4. REACTOR RUPTURE DISC, 15 PSIG, AND 0'-6" DIA. X 15'-0" H. VENT STACK

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Application No. 472398

TITLE V PERMIT REVISION

Application No. 47XXX1 (Admin. change, Previous P/N F56699, A/N 408552)

MIXER/REACTOR STATION NO. 3, CONSISTING OF:

1. MIXER/REACTOR TANK, MOREHOUSE-COWLES, JACKETED, 415-GALLON CAPACITY, WITH A DUAL-SHAFT AGITATOR, 80 TOTAL MAXIMUM H.P.
2. EXOTHERM QUENCH FLUID TANK, 275-GALLON CAPACITY.
3. PORTABLE FILTER VENT, 31 TOTAL MINIMUM SQ. FT. FILTER AREA.
4. REACTOR RUPTURE DISC, 15 PSIG, AND 0'-6" DIA. X 15'-0" H. VENT STACK

Application No. 47XXX2 (Admin. change, Previous P/N F56700, A/N 408553)

MIXER/REACTOR STATION NO. 2, CONSISTING OF:

1. MIXER/REACTOR TANK, MOREHOUSE-COWLES, JACKETED, 415-GALLON CAPACITY, WITH A DUAL-SHAFT AGITATOR, 80 TOTAL MAXIMUM H.P.
2. EXOTHERM QUENCH FLUID TANK, 275-GALLON CAPACITY.
3. PORTABLE FILTER VENT, 31 TOTAL MINIMUM SQ. FT. FILTER AREA.
4. REACTOR RUPTURE DISC, 15 PSIG, AND 0'-6" DIA. X 15'-0" H. VENT STACK

Application No. 47XXX3 (Admin. change, Previous P/N F56701, A/N 408554)

MIXER/REACTOR STATION NO. 1, CONSISTING OF:

1. MIXER/REACTOR TANK, MOREHOUSE-COWLES, JACKETED, 415-GALLON CAPACITY, WITH A DUAL-SHAFT AGITATOR, 80 TOTAL MAXIMUM H.P.
2. EXOTHERM QUENCH FLUID TANK, 275-GALLON CAPACITY.
3. PORTABLE FILTER VENT, 31 TOTAL MINIMUM SQ. FT. FILTER AREA.
4. REACTOR RUPTURE DISC, 15 PSIG, AND 0'-6" DIA. X 15'-0" H. VENT STACK

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HISTORY

The above applications were filed with the District to modify existing resin blenders (P/N F67213 and F67216) to allow the usage of 1, 3 Dioxolane as a solvent during the mixing process. Currently the permit conditions #12 allow acetone only.

Cytec Engineered Materials manufactures advanced composite materials and structural adhesives for use in commercial and military aircrafts and other products. The manufacturing involves impregnation of fiberglass fabric. The company currently operates a number of permitted equipment under I. D. No. 099773. A facility-wide VOC emission limit has not been established for this location. All the permitted equipment has individual usage limit. Currently the permit condition of the above blenders and blenders permitted under application nos. 408552, 408553 and 408554 allow VOC emissions of 29 lbs/day and 7350 lbs/year. All the blenders are vented to a VOC control system consisting of condensers and afterburner. Therefore the equipment complies with the BACT requirements. A negligible amount of VOC emission increase is expected from the equipment that will be using 1, 3 Dioxolane. No emission offsets are required for this project, since the applicant has not requested any VOC emission increase from the combined equipment VOC emission limit.

The district database shows one notice to comply was issued to this company during the last two years to apply for permit modification. The facility was operating in compliance on follow-up inspection. The database shows no notice of violation or complaint against this facility for nuisance odors or visible emissions. The facility is located in an industrial area and not within 1000 feet from any school; hence, these applications will not require any public notification.

Cytec Engineered Materials is a Title V facility. An initial Title V permit was issued to this facility on 7/28/2003. This is the eighth permit revision of the initial Title V permit under this project. The proposed permit revision is considered as a “minor permit revision” to the revised Title V permit, as described in Regulation XXX evaluation.

OPERATING HOURS

Average: 24 hr/day, 7 day/week, 52 weeks/year
Maximum: 24 hr/day, 7 day/week, 52 weeks/year

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PROCESS DESCRIPTION

The facility manufactures adhesives and structural composites called prepreg. Prepreg products are made of fabric, reinforced fibers and base resins. The fiberglass reinforcing fibers improves strength and rigidity. In addition, they also provide high heat resistance and dielectric strength. Prepreg and adhesives are primarily used in the aircraft, aerospace, automotive and recreational industries.

The above blenders are used to mix variety of high viscous materials, including resins, fillers, curing agents and solvents. The blending part of the equipment consists of mixing shafts and vessel that may be heated and/or subject to a vacuum system to insure uniform mixing. Raw materials are batch loaded and mixed materials are batch removed and placed into external portable containers.

The blenders are all vented to a control device consisting of condensers and an afterburner. The condensing system is a dual type, primary and secondary. The secondary condensing system utilizes screw-type dry vacuum pumps. The vacuumed vapor first pass through a condenser, and the remaining vapors are vented to the main condensing system.

The blending method involves two solvent quench modes of operations, solvent vacuum stripping and solvent boil-off, as described below.

(a) Solvent Vacuum Stripping:

In solvent vacuum stripping operations, solvent vapor is pulled by two parallel vacuum pumps and passes through a secondary condenser of 98% control efficiency. The condensed solvent is gravity fed into an existing 120-gal receiving tank. The remaining solvent vapor from the condenser is vented to the main condensing system operating at 95% control efficiency. Finally all the remaining vapors are controlled by an afterburner (RTO) with at least 95% control efficiency. The above two blenders are restricted to using only acetone as a solvent in solvent vacuum stripping modes. Under this proposal the applicant desires to also use 1, 3 dioxolane as a process solvent to be vacuum stripped via the existing vacuum stripping system.

(b) Solvent Boil-off:

In solvent boil-off operations, a cold solvent is added to a heated batch to stop the chemical reaction as fast as possible. Again, solvent vapors are vented to the main condensing system and afterburner. The above two blenders do not operate in this mode.

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EMISSION CALCULATIONS

Emission Estimates

This project does not result in any emission increases from this facility. The company is not proposing to increase its raw material throughput for the blenders. There is a minor process change under this project with 1, 3 dioxolane (VOC) will also be used as a solvent in the vacuum stripping operation. A negligible VOC emission increases are expected from the proposed process change for equipment that will use 1, 3 Dioxolane.

The combined VOC emissions from five Morehouse mixers, Nos. 1, 2, 3, 6 & 7 were previously limited to less than the following:

Twenty-nine pounds in any one day and 7,350 pounds per calendar year during all quench batches, and Seven pounds in any one day and 1,750 pounds per calendar year during all solvent solution batches. The company has requested to keep the same limits.

Maximum one batch per day and about 3 batches per month will be mixed in these blenders with 1,3 dioxolane. At worst case scenario it was assumed that one batch per day will be mixed for emission calculations.

Each batch uses 610 lbs of solvent in mixing and 200 lbs of solvent in cleaning (total 810 lbs).

The VOC emissions are controlled by two condensers with 98% and 90% efficiencies, and RTO with at least 95% efficiency.

Daily emissions are $810 (1-.98)(1-0.90)(1-0.95) = 0.1$ lbs/day.

Monthly emissions are $81 \times 30 (1-.98)(1-0.90)(1-0.95) = 2.4$ lbs/month.

Yearly emissions are $81 \times 30 \times 12 (1-.98)(1-0.90)(1-0.95) = 29$ lbs/year.

The other emission data for particulates remain same for these equipment.

RULES/REGULATION EVALUATION

▫ *RULE 212, PUBLIC NOTIFICATION*

√ *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.

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▼ **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 project are below the daily maximum limits specified by Rule 212(g). Therefore, these applications will not be subject to this section.

LB/DAY	CO	NOX	PM₁₀	ROG	Lead	SOX
MAX. LIMIT	220	40	30	30	3	60
INCREASES	0	0	0	0	0	0

▼ **SECTION 212(c)(3):**

The solvents used in these blenders do not contain any toxic air contaminants. Therefore, these applications will not be subject to this section.

▼ **SECTION 212(g):**

This section requires a public notice for all new or modified sources which undergo construction or modifications resulting an emissions increase 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. Therefore, public notice will not be required by this section.

LB/DAY	CO	NOX	PM₁₀	ROG	Lead	SOX
MAX. LIMIT	220	40	30	30	3	60
INCREASES	0	0	0	0	0	0

▫ **RULES 401 & 402, VISIBLE EMISSIONS & NUISANCE**

Compliance with these provisions is expected with proper operation of the equipment.

▫ **RULES 405, SOLID PARTICULATE MATTER - WEIGHT**

Compliance with these provisions is expected with proper operation of the equipment.

▫ **RULE 1171, SOLVENT CLEANING OPERATIONS**

The applicant will be in compliance with these requirements by using acetone (an exempt VOC) for clean-up of the equipment.

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REGULATION XIII

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

(a) VOC EMISSIONS

The applicant will be in compliance with these requirements by using air pollution control equipment with a sufficient VOC control efficiency (at least 100% collection and 95% destruction) to control VOC emissions from the blenders.

▣ **RULE 1303(b)(1), MODELING**

Only VOC emissions are expected from this modification project. The equipment is not subject to modeling requirements.

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

No VOC emission increases from this facility is expected under this project. Hence, offsets are not required.

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

The proposed project is not expected to result in emissions of toxic air contaminants. Thus, it complies with these requirements.

REGULATION XXX

The proposed project is considered as a “minor permit revision” to the current Title V permit for this facility since there is not an emission increase of pollutants subject to Reg. XIII or hazardous air pollutants. Rule 3000(b)(12) defines a “minor permit revision” as any Title V permit revision that does not result in any of the following:

- Emission increase of RECLAIM pollutants over the facility starting Allocation plus nontradeable Allocations, or a higher Allocation amount which has previously undergone a significant permit revision process,
- Emission increase in hazardous air pollutants (HAPs) or pollutants subject to Reg. XIII, or
- Installation of a new permit unit or the modification or reconstruction of an existing permit unit subject to a New Source Performance Standard (NSPS) per 40 CFR Part 60 or a National Emission Standard for HAPs per 40 CFR Part 61 or Part 63.

Rule 3003(j) specifies that all proposed Title V permit revisions shall be submitted to EPA for review. This is the third permit revision requested by the facility. The cumulative emission increases resulting from this proposed permit revision are summarized as follows:

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Revision	HAP	VOC	NOx	PM ₁₀	SOx	CO
Previous Revisions	0	0	0	0	0	0
5 th Revision	0	0	4	0	0	0
6 th Revision	0	0	0	0	0	0
7 th Revision	0	0	0	0	0	0
Current Revision (8 th)	0	0	0	0	0	0
Cumulative Totals	0	0	4	0	0	0
Maximum Daily	30	30	40	30	60	220

CONCLUSIONS/RECOMMENDATIONS

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “minor 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.