

FY 2019 Insp

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Self Initiated Inspection

U-63-11-0447

U6311044747359

FACILITY: SABIC- Exatec Innovative Plastics Company		SRN / ID: U63110447
LOCATION: 31220 Oak Creek Road, Wixom		DISTRICT: Southeast Michigan
CITY: Wixom		COUNTY: OAKLAND
CONTACT:		ACTIVITY DATE: 12/07/2018
STAFF: Iranna Konanahalli	COMPLIANCE STATUS: Compliance	SOURCE CLASS:
SUBJECT: FY 2019 inspection of SABIC Innovative Plastics Company ("SABIC")		
RESOLVED COMPLAINTS:		

SABIC Innovative Plastics Company (U-63-11-0447)
fka EXATEC, LLC
31220 Oak Creek Road
Wixom, Michigan 48393-2432

Not Subject to: NESHAP/ MACT T, area source National Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning (40 CFR, Part 63, Subpart T; NESHAP/ MACT T); Correction; 29484 Federal Register / Vol. 60, No. 107 / Monday, June 5, 1995 / Rules and Regulations; amended National Air Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning (40 CFR, Part 63, Subpart T); Final Rule; Page 25138 Federal Register / Vol. 72, No. 85 / Thursday, May 3, 2007 / Rules and Regulations. Sabic does not use halogenated organic compounds.

On December 07, 2018 I conducted a level-2 self-initiated **FY 2019 inspection** of SABIC Innovative Plastics Company ("SABIC"), fka EXATEC, LLC, a prototype, R&D, testing company for polycarbonate windows and windshield, located at 31220 Oak Creek Road, Wixom, Michigan 48393-2432. The inspection was conducted to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451 and Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) administrative rules.

During the inspection, Mr. Mike DeLuka (Phone: 248-926-4210; Fax: 248-960-1143; Cell: 248-787-3226; E-mail: Michael.DeLuka@Sabic.com), Environmental, Health & Safety Manager, assisted me.

Mr. Bien (Billy) T. Bui (Phone: 248-926-4267; Fax: 248-960-1143; E-mail: Bien.Bui@Sabic-ip.com), Facilities Manager, separated about July 2014.

Founded in 1998, FEXATEC, LLC, a polycarbonate windshield glazing company of Wixom, was a 50-50 joint venture between Bayer Materials and GE Plastics. SABIC, a Saudi Arabia based industrial chemicals company, bought GE plastics in 2008. Subsequently, it also bought all outstanding Bayer shares. About 60 employees (mostly in sales) are present at this Wixom site including about 7 in production.

Founded 1976 by Royal decree, based in Riyadh, Saudi Arabia, SABIC is world's largest petrochemical company (70% owned by Saudi Government and rest 30% shares are publicly traded). SABIC operates in over 50 countries and employs about 35,000. SABIC consists of four business units: petrochemicals, Specialty Chemicals, Agri-Nutrients and Metals.

SABIC developed new range of Lexan GLX polycarbonate resins for automotive glazing. Lexan GLX polycarbonate resins are already used in high performance racing vehicles. Polycarbonate is 50 percent lighter than glass. Lexan GLX polycarbonate resins provide high impact strength, UV protection and light weight.

At Wixom site, for marketing purposes, a small-scale production for prototypes is done. The facility develops polycarbonate windows and windshield for cars and trucks. SABIC develops coatings for polycarbonate applications including R & D, testing and prototype. At Wixom facility, SABIC employs total of 60 employees: 7 (reduced to 7 [Dec 2018] from 20 [2015]) in production and the rest in sales, service and marketing. According to Mr. DeLuka, SABIC is concentrating on marketing. Polycarbonate windows in cars and trucks can reduce vehicle weigh; lower weight helps improve mileage (miles / gallon). At this Wixom facility, only prototype light-weight polycarbonate products are made for marketing purposes. Often the products are installed on vehicles and tested for weight reduction versus miles-per-gallon improvement. SABIC found some gains in mileage (miles per gallon) as result of glass weight reduction using vehicles available for consumers such as FCA Jeep Commander. SABIC is not able to compete due to polycarbonate being expensive relative to traditional glass products in automotive industry.

Thermal Injection

One Thermal Injection (one-component) molding machine for polycarbonate windows production is present; a couple of more injection machines may be installed in near future. Release coatings are not used; hence, no volatile organic compounds (VOC). About 100 gallons / month of IPA alcohol is used for cleaning and waste IPA is disposed of according to RCRA.

Zoned heater is controlled for temperature based upon material. A robot is present to install the part.

Thermal Injection molding machine is exempt from Rule 336.1201 pursuant to Rule 336.1286.

One 10 ft. * 6 ft. spray booth (open booth) – Idle but operable since 2013

One spray booth, which uses about 0 (idle) gallon per month of paints / coatings is present. The booth is equipped with back-draft dry filter system. The booth is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1287(2)(c). SABIC wants the booth to be operable.

During the FY2011 inspection, I found holes and gaps in the dry filter system. I asked Mr. DeLuka to install the filters such that they fit, at all times, snugly without gaps and holes. I also asked him to keep records of paint and solvent usage.

Mr. Bien (Billy) Bui stated that the booth had been idle since January 2013; it is now used as storage space. The booth continues to be idle (FY 2019).

Four Cutting saws

4 cutting machines are present. Each machine has its own capture device for particulate matter emissions. The captured particulate laden exhaust gases are transported via

dedicated hoses to two (2) large bags (each bag: 2 feet diameter and 6 feet height). Collected particulates are dropped into two plastic bags for disposal. Cleaned exhaust gases are released to in-plant environment. The bags are like saw dust bags in carpentry / millwork / woodworking industry.

