U-63-11-0170 FY2018 Insp.

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

U6311017043264

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| **FACILITY:** Frimo, Inc. | | **SRN / ID:** U63110170 |
| **LOCATION:** 50685 Century Court, Wixom | | **DISTRICT:** Southeast Michigan |
| **CITY:** Wixom | | **COUNTY:** OAKLAND |
| **CONTACT:** | | **ACTIVITY DATE:** 12/21/2017 |
| **STAFF:** Iranna Konanahalli | **COMPLIANCE STATUS:** Compliance | **SOURCE CLASS:** |
| **SUBJECT:** FY 2018 inspection of Frimo, Inc. ("Frimo"), Plant 1, 50685 Century Court, Wixom | | |
| **RESOLVED COMPLAINTS:** | | |

**Frimo, Inc. – Plant 1 (U-63-11-0170)**
**50685 Century Court**
**Wixom, Michigan 48393-2066**

**Phone: (248) 668-3147**

**Permit-to-Install: Rules 285, 287 exempt process equipment.**

On December 21, 2017, I conducted a level 2 self-initiated **FY 2018 inspection** of Frimo, Inc. ("Frimo"), Plant 1, located at 50685 Century Court, Wixom, Michigan 48393-2066. 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 FY 2018 inspection, Mr. Richard Forbes (Phone: NA; Fax: 248-668-3040; Cell: 248 -969-9225; E-mail: Forbes.R@frimo.com), General Manager, assisted me. Mr. Ryan Dziekan (Phone: 248-668-3199; Fax: 248-668-3040; Cell: 248-939-2451; E-mail: Dziekan.R@frimo.com), Quality Manager, who handles safety issues, was not present.

Mr. Aaron Vermeulen (Phone: 248-668-3162; Fax: 248-668-3040; Cell: 248-346-4945; E-mail: Vermeulen.A@frimo.com), Operations Director, and Mr. Richard Cohen (Phone: 248-668-3170; Fax: 248-668-3040; Cell: 248-688-5632; E-mail: Cohen.R@frimo.com), Chief Financial Officer, were not present.

About December 31, 2015, Mr. Ray Lukasik (Phone: 248-668-3147; Fax: 248-668-3040; Cell: 248-939-3056; E-mail: lukasik.r@frimo.com), Operations Director, retired.

Frimo, an American subsidiary of a German company (Frimo, GMBH), is a builder of interior automotive tooling and machinery. Polyurethane (PU) is used as insulation material for refrigerators, in upholstered furniture or sport articles. In the automotive industry instrument panels, door trims, headliners, seats, headrests, steering wheels or bumpers and spoilers are typical applications. At this Wixom facility, prototype equipment is present. Also, urethane foaming, vacuum foaming, press laminating, NC cutting, lathes, milling, cutting equipment are present.

Frimo builds, repairs, services tools and equipment for:

1. Polyurethane processing

2. Polyurethane spraying
3. Flexible trimming
4. Polyurethane foaming
5. Punch press
6. Thermo foaming
7. Laminating
8. Edge folding
9. Joining and gluing

**Laminating**

One laminating machine is present with practically no air quality impact. No exhaust.

**PURe foaming machines**

Two foaming machines (PURe Technology Metering Units) are present. Polyols and isocyanates are metered, mixed in a mixing head and foam is inserted into a part. Foaming chemical reaction takes place when the two components are mixed. Thus inserted foam is cured for 2 minutes.

No exhaust to outside ambient air. The metering unit is maintained leak-tight with no emissions.

Isocyanates (R-N-C-O) are potentially dangerous irritants to eyes and respiratory track. Methyl Isocyanate (CH3NCO, CAS 624-83-9, IDLH immediate danger = 3 ppm, ACGIH = 0.02 ppm) was involved in December 1984 Bhopal disaster that killed 4,000 people and injured 40,000 people due to a run-away exothermic chemical reaction when water contacted the chemical accidentally. Heat of reaction could boil liquid and increase pressure beyond structural integrity of storage vessel. Most manufacturing plants, if MDI (diphenylmethane di-isocyanate) or TDI (toluene di-isocyanate) is used, carefully monitor in-plant ambient air.

**Polyurethane spray booth (287(2)(c))**

Polyurethane spray booth (PURe Spray Technology) with back-draft filters on the back wall is present. Exhaust gases are discharged to outside ambient air. Mold release agent is sprayed using a robot. Then in-mold coating is sprayed. Both paints and mold release agents are water based. About 2 gallons per month of release agents and 50 gallons per month of polyol and isocyanate mixture are used (in CY 2017 this booth is idled). Hot water is used for cleaning.

Until July 2014 (from about 2012), GE was using the mix / spray equipment out of state via lease agreement. Hence, the booth was idle until July 2014 when lease ended. During the lease period, the booth was not operated. Again, in CY 2017, the booth is idled.

I asked Mr. Forbes to install the filters such that they fit, at all times, snugly without gaps and holes. I also asked him to keep records of polyurethane, paint, mold-release agent, materials and solvent usage. I asked him to change or check filters when the pressure drop across the filters is out of the ordinary for good working conditions.

The booth is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1287(2)(c). The booth is a small source of VOC emissions. The booth was idle from 2012 through July 2014 due to lease agreement with GE. Again, in CY 2017 the booth has been idle.

**Misc. equipment**

IR welding machines for plastics with IR (Infra Red) lights to heat plastics, foaming area, laminating area are present. No exhaust to outside ambient air.

**Cutting and grinding machines**

CNC (increased 6 → 7 [2 FIDIA, 3ViPER, 1 DMU, 1 Bridge]; in January 2013 one additional machine was installed), cutting, trimming machines for plastic or aluminum parts are present. Each machine is equipped with a particulate matter capture device and a ventilation system. Each ventilation ductwork from a machine is connected to a common manifold. The manifold is ducted outside to a baghouse. After filtration of plastic or metallic particulate matter, clean / filtered air is recycled into the plant in both heating season (winter) and cooling season (summer). Two 55-gallon drum hoppers are present at the bottom of the baghouse to store collected particulate. The bags are cleaned using a shaker mechanism. However, about 2014, Frimo stopped using the outside baghouse (which is still present but idled, may need some repairs) due installation of mist busters. The baghouse may be used when mist busters cannot handle mist load; if mist is not properly controlled, indoor air quality deteriorates.

About 2013, five (5) mist busters and about 2016 two (2) additional mist busters were installed in CNC area to improve indoor air quality by removing coolant mist; in all, seven mist busters. The mist busters are equipped with cartridge filters.

Again, the baghouse is idled as mist busters are used for particulate control.

The cutting machines are exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285(2)(l). I asked Mr. Forbes (if baghouse is used again) to empty the 55-gallon hoppers promptly so that no damage to bags occurs.

**Wood cutting and grinding machines**

There are five wood cutting (saw) machines. Three mask booths, drills, presses, lathes, welding machines are present. Each machine is equipped with a capture device and a ventilation system. Each ductwork from a machine is connected to a common manifold. The manifold is ducted outside to a baghouse. After filtration of plastic or metallic, saw dust particulate matter, clean / filtered air is recycled into the plant in both heating season (winter) and cooling season (summer). Two 55-gallon drum hoppers are present. This baghouse located about 100 feet away from the above idle (due installation of mist busters) baghouse. The bags are cleaned using a shaker mechanism. The bags are shaken every time the baghouse is started; at least once per day depending upon workload.

The machines are exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285 (2)(l). I asked Mr. Forbes to empty the hoppers promptly so that no damage to bags would occur. Unlike the other baghouse for mist, which is idle, this woodshop baghouse is operating. Mr. Forbes stated that the hoppers are emptