DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

D806563036

FACILITY: Dart Container Corporation of Michigan		**SRN / ID:** D8065
LOCATION: 432 Hogsback Rd, MASON		**DISTRICT:** Lansing
CITY: MASON		**COUNTY:** INGHAM
CONTACT: Don Wiltse , Regulatory Engineer		**ACTIVITY DATE:** 05/23/2022
STAFF: Samantha Davis	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Full compliance review for compliance with MI-ROP-D8065-2020.		
RESOLVED COMPLAINTS:		

Safety Equipment Needed: Earplugs, safety glasses, safety-toe boots, hair nets (provided).

Purpose: Scheduled inspection for compliance with Renewable Operating Permit MI-ROP-D8065-2020.

Location: Dart Container Corporation is in its own industrial park near a residential area outside the city limits of Mason. The closest residence is approximately 350 feet away and the Aurelius and Vevay Drain passes through the Dart complex property.

Facility Background/Regulatory Overview: Dart Container production operates 24/7; the engineering and administrative sections operate generally 8am-5pm Monday –Friday.

Dart manufactures foam containers from expandable polystyrene (EPS) beads impregnated with pentane. The containers are sold to numerous distributors. There are a total of 8 buildings for the site; Building 1 is the Cup Plant where all manufacturing takes place, Building 2 holds office space for Graphics, Travel, Procurement, etc., Building 3 is an employee recycling center drop off center, Building 4 houses Machinery Manufacturing (Dart builds and fabricates all of its machinery), Building 5 is the old storage building now used for machine design and R&D with truck maintenance garage (most of the equipment housed in Building 4 will be moved to Building 5 relatively soon), Building 6 is the new corporate office with the HR and marketing office, Building 7 is the new warehouse, and Building 8 is for facilities and grounds maintenance.

In 2012, Dart Container purchased the Solo Cup Company. Although the manufacturing plants remain where they were at the time of the acquisition, the Solo corporate headquarters were consolidated with the Dart headquarters in Mason. This consolidation required an increase in office space which was recently completed along with an additional storage and shipment building of approx. 475,000 square feet.

The NAICS code reported to MAERs for the Mason plant is 326140 "Polystyrene Foam Production Manufacturing". Dart Container is an ROP source which is Major for Volatile Organic Compounds (VOC). The primary VOC pollutant is pentane. Pentane is not identified as a HAP according to the EPA. However, it is identified as a Toxic according to state of Michigan AQD toxic rules with an Initial Threshold Screening Level (ITSL) of 17,700 µg/m³ over an 8-hour average which is the equivalent of 17.7ppm.

Process Explanation: Expandable polystyrene (eps) beads (beads look like little glass beads) impregnated with pentane are dumped from large bags and augured into controlled storage bins (this is the first stage of control), the beads go to a pre-expander, where they are partially expanded, then are sifted for size, with larger beads separated and recycled; the beads then go into a cascade drier and The pentane is then routed to a cyclone for water drop-out where a pentane CEM is located (this is the last stage of pentane control where all pentane is vented to the onsite boilers, each boiler has pitot tubes installed to determine scfm); after the graders (sifters) the partially expanded beads are sent to the 136 cup mold machines (with 6-19 cavities each) which then use boiler steam heat to completely expand and mold the beads into cups (this is the first stage of EU-CUPSTORAGE); cups are then sent to printing area if required followed by packaging; once packaged the cups are transported throughout to the appropriate storage area. It is estimated that once formed into cups, most of the remaining pentane is emitted within the first 30 days. They calculate this by multiplying their production for the month by the emission factor and that gives them the fugitive emissions from the cup storage.

MAERS Reporting: Facility is a Category 1 site in MAERS.

NAICS Code: 326140 Polystyrene Foam Production Manufacturing

Inspection:

Arrived: 9:30 AM

Departed: 12:30 PM

This was a scheduled, full compliance evaluation inspection. Upon entering the parking lot and the building, I did not detect any odors or see any visible emissions. Paula and Don informed me that production in 2021 was down about 50%.

Table 1-1: Emission Unit List, Section 1 in ROP, Building 1 emission units.

Emission Unit	Description
EU-RECGRIND	Recycle grinder used in the recycle center to recycle both pre and post-consumer polystyrene foam. Installed 10/01/2018.
EU-RECDENSIFY	Recycle densifier used in the recycle center to recycle both pre and post-consumer polystyrene foam. Installed 03/08/2019.
EU-CUP	Cup manufacturing process: Dart produces foam containers made from expandable polystyrene (eps) beads impregnated with pentane using a steam chest molding process. Installed 4/1/1960
EU-CUPCOLDCLNRS	All Cold Cleaners covered by Section 1 of ROP. Installed 11/89
EU-UVPRINT&CLEAN	UV ink printing of foam containers. Includes ink and Isopropyl alcohol clean up. Installed 4/1/1960
EU-BOILER5	Steam Boiler: 600 hp boiler used to produce steam for cup mfg process. Primary fuel is natural gas with #2 fuel oil as backup. Installed 1/1/1970
EU-BOILER7	Steam Boiler: Boiler #7 is a 700 hp steam boiler which is used to produce steam for the cup mfg. process. The boilers primary fuel is natural gas with No.2 fuel oil as backup. Installed 1/1/1976
EU-BOILER8	Steam Boiler: 800 hp boiler used for steam production for container mfg process. Primary fuel is natural gas; no backup fuel. Installed 1/1/1987
EU-CUPLIGHTS	Emergency generator for Cup Plant lights. Unknown; pre-1980.
EU-CUPSTORAGE	Pentane emissions from the storage of cups. The actual installation date of the process is 04/01/1960, which coincides with the original cup manufacturing process. Emissions were

	quantified by testing pentane content in cups post production and then again 30 days later. In 2014 AQD determined that the emissions should be reported to MAERs starting in 2013. Installed 1/1/2013

Table 1-2: Emission Unit List, Section 2 in ROP.

Emission Unit	Description
EU-B5CHRMPLATR	**Hard chromium electroplating process used to chrome plate polystyrene container molds. Includes two plating tanks (tank4A and 4B), each with 2,000-amp rectifier, and associated cleaning and rinse tanks (tanks 2,3,5, and 6). Tanks 4A and 4B are controlled by two 3-stage composite mesh pad scrubbers with a 4th stage HEPA filter. Tank 2 is controlled by wet packed bed fume scrubber. Installed 09/11/2018.**
EU-B5STRIPTANKS	**Chrome stripping tank (tank 7) for stripping of molds in preparation for re-plating and associated rinse tanks (tanks 8 and 9). Tank 7 is controlled by wet packed bed fume scrubber. Installed 09/11/2018.**
EU-B5STRIPEVAP	**ENCON thermal evaporative system, natural gas fired (650,000 Btu/hr), with a built-in mist eliminator. Installed 09/11/2018.**
EU-MMCOLDCLNRS	**All Cold Cleaners in Section 2 of ROP. Installed 9/5/2006**
EU-RULE290-2	**Any existing or future emission unit that emits air contaminants which are exempt from the requirements of R 336.1201 pursuant to R 336.1290.**

Table 1-3: Emission Unit List, Section 3 in ROP.

Emission Unit	Description
EU-CORPGEN	**Emergency Generator for Building 2 (formerly Bldg 3). Installed 4/1/2009**
EU-UVPRINT&CLEANB5	**UV printing, R&D, and cleanup operations in Bldg 5. Installed 6/2008**
EU-DIEOVEN	**Electric fired furnace to clean die heads for R&D extrusion operations. Vented to in-plant environment through fabric filter. Installed 2/1/2012**
EU-FIREPUMP3	**Emergency fire pump engine. Installed 4/1/2013**

EU-FIREPUMPGEN	**Emergency generator for fire pump replaced EU-FIREPUMP2-S3. Installed 6/17/2016**
EU-B6GEN	**Emergency Generator for Building 6. Installed 6/1/2013**
EU-B7GEN	**Emergency Generator for Bldg 7. Installed 12/6/2014**
EU-B5GEN	**Emergency Generator for lighting purposes. Installed 09/01/2014**
EU-B2GEN	**Emergency Generator for lighting purposes. Installed 11/25/2015**
EU-B9GEN	**Emergency Generator for lighting purposes. Installed 01/01/2019**

Recordkeeping: I received recordkeeping materials by email following the inspection.

FG-RECYCLE (EU-RECGRIND, EU-DENSIFY)

-The recycling process was operating during my inspection.

-This unit was required to perform a quarterly testing to measure the pentane content of the scrap as well as the EPS blocks produced. The results of the first testing were not in compliance with the permit. A telephone conversation was had between Brad Myott, myself and Dart staff to discuss the possible reasons of the results and what they can do in the next test better. It was agreed upon to redo the testing. A violation was not written because we feel more testing results are required to get representative data that reflect the high variability of this process.

Revised testing occurred on 9/9/2020. These sampling done in this round of testing was done by gathering like materials for testing so the Pentane content would be in a similar range, thus giving a better idea of what was being emitted. The new test data shows that 76% of VOCs was remaining in the blocks. The permit limit states a minimum of 40% left in the blocks. This is in compliance with the permit limits. Currently Dart has now successfully completed their quarterly testing of the unit and the results have been coming back within the required limit. Therefore, Dart has submitted a request to have the frequency of the testing changed to once every 18 months. Based on the summary of the results the district agrees that this should be an acceptable testing frequency.

-Review of records indicated 0.887 tpy of VOC for January through April 2022, and 2.23 tpy for the year of 2021. The permitted limit is 19.4 tpy. The total cup scrap processed in 2021 was 265,372 lbs and post-consumer scrap processed was 460,949 lbs.

EU-CUP

-Emission limits were reviewed, the 12 month rolling for 2022 (Jan-April) was 81.4 tpy, and 2021 had a 12-month of 50.07 tpy. The permit limit is 219.95 tons.

-Material limits reviewed, maximum pentane by weight is 6.5%, all EPS beads and recycled content uses the value of 6.5% for emission calculations which is an overestimate due to the recycled content having a much less pentane content due to constant off-gassing.

-Process/Operational restrictions require all waste EPS beads to be captured and recycled as appropriate; this waste is included with recycling.

-Testing, the pentane content of material as applied and received shall be tested or an SDS must provide formulation for proof of material limits; stack testing shall be completed once every 5 years, the last test was completed and passed on 4/16/18.

-Monitoring and Recordkeeping, all conditions were being met.

-Reporting, all conditions were being met.

EU-CUPSTORAGE

***Note: once a cup is produced, all emission from off-gassing are calculated via this EU.**

-Emission limits were reviewed, the tons per year to date (Jan-April) was 84.83 tons with a limit of 230 tons.

-Monitoring and Recordkeeping, VOC emission rate shall be calculated monthly and was up to date.

-Reporting, all conditions were being met.

EU-RICE (EU-CUPLIGHTS)

***Note: this engine is very small yet must comply with 40CFR63 Z4. It is 18 HP or 0.0458 MMBtu/hr and is natural gas fired. The purpose is to provide emergency power to lighting in the plant (not to plant equipment).**

-Process/Operational restrictions require the following: inspection of belts and hoses along with oil change every 500 hrs. or annually; and inspect air cleaner every 1000 hrs or annually. Records showed all was completed on 2/02/22.

-Monitoring and Recordkeeping, all conditions were being met.

FG-BOILERS (EU-BOILER5, EU-BOILER7, EUBOILER8)

***Note: These boilers are used for destruction of Pentane from the operations leading up to but excluding cup molding/formation.**

During my inspection Boiler 7 & 8 were operating. Boiler 5 was not operating, it had received a tune-up and then determined the structural steel on the backside needed repairing. They go up and down depending on steam demand.

-The fuel oil is provided by contract and guaranteed to be less than 1.5% sulfur.

-Reporting, all conditions were being met.

- EU-BOILER5 and EU-BOILER7 are natural gas fired with #2 fuel back-up; EU-BOILER8 is exempt per 63.11195(e) as a natural gas fired boiler.

EU-B5CHRMPLATR

***Note: This unit was not operating during my inspection. The scrubber overall pressure drop was reading 2.6. The manufacturer specification max is 2.7.**

-Stack testing for the new chrome plater was completed on 6/13-14/2019. The purpose of this test was to observe the new chrome plating line, tanks A & B, to determine the capture efficiency of the composite mesh scrubber and

the HEPA filter controls. The PTI for this unit was issued 8/13/2018. The results of this test were received 8/8/2019. Results showed total chromium concentration 1.03E-03 mg/dscm. Permitted limit is 6.0E-03 mg/dscm.

-Monitoring and Recordkeeping, all records are being kept and are available as required.

-EU-PAINTBOOTH

***Note: This paint booth is non-production and is used for machine manufacturing or maintenance.**

Notification received on 9/8/2020 of the removal of this paint booth and the installation EU-B5PAINTBOOTH installed under PTI exemption 287(2)(c).

-Emission limits, all limits were being met according to records kept. This paint booth is currently being used very minimally.

-Monitoring and Recordkeeping, all records are being kept and are available as required.

-Reporting, all reporting is being performed as required.

-Emergency Generators (EU-B2GEN, EU-B5GEN, EU-FIREPUMP2, EU-FIREPUMP3, EU-B6GEN, EU-B7GEN)

-These generators were found to be compliant with the applicable requirements per the permit. All of them are maintained by the manufacturers and maintenance check data was provided upon request.

Semi-annual compliance certifications for Sections 1,2 and 3; deviation reports for Section 1; CAM Excursion/Exceedance Summary Report and CAM Monitor Downtime Report for Section 1; and Ongoing Compliance Status Report for 40 CFR Part 63, Subpart N received on 3/18/2022.

Dart is also in the early stages of adding a new process to the facility. They have begun running a pilot molded fiber line to create a new line of molded dinnerware and food packaging products. This pilot line is exempt from needing a PTI based on Rule 283(2)(v)(vi). This new line is supposed to produce an environmentally friendly product that is biodegradable. Once the final ingredients for the product are settled upon, they will be operating 6 molded fiber lines. Depending on the final make-up of the product Dart will either be using Exemption Rule 291 by demonstrating the PTE of the lines, or they will apply for a Permit to Install if needed. Currently it is looking like the process potentially emits a small amount of VOC (depending on the additive), and some particulate matter. Pilot Equipment PTE calculations and a brief process overview can be found in content manager.

Summary: Facility appeared to be in compliance with their permit and all applicable state air regulations. No violations were noted during this inspection.

NAME Samantha Davis DATE 5/27/22 SUPERVISOR BM