The machines are exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285 (2)(l).

Silkscreen printing machines –Idle but operable since 2012

Two silkscreen printing machines are present to draw designs on polycarbonate windows. The silkscreen printing is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1287(2)(e).

Silkscreen booth cleaning uses Easi-Sol (C-99) solvent. Silkscreen machines are hardly used for the last few years (CY2012-2018).

Easi-Sol C99 Solvent (EasyWay Systems, Inc., Delano, MN 55328, 763-972-6306)

Greater than 99 percent propylene carbonate CAS 108-32-7

VOC = 0.8 pounds per gallon (99 g/L)

Flash Point (FP) = 200 °F TCC. Auto Ignition = NA °F. Boiling Point (BP) = 444 °F @ 760 mm Hg. Vapor Pressure (VP) = 0.02mm Hg at 68 °F. Specific Gravity (SG, Water = 1.0) = 1.19. Density (ρ) @ 68 °F = 9.9 lbs. / gallon (1.19 kg /L). Flammability range = NA %v (LEL) – NA% v (UEL).

Coating process enclosure in a room (100% CE) with thermal oxidizer

Plaques are first cleaned using IPA rags. Plaques are then cleaned using deionized air. Water based primer is applied and thermally cured. Window is cooled. Then solvent based topcoat is applied. Topcoat is flashed off. Topcoat is thermally cured. Both primer and topcoat coating are done in the same room. One natural gas fired oven (170 °F), where the coatings are cured, is present. All coatings are clear (see-through) coatings.

The VOC control room is 1,000 Class Clean Room (maximum 1,000 particles of > 0.5 micrometer per cubic feet) based upon particulate matter (PM) in the room. SABIC Clean Room has about 200 particles per cubic feet. An overhead conveyor is present.

VOCs from the entire room, which has a total enclosure, are controlled using a natural gas fired thermal oxidizer (1.25 MM BTU per hour) maintained at 1200 °F. A log of oxidizer temperature is maintained. VOC laden air flow is 100 cfm. Thermal oxidizer is made by Consolidated Engineering Company of Atlanta, Georgia (Serial No.: 12532; Model: Thermal Oxidizer; Date: 05/13/2008; Max heat input: 1.25 MM BTU per hour). The coating process is intermittent and not continuous. Hence, thermal oxidizer is used sparingly.

60 gallons per month of water-based primer and 60 gallons per month of solvent based topcoat were used before (few years ago). In 2018, as production activity has been substantially reduced, 10 gallons per month coatings were used.

The booth / room is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1287 (2)(c).

Plasma coating chamber

This is plasma enhanced chemical vapor deposition process.

Windows are loaded and locked in the plasma coating chamber. Heating station heats a window. At station #1, layer #1 is deposited. At station #2, layer #2 is deposited for durability. Plasma coating chamber is under vacuum (40 mili Torr). Argon arc plasma generator deposits silicone salaxine coatings. The exhaust from the chamber is pumped using four stages. All contaminants are condensed by cooling (40 °F). In addition to condenser, cartridge filters are present to further clean air after condenser. Purified air is exhausted via a stack.

1 Torr = 1/760 atm. 1 atm = 101,325 Pascals (Pa) = 1.013 bar. 1 bar = 100 kilo Pascal (kPa).
1 Pa = 1 N/m².

Condensed material at 40 °F is disposed of as RCRA hazardous material due to flammability via incineration.

The chamber is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1283 because all work is R&D, prototype.

Safety-Kleen and Chicago Electric Power Tools cold cleaners

In CY 2001, Safety-Kleen cold cleaner was removed. However, few years ago (2014), Chicago Electric Power Tools Parts Cleaner was installed.

One unit (5 ft. * 3 ft. Chicago Electric Power Tools Parts Cleaner # 41108), which may be described as "soaker tank" (no reservoir drum), is present. Mineral spirits, a low vapor pressure organic solvent, is used as a cleaner. This equipment is hardly used.

The cold-cleaners are subject rule 336.1611 or 336.1707 depending on if it is new or existing. A cold-cleaner is exempt from Rule 336.1201 pursuant to Rule 281(2)(h) or Rule 285(2)(r) (iv). Existing (611) cold cleaners were placed into operation prior to July 1, 1979. New (707) cold cleaners were placed into operation on or after July 1, 1979.

Mineral spirits containing no halogenated solvents is used. The Cold-cleaners is NOT Subject to: 40 CFR, Part 63, Subpart T, NESHAP/ MACT T, since solvents containing halogenated compounds are not used.

During FY 2016 inspection, I gave DEQ's decals for "cold-cleaner operating procedures" for posting and complying with work-practice rules. I asked the company to follow the common sense work practice in the procedures.

DEQ's decal of operating procedures was posted. Mechanically assisted lid was closed.

Naptha Petroleum Distillate CAS 64742-48-9. Mineral Spirits (Univar USA, Inc. Redmond, WA, 425-889-3400)

100% VOC solvent. Flash Point (FP) = 120 °F TCC. Auto Ignition = 689 °F. Boiling Point (BP) = 340-376 °F @ 760 mm Hg. Vapor Pressure (VP) = 0.106 kilo-Pascal (kPa) at 20 °C. Specific Gravity (SG, Water = 1.0) = 0.759. Density (ρ) @ 68 °F = 6.33 lbs / gallon (0.759 kg /L). Flammability range = 0.7 %v (LEL) – 5.4%v (UEL). Viscosity = 1.39 centistokes

Conclusion

All process equipment are exempt from Rule 201 (Permit-to-Install) pursuant to Rules 281, 283, 285, 287

NAME *J. McManahall* DATE *12/19/2018* SUPERVISOR *Joyce*

