

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection**

N214824550

FACILITY: Key Plastics L.L.C. - Howell Plant		SRN / ID: N2148
LOCATION: 1301 McPherson Park Dr., HOWELL		DISTRICT: Lansing
CITY: HOWELL		COUNTY: LIVINGSTON
CONTACT: George McLaughlin , Health, Safety & Environmental Coordinator		ACTIVITY DATE: 03/18/2014
STAFF: Daniel McGeen	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Partial Compliance Evaluation (PCE) activities, conducted as part of a Full Compliance Evaluation (FCE): 1.) unannounced, scheduled inspection; and 2.) review of facility recordkeeping.		
RESOLVED COMPLAINTS:		

On 3/18/2014; staff of the Department of Environmental Quality (DEQ), Air Quality Division (AQD), conducted an unannounced, scheduled inspection of Key Plastics LLC's Howell plant. This was a Partial Compliance Evaluation (PCE) activity, conducted as part of a Full Compliance Evaluation (FCE). Records were also reviewed at the plant, which was a second PCE activity. Synthetic minor facilities are periodically required to undergo a FCE, as part of AQD's annual Compliance Monitoring Strategy.

Facility environmental contacts:

Tim Lane, Manufacturing Engineering Manager; 517-546-1900, ext. 25296; tlane@keyplastics.com

George McLaughlin, Health, Safety & Environmental Coordinator; 517-546-1900, ext. 25238; gmclaughlin@keyplastics.com

Facility description:

Key Plastics LLC's Howell plant creates injection molded plastic parts for the auto industry, and coats them. They also perform some minor assembly.

Emission units:

Emission unit ID	Emission unit description	Control equipment	Permit to install or exemption	Operating status
EU-PBPLINE2	Plant 2 consists of a plastic parts coating system, which includes a paint mix room, water-based power wash system, seven downdraft water wash spray booths, and two bake ovens with associated control equipment	Water wash control for spray booths, fabric filter collector and subsequent rotary zeolite concentrator and recuperative thermal incinerator for the ovens	275-02	Compliance
2 dry filter paint spray booths	Two paint spray booths, considered Rule 287(c) exempt, which have been removed from plant	Dry particulate filters	Rule 287(c)	Removed from plant
EU-INJECTMOLD	31 plastic injection molding processes		Rule 286(b)	Compliance
EU-SPACEHEATERS	All plant fuel burning equipment (space heaters, booth ovens, recuperative thermal incinerator)		Rule.282(b)(i)	Compliance
FG-FACILITY	All equipment in the stationary source including equipment covered by other permits, grandfathered equipment and exempt equipment			Compliance

Regulatory overview:

This facility has a synthetic minor permit, Permit to Install (PTI) No. 275-02, which contains restrictions that limit the facility's Potential to Emit (PTE) of Volatile Organic Compounds (VOCs) to below the 100 ton major source threshold. Major sources of criteria pollutants, such as VOCs, are required to obtain a Renewable Operating Permit (ROP). The PTI also limits the plant's PTE for Hazardous Air Pollutants (HAPs), to less than the major source threshold of 10 tons per year (TPY) for any single HAP, or 25 TPY for total HAPs.

Fee status:

This facility reports annually through the Michigan Air Emissions Reporting System (MAERS). It is not considered fee-subject, however, because it is not a major source, nor is it subject to a federal New Source Performance Standard or Maximum Achievable Control Technology Standard.

Recent history:

The Key Plastics Howell plant had recently been considered by its owners as a candidate for closure, in 2012, for economic reasons. Business was increasing here, however, and the facility remained open. It has received work from a facility which was closed, instead. Business has increased enough, that the company has leased space in an industrial building across the street to the south, owned by Brio Development.

The Key Plastics Howell plant was once known as Libralter Plastics. AQD received frequent odor complaints regarding this source, from 1995 through 1999. The replacement of the original recuperative thermal incinerator with a more advanced unit, in 2000, and an associated increase in stack height of 13 feet, appeared to resolve the odor issue, for the most part. The most recent odor complaints received by AQD were one in 2008, and one in 2010.

Location:

The Key Plastics Howell plant is in an industrial park on the west side of Howell. Roughly 400 feet to the north and east is a large subdivision, so odorous emissions would have the potential to impact neighbors. Several hundred feet to the southeast, south, and west are other industries.

