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ENGINEERING EVALUATION/FACT SHEET

B ACKGROUND INFORMATION

Application No.:	R13-2006E
Plant ID No.:	003-00026
Applicant:	MAAX US Corp
Facility Name:	Martinsburg
Location:	Martinsburg
NAICS Code:	326191
Application Type:	Modification
Received Date:	November 4, 2015
Engineer Assigned:	Edward S. Andrews, P.E.
Fee Amount:	$3,500.00
Date Received:	November 5, 2015
Complete Date:	December 2, 2015
Due Date:	March 1, 2015
Applicant Ad Date:	November 4, 2015
Newspaper:	*The Journal*
UTM's:	Easting: 762.3 km Northing: 4,376.4 km Zone: 17
Description:	The application is for UTILE production operation and removal of the acrylic bathware (Pearl Line) operation at the Martinsburg Facility.

DESCRIPTION OF PROCESS

MAAX US Corp (MAAX) owns and operates the Martinsburg manufacturing facility. The facility produces tub and shower units for the construction industry. These products are made of fiberglass reinforced plastic composite. The facility is configured with two continuous gel coat production lines and one acrylic production line.

The two continuous productions are nearly identical. Molds are placed on an overhead rail system that moves to mold to each of application stations. Gel coat is applied to the mold. The gel coat adds the color of the final product. Then, a layer of polyester resin is applied. Fiberglass mat is rolled or reinforcement legs/support parts are pressed into the resin or another

layer of resin is applied with chopped fiberglass fibers. The actual process steps are dictated by the end use of the product (i.e. tub, shower stall, etc.). Then another layer of resin is added. Then the product is removed from the production line and sent to the grinder and trim area, where the edges are trimmed/grinded off and desired end holes are cut out for drains or fixtures.

The UTILE process consists of the following steps (please refer to Attachment F):
Application of Clear Gelcoat – uses a manually operated mechanical atomizing gelcoat applicator. The clear gelcoat contains 36.5% wt styrene and 6.7% wt MMA and a very small amount of UV initiator. The emissions from the clear gelcoat enclosure are exhausted to the Dürr preconcentrator system.

2. Clear Gelcoat Cure – the gelcoated panels are placed in a vertical rack and the fresh gelcoat layer is allowed to rest while curing to a gelled stage. The emissions from the curing racks are drawn into the clear gelcoat enclosure and then conveyed to the Dürr preconcentrator system.
3. Final Clear Gelcoat UV Cure – the tacky gelled clear gelcoat layer is instantly hardcured using high intensity UV light. The cure is instant - there are no significant emissions.

4. Ink Printing – a special UV-cured ink is applied to the clear gelcoat surface using two high-speed ink jet printers. The ink formulations have extremely low vapor pressure and are instantly cured by the UV light. There are no emissions from the ink.

5. Application of Pigmented Gelcoat – uses a manually operated mechanical gelcoat applicator. The pigmented gelcoat contains < 30% wt styrene and < 31% wt total VOC. The emissions from the pigmented gelcoat enclosure are exhausted to the Dürr preconcentrator system.

6. Pigmented Gelcoat Cure – the pigmented gelcoat cures as the panel molds travel through the cure tunnel to step 7. The panel molds are placed on small carts that are pulled through the tunnel by an automated mechanical chain drive conveying system. The curing emissions from the curing tunnel are exhausted to the Dürr preconcentrator system.

7. Application of Resin and Glass Fiber and Rollout – occurs in one of two lamination enclosures at the end of the cure tunnel. The resin and glass is applied to the cured gel coated mold surface with a manually operated non-atomizing mechanical resin/glass applicator. The resin contains <35% wt styrene and total VOC. After application, the workers use hand roller tools to flatten and rollout the wet fibers into a solid compact laminate layer on the mold. The resin emissions from the lamination enclosures are conveyed to the Dürr preconcentrator system.

8. Laminate Cure – the laminate cures as the panel molds travel back through the cure tunnel to step 9. As in step 6, the panel molds are placed on small carts that are pulled through the tunnel by an automated mechanical chain drive conveying system. The curing emissions from the curing tunnel are exhausted to the Dürr preconcentrator system.

9. Demolding – the rough laminate panel part is mechanically separated from the flat panel mold. The panel mold is cleaned, repaired if needed, and prepared for the next mold cycle (which

restarts at step 1). There is a very small amount of VOC emissions from the mold cleaning and prep process.

10. Finishing – the rough panel edges are cut and smoothed in a small trim booth that is shared by both lines. The finished panel is inspected and sent to packaging for shipment to the customer. The exhaust air from the trim booth is filtered with an industrial vacuum system and returned to the plant space. There are no significant PM emissions to the atmosphere.

The UTILE production line will be located in the existing storage area in the manufacturing building.

SITE INSPECTION

On November 11, 2014, Mr. Dan Bauerle, an inspector assigned to the Enforcement and Compliance Section of the DAQ, conducted a routine inspection of the facility. Mr. Bauerle found the facility to be operating in accordance with the facility's Title V Operating Permit, which incorporates all requirements from applicable rules, regulations, and permits into one enforceable document. Due to the nature of this change, the writer deemed that a site inspection of the facility for the proposed UTILE manufacturing operation is not necessary.

ESTIMATE OF EMISSION BY REVIEWING ENGINEER

The applicant provided emission estimates from the new UTILE process for styrene, methyl methacrylate (MMA), and volatile organic compounds. Styrene and MMA are classified as VOCs and hazardous air pollutants (HAPs). These estimates were based on the appropriate methods outlined in ANSI/ACMA Unified Emission Factors for these pollutants. MAAX plans on venting the UTILE manufacturing process to the existing preconcentrator system to control styrene and VOC emissions.

Table #1 – Potential Emission from the UTILE Line						
Pollutant	Styrene		MMA		VOCs	
Units	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Uncontrolled	43.46	190.35	3.64	15.96	48.70	231.30
Controlled	7.39	32.36	0.62	2.71	8.27	36.26

These calculations take into account the control efficiency of the Durr control device that is monitored monthly according to the existing permit.

Particulate matter emission generated due to the trimming and sanding of the finished UTILE sheets will be captured and collected in high efficiency dust collection system with the return exhaust being vented inside the manufacturing building. The edges of the UTILE sheets are going to be straight lines unlike the trimming and sanding of the bath unit, which are

irregular shapes. Thus, these operations for the UTILE will be minimal compared to the bath unit lines which have a potential of 0.06 tons per year after controls. The manufacturing building vents to the Dürr preconcentrator system. The Dürr preconcentrator system has pre-filter up stream of the actual preconcentrator wheel to prevent contamination of the carbon wheel of the preconcentrator from being fouled with particulate matter.

REGULATORY APPLICABLILITY

The proposed UTILE process made by MAAX does not affect the facility's applicability status with any rules or regulations. The facility will remain subject to 45 CSR 6, 45 CSR 7, 45 CSR 30, 45 CSR 34, and Subpart WWWW of 40 CFR 63.

The proposed UTILE process clearly increases potential VOC and HAP emission rates above the Rule 13 modification threshold values of 6 pounds per hour and 10 tons per year of VOCs (45 CSR §13-2.24.b.); and 2 pounds per hour or 5 tons per year of total HAPs (45 CSR §13-2.24.c.). Thus, MAAX is required to obtain a modification permit pursuant to 45 CSR 13.

The potential increase of VOC brings the facility wide potential of VOCs up to 266.13 tons per year. Thus, the facility's status as a minor source under the PSD program (45 CSR 14) will be changed to a major source once the modification is complete. Because this only has the potential to increase VOC emissions of 36 tons per year, no Prevention of Significant (PSD) review is required for this proposed modification. However, any further changes to the facility will have to undergo PSD review to determine if a major modification of a major source is triggered.

The trimming and sanding is subject to 45 CSR §7-5.1., which requires MAAX to control fugitive particulate. MAAX proposes to use a high efficiency dust collection system which vents the exhaust inside of the manufacturing building. The current manufacturing building meets the criteria of a permanent total enclosure. This space (exhaust contained in the manufacturing building) is controlled by the Durr preconcentrator system, which is subject to 45 CSR 6 as an incinerator. MAAX proposed that the modification will not increase of amount of particulate matter to be emitted from the control device (Durr preconcentrator system). Therefore, the permit will only have to include requirements to control the dust from the trimming and sanding operation as required by 45 CSR §7-5.1.

MAAX's operation is classified as an existing major source of HAPs under 40 CFR 63, Subpart WWWW – National Emission Standard for Hazardous Air Pollutants (4W NESHAP): Reinforced Plastic Composites Production. The proposed changes do not affect the facility's ability to comply with this regulation. The writer determined that the proposed operations would be operating at 83% of that HAP weighted average compliance option under Subpart WWWW without the use of the existing control device.

As a result of these changes, the source is required to submit a significant modification application for their Title V Operating Permit within 12 months after start-up of the process.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The proposed changes will not emit any pollutants that aren't already being emitted at the facility. Therefore, no information about the toxicity of the hazardous air pollutants (HAPs) is presented in this evaluation. Further, the facility is currently and will remain a major source for HAPs and these emissions are regulated under the 4W NESHAP.

AIR QUALITY IMPACT ANALYSIS

The writer deemed that an air dispersion modeling study or analysis was not necessary, because the proposed modification is not major under 45 CSR 14 by itself.

MONITORING OF OPERATIONS

The current monitoring and record keeping will remain in place. MAAX is required to use monitored and production data to determine actual emissions on a monthly basis, which they currently perform for Title V Reporting purposes (Emissions Inventory and Certified Emission Statements).

Because the applicant will be modifying the duct work for the collection system and adding the fifth preconcentrator wheel to the control device, the writer recommends requiring a test to demonstrate that the building meets the requirements of a permanent total enclosure and verification under EPA Test Method 204 six months after either installation of the fifth preconcentrator wheel or start-up of the 2nd UTILE Process Line. Requiring an actual test to demonstration compliance with the actual emission limit is not necessary because the existing permit requires monitoring of styrene concentration levels to determine the control efficiency of the preconcentrator on a monthly basis. Once the efficiency drops below 83%, the permit automatically requires a performance test to be conducted.

CHANGES TO PERMIT R13-2006C

The main focus of changes to the existing permit as a result of this modification is the increase in the VOC emission limits of the preconcentrator /RTO in Condition 4.1.2. and the requirement to control dust emissions from the sanding and trimming of the UTILE sheets.

The UTILE process would use clear production gel coat, which has a different HAP Emission Limit under Table 3 to Subpart WWWW of Part 63. This limit was added to Table 5.1.2. of the permit.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates the proposed modification of the facility will meet all the requirements of the applicable rules and regulations when operated in accordance to the permit application. Therefore, the writer recommends granting MAAX US Corp. a Rule 13 modification permit for the UTILE process located to be at their Martinsburg facility in Martinsburg, WV.

Edward S. Andrews, P.E.
Engineer

December 18, 2015
Date