

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

D806573005

<b>FACILITY:</b> Dart Container Corporation of Michigan		<b>SRN / ID:</b> D8065
<b>LOCATION:</b> 432 Hogsback Rd, MASON		<b>DISTRICT:</b> Lansing
<b>CITY:</b> MASON		<b>COUNTY:</b> INGHAM
<b>CONTACT:</b> Don Wiltse , Regulatory Engineer		<b>ACTIVITY DATE:</b> 07/12/2024
<b>STAFF:</b> David Rauch	<b>COMPLIANCE STATUS:</b> COMPLIANCE	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> An announced routine inspection was conducted for Dart Container Corp to ensure the site's compliance with MI-ROP-D8065-2020.		
<b>RESOLVED COMPLAINTS:</b>		

### Staff Activity Report

On July 12, 2024, David Rauch of the Air Quality Division (AQD) conducted an inspection of Dart Container Corporation (SRN D8065). The purpose of the inspection was to determine compliance with the facility's ROP, MI-ROP-D8065-2020. The inspection covered the company's industrial park located at 432 Hogsback Rd., Mason, Michigan.

David started an extended leave from work before the report for this inspection, or the records review was completed, so the report and records review were completed by the AQD Staffer Michelle Rogers between September 9-11, 2024.

Dart manufactures foam containers from expandable polystyrene (EPS) beads impregnated with pentane. The containers are sold to numerous distributors. Dart Container is a Title V major source of Volatile Organic Compounds (VOC). The primary VOC pollutant is pentane. Pentane is not a listed HAP; however, it is identified as a Toxic Air Contaminant (TAC) according to state of Michigan.

There are numerous buildings on site. The following notes on the various buildings were recorded during a 2022 inspection.

- 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.
- Building 8 is for facilities and grounds maintenance.

**Process Explanation:** Expandable polystyrene (eps) 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.

## Inspection

Arrived at Dart around 8:30AM, July 12, 2024, and was met by Don Wiltse, Paula Espinoza and Amie Burns. To begin the inspection, we started at the cup manufacturing plant where we went through Section 1 of the ROP and reviewed the conditions. We discussed a records request as well as any changes to the site. We then toured the entire cup plant, storage and recycling area of Dart. This included the paint process as well as the cup making process. I did observe 1 of the new installed boilers and saw the second boiler that was not yet installed and still in a storage area waiting to be installed. The new boilers have more sophisticated electronic recordkeeping, making the data more readily available.

Following the cup process we went to the Chrome Plating Building. I went through the plating building that has the extra paint booth, welding and CNC machines. This area has lots of exempt equipment and a chrome plating tank that is fully enclosed and uses HEPA filters to control emissions. This was recently tested by the site on 6/5/2024, and passed emissions testing.

The last building inspected was the large storage building for all of the cups and containers. We then sat and discussed the Section 2 and 3 of the ROP and went over records review as well as the conditions. Don then asked to show me the new paper plate lab that Dart is working on and has not begun production on but are looking to get into possibly making paper products.

Dart Corporation is a multi-process facility that primarily creates plastic and foam containers. They are currently exploring the paper plate process and have begun making paper plates in a non-production area of the site. They are looking at using recycled paper pulp to make paper plates and have begun the lab work to see if this will be a new process they add to their ROP.

While on site, there were no visible emissions or odors observed, nor any violations observed during the site visit.

## Records Review

Dart Container supplied numerous records as requested by David Rauch of the AQD. Michelle Rogers of the AQD conducted the records review. Below is a summary of the records that were supplied and reviewed:

Annual Emissions Records: Dart sent annual emissions records for 2022, 2023, and the first half of 2024 (Jan-Jun). During the company's internal records review, they discovered an error in their tracking for the amount of EPS bead usage. The error caused them to under-report emissions to the AQD in their 2022 and 2023 emissions reports for EU-CUP - Cup manufacturing process, and EU-CUPSTORAGE - Pentane emissions from the storage of cups. This was referred to the Emissions Reporting and Assessment Unit (ERAU) of AQD.

## SECTION 1 OF THE ROP – MASON CUP PLANT

### EU-CUP:

Annual emission records consisted of monthly and daily records for EU-CUP of pentane bead usage, pentane captured from recycled cups and new EPS, pentane incinerated in the boilers, and total pentane emissions per day, per month, and a daily average lb/hr. Calculations follow Appendix 7-1 in the ROP.

SC I.1: 75.33 pph (averaged over the hours operated per day) – The records showed that the pph limit was exceeded 26 times in 2022. No exceedances of this limit in 2023 or 2024. In 2022, 23, and 24, there are some days when there are emissions recorded but the hourly emissions rate is noted as zero.

I (Michelle Rogers) discussed these issues with the Don Wiltse, Paula Espinoza, and Amie Byrnes from Dart in a phone call on 9/11/2024. Most of the exceedances in 2022 seem to be associated with days when the boilers, being used as control for the pentane, were marked as having operated for less than 24 hours. The boiler records show either 0, 8, 12, 16, or 24 hours of

operation. I questioned whether these numbers for the boiler operation were correct and whether they accurately represented the operation of the cup process. They confirmed that they are representative of EU-CUP operating times, although there maybe some days of the week when the plant operators start to produce cups (and emissions) 2 hours before midnight, causing days when the emissions (lbs/day) showed a positive number, but the hourly rate was marked as zero. For 2023 the recordkeeping changes and there are far fewer days in the records when the boilers are noted as operating for anything other than 24 hours or zero hours. Paula and Amie noted that they made a change to their operations so that they no longer start running cups before midnight. Production has also dropped since 2022.

I pointed out that their permit requires them to record the hours of operation of EU-CUP. I was told that the boilers do essentially represent the EU-CUP hours, although they do not record exact start and end times, but that they truly do start at the beginning of a shift and end at the end of a shift. Don proposed that if they change their productions schedule back to having days where they start producing cup before midnight, then they could potentially do something like add a record that they had 2 hours of operation (10pm-12am) for that day. I told them that this solution may help eliminate the incorrect records showing 0pph pentane, but that it wouldn't solve the records showing some days that were nearly 2x the pph limit. They admitted that they haven't paid attention to the pph numbers in the past and were more focused on the tons/year. I asked them to keep an eye on the pph numbers and that if they change their operating schedule to anything other than starting and ending with each shift, or if production increases again, that they could wind up with violations of the pph standard.

Although the emission limit was exceeded in 2022, there haven't been any violations of the limit in 2023 or 2024, so the emissions unit appears to be capable of continuing to operate in compliance moving forward.

SC I.2: 219.95 tpy (12 month rolling time period) – no violations of this limit in the records. Overall production and emissions have dropped over the 2.5 years of records that were supplied.

SC II.1: The permit limits the EPS beads to 6.5% pentane by weight. Four different certificates of analysis from different shipments in January 2024 were supplied, each showing the EPS beads to be close to 5.3% volatiles.

SC VI.7: Since boilers are used for destruction of pentane from EU-CUP, flue gas stack temp of boiler must be 300F or greater. There are numerous recorded days in 2022 when the temperature was measured as being below 300F. Many of these days look like the stack was measuring at ambient temperature, indicating that the boiler was off. However there are many days in 2022 when the measured boiler temperature for boiler 5, 6, and/or 7 was between 100 and 300F.

In 2023 they changed their recordkeeping to record whether the boiler was in use, along with recording the temperature. In 2023 there are only a couple excursions below 300F while the boiler was operating and the company noted the reason for the excursions. (March 2023: economizer leak that was fixed soon after. April 2023: and boilers running in low fire modes; pentane destruction efficiency confirmed through sampling.)

This issue seems to only affect 2022 records and has been since resolved.

#### **EU-CUPSTORAGE:**

Annual emission records consisted of monthly records for EU-CUPSTORAGE of cups storage (lbs) which is equal to (Cup Bead usage - cup scrap), and monthly emissions which are (cup storage x EF 0.0180 lb VOC / lb Cup Storage).

SC I.1: 230 tons VOC/yr. The calculated emissions are far below limit: around 90 tpy for each 12-month rolling time period ending in 2022, around 75 tpy for each 12-month rolling period ending in 2023, and between 56-76 tpy for each 12-month rolling period ending Jan through June, 2024.

#### **FG-RECYCLE:**

**SC I.1: 19.4 tpy VOC. Emissions far below the limit.**

**SC II.1 and II.2: 936 tpy post-consumer scrap, 864 tpy cup scrap – It looks like they are well within their limits with less than 200 tpy Cup Room Scrap and 207 tpy post-consumer scrap in 2023.**

**FG-RICE (EU-CUPLIGHTS) – small emergency generator to supply power for lighting in the cup plant in a power outage. Records for this engine were submitted along with the other engines in Section 3 of the ROP (See notes on Section 3 records below).**

**FG-MACT JJJJJJ:**

**Dart supplied tune-up records and boiler inspection certificates.**

**Boiler 5: boiler was taken out of service for safety concerns on 3/15/2023; later (9/30/2023) it was deemed unrepairable.**

**Boiler 7 had a tune up and inspection on 7/20/2023. It was removed from service on 9/1/2023 due to safety concerns and deemed unrepairable.**

**Boiler 8 had a tune up and inspection on 7/20/2023.**

**FG-RULE290-1 (EU-UVPRINT&CLEAN): Print emissions are based on monthly material receipts for the printing ink and the clean-up solvents received by the facility. The Rule 290 VOC limit is 1,000 lb/month for uncontrolled noncarcinogenic materials. This method of calculation is crude and is likely overestimating emissions in some months and underestimating in others, because they do not receive a shipment of clean-up solvents every single month. However, it is sufficient for demonstrating compliance with Rule 290 as long as they do not received more than 1,000 lb / month VOC. For the months when they did receive clean-up solvent shipments, the calculated VOC emissions were between 724 and 741 lbs. The months that they did not receive a shipment of clean-up solvents, calculated emissions were 32 lbs or less.**

**SECTION 2 OF THE ROP – MACHINERY AND TOOLING MANUFACTURING**

**EU-CHRMPLATR:**

**Records supplied included the Plating area checklist showing weekly, monthly, bi-annual, annual, and as-needed inspections and maintenance.**

**EU-B5STRIPEVAP:**

**SC II.1 limits the processing rate to 60 gal/hr. Don Wiltse noted over the phone that the maximum processing rate is 60 gal/hr, and that this EU typically only operates 2 hours at a time, so the average hourly rate is very low. Records consisted of burner and blower hours of operation per month, and water processed per month (gal). The limit is written in gal/hr, without an averaging period specified or note about whether it is based on the hours of operation.**

**EU-B5STRIPTANKS: supplied emission calculations based on hours of operation, hourly emission calculation based on surface area of the tank, vapor pressure and concentration of acid, and assumed 98% efficiency of the scrubber. Calculated HCl emissions are less than 1 lb/year.**

**EU-PAINTBOOTH:**

**Monthly and 12-month rolling paint and solvent usage in EU-PAINTBOOTH along with VOC emission calculations. Emissions were very low compared to the emission limits. (less than 1 tpy VOC; limit is 9.9 tpy and 2000 lbs/month).**

**SECTION 3 OF THE ROP – FACILITY EQUIPMENT & NON-MANUFACTURING**

Dart submitted 2022, 2023, and 2024 (Jan-Jun) records for the engines onsite, including all the engines in Section 3 of the ROP and EU-CUPLIGHTS in Section 1 of the ROP. Records included monthly maintenance logs, monthly hours meter reading, breakdown of hours used for O&M readiness vs Emergency Use, and emission calculations for each engine. Emission calcs included NMHC+NOx, VOC, CO, and PM for some engines, NOx, VOC, CO, and PM for some, and NOx, VOC, CO, SO2, and PM for others. I did not note any errors or inconsistencies in the recordkeeping for the engines.

**FG-RULE290-3:**

EU-PRINT&CLEANB5 and EU-DIEOVEN had very low emissions compared to the emission limits in SC I.1.

**Exempt equipment:**

Dart also supplied records of their molded fiber pilot line which is operating under exemptions R283(2)(a)(v, vi) Pilot processes or pilot process equipment utilizing T-BACT used for any of the following: (v) The development of process or process equipment design and operating parameters; (vi) The production of a product for field testing. They also submitted calculations showing that the emissions are under Rule 291 de minimis thresholds.

**Conclusion:** Based on the inspection and records review that were conducted, the site appears to be currently in compliance with their permit and all applicable air regulations.

NAME Michelle Rogers

DATE 9/20/2024

SUPERVISOR RB