Arrival:

Prior to stopping at the plant, I drove along McPherson Park Drive in each direction, to check for odors. Around 9:48 AM, I detected an odor which was difficult to describe, and which I did not believe to be associated with Key Plastics. It did not smell like paint, solvents, or musty odors that can sometimes be associated with water wash control systems for capturing paint particulates. I suspected the odor came from a facility to the east of Key Plastics. Weather conditions were 30 degrees F and partly sunny, with winds out of the southeast at 10 miles per hour.

When I arrived at Key Plastics, there were no visible emissions from the plant, other than steam. I then met with Mr. Tim Lane, Manufacturing Engineering Manager, and Mr. George McLaughlin, Health, Safety & Environmental Coordinator. I provided them with the DEQ brochure "Environmental Inspections: Rights and Responsibilities."

We discussed how Key Plastics is now leasing space in a building now owned by Brio Development, on the south side of McPherson Park Drive. This building was once owned and operated by International Paper as a cardboard box manufacturing plant, but it closed in 2009. Key Plastics uses the leased space to ship finished products from, and to receive component parts for their products. Key Plastics also has some minor assembly processes there, which they indicated do not have any emissions. The boiler for heating the Brio building has a Permit to Operate, and is associated with State Registration Number (SRN) A2913. It is not under the operational control of Key Plastics, and it is believed that the boiler was actually removed from the building. We inspected the warehouse and minor assembly processes there (documented in a separate activity report), and they do not appear to contribute to the Potential to Emit of the Key Plastics Howell plant, SRN N2148.

Inspection:

We first observed assembly operations within the Howell plant. I was informed that there are no sawing/cutting processes, just installation of pins and parts, with some flaring of metal (squeezing the metal, to impart a slight change of shape to it).

EU-PBPLINE2; PTI No. 272-02:

The power wash system has 5 stages, and operates at a pressure of 15 pounds per square inch (psi). Stage 1 is the pre-clean; stage 2 contains the cleaner itself (surfactant); stage 3 is a rinse stage with city-

supplied water; stage 4 contains previously used reverse osmosis (RO) rinse water; stage 5A contains recirculated RO rinse water (cleaner than in stage 4); and stage 5B, the Halo rinse, contains virgin RO water, plus Aqua Shed, a rinse agent which prevents water spots on parts. They try to reuse the RO water, as much as they can. Natural gas is used to heat the water in the wash system. It is not uncommon to see a steam plume from the two booth exhaust stacks, during the cold months of the year.

Air nozzles blow water droplets off the freshly washed parts, which then enter a natural gas-fired dry off oven. A tunnel serves as a cool down area for the parts, which are then ready to be primed.

We observed the paint room or paint mix kitchen, where paint travels through paint lines to the spray booths.

The plastic parts coating system consists of manual prime booths 1 and 2, base coat booths 1 through 3, and clearcoat booths 1 and 2.

Prime booths 1 and 2 are manually operated, with two hand held High Volume, Low Pressure (HVLP) spray guns per booth, which apply an adhesion promoter. Parts receive their first coating in booth 1, and their second coating in booth 2. A water wash paint system is used to capture particulate emissions of paint droplets. Air enters through the top of the booths, and is drawn through the water. The parts coated with adhesion promoter pass through a bake oven, where zone 1 is around 210 degrees F, and zone 2 is around 270 degrees F. The booths were operating at the time we observed them, but no parts were being run through them.

Base coat booths 1 and 2 are used for applying color coats to parts, and utilize two robotic, electrostatic spray guns per booth. The part racks are negatively charged, the part are grounded, and the paint is positively charged, so the paint is drawn to the parts, minimizing waste. Parts were being painted in the second booth, during the inspection. Base coat booth 3 is used strictly for touching up parts, and is manually operated, with two HVLP guns. It is used only occasionally. These booths were identified as numbers 3, 4, and 5, in the previous AQD inspection report.

Clear coat booths 1 and 2 apply successive layers of clear coat. Each booth uses two robotic, electrostatic spray guns. There is enough of a flash off area after booth 1, to prevent runs when booth 2 applies the next layer of clear coat. Clear coat is used in the automotive industry, as it is more durable and scratch resistant than color coats. These booths were identified as numbers 6 and 7, in the previous AQD inspection report.

The paint spray guns are purged with clean up solvents, by spraying into a funnel. These solvents are collected for proper disposal.

During the inspection, we observed the area where collected paint solids are removed from the water which circulates through the water wash system. The water can be reused for 1.5 to 2 years, before needing to be changed out. When I asked why they do not use dry filters for EUPBLINE2, they explained it would not be practical or economical, because dry filters would need to be replaced multiple times per day, due to the large amounts of coatings they apply.

The control technology for the bake ovens is a rotary zeolite concentrator, with recuperative thermal incinerator, preceded by a three stage fabric filter collector. The fabric filter protects the more delicate control devices which follow it from damage that could be caused by airborne particulate matter. Such damage would be extremely costly to repair. The recuperative thermal incinerator is also known as a regenerative thermal oxidizer, or RTO. It is rated at a 90% capture rate and 95% destruction efficiency, for VOC emissions.

There were no visible emissions from the RTO exhaust stack. I collected data from the controller, as follows:

Desorb setpoint: 355 degrees F

Desorb actual temperature: 356 degrees F

RTO setpoint: 1,550 degrees F

RTO actual temperature: 1,548 degrees F

PTI No. 275-02 requires a minimum temperature of 1,300 degrees F, so they are well above that. The permit contains a required daily maintenance check sheet for the RTO, as Appendix A. I was informed that their maintenance department fills out a more detailed maintenance check sheet, every two hours.

Two removed dry filter paint booths:

At the time of the 2012 AQD inspection, the plant had two dry filter paint booths, down from the original four, which dated back to 1989, according to engineering notes in PTI No. 275-02. These two booths were considered exempt under Rule 287(c), and were not written into EU-PBPLINE2 in PTI No. 272-02. Each booth had a PTE of 7.2 TPY for VOC, according to the engineering notes by AQD's Julie Brunner.

Plastic injection molding machines; Rule 286(b):

At the time of the 2012 AQD inspection, they had 28 plastic injection molding machines. They now have a total of 31, and the newest unit is still being installed. Their 2013 MAERS report reflects the 30 operating ones they had, during 2013. I e-mailed Mr. McLaughlin after the inspection, to ask about the PTE for VOCs from the current number of injection molding machines. He provided a copy of their emission calculations from their MAERS report for calendar year 2013, showing actual VOC emissions to be very low, at 0.101 tons of VOC.

Review of facility recordkeeping:

Mr. McLaughlin and I reviewed facility recordkeeping. They keep the data both electronically, and in hard copy, for well beyond the required 5 year minimum in their PTI. The paper forms they use allow the preparer at the plant to check permitted limits against actual emissions, and identify the compliance status on each form with a check mark. I was informed that they have never had an instance of noncompliance. I observed a record of every coating that they have ever used at the plant.

For EU-PBPLINE2, their monthly VOC reports show the VOC totals for each day of that month. For February, 2014, the date with the highest VOC emissions was 2/10, with 327.4 lbs. This is slightly less than half of the permitted daily VOC emissions of 662.4 lbs.

For EU-PBPLINE2, at the end of February 2014, 12-month rolling total emissions were 29.58 tons of VOCs. This is less than half of the 65 TPY VOC limit.

VOC emissions from purge solvents for EU-PBPLINE2 are limited to 10% by weight of total solvent usage for this activity, as averaged on a monthly basis. For the last 12 months, I was informed that their purge solvent emissions have averaged 2-4%, well below the limit. They undergo one cleaning period of 2 months around July, and another cleaning period of 2 months around December, where the emissions rise to about 5%.

According to the MAERS report for 2013, plantwide VOC emissions for the calendar year were 31.77 tons. This is below the permitted yearly VOC limit of 90 TPY for FG-FACILITY, and the permitted yearly VOC limit of 69.0 TPY for EU-PBPLINE2.

They track monthly and yearly HAP emissions. Per a request I made on 4/7, Mr. McLaughlin e-mailed me a copy of recent HAP recordkeeping (attached for reference). For the month of March, 2014, total HAP emissions were 0.19 tons. For the 12 month rolling time period ending on 3/31/2014, total HAP emissions were 2.58 tons, well below the 22.5 TPY per year allowed by PTI No. 275-02. The individual HAP with the highest emissions during that 12 month rolling time period was xylenes, at 0.83 tons, well below the 9.0 TPY allowed by the permit.

Conclusion:

I left the facility at 12:15 PM. The plant appeared to be clean, neat, and orderly. The facility recordkeeping was detailed and well organized, and provided the reader with the ability to check compliance at a glance. I could not find any instances of noncompliance, nor any areas of concern, during the inspection or review of recordkeeping. Facility staff were very knowledgeable and helpful.

NAME *[Signature]*

DATE 4/7/2014

SUPERVISOR *[Signature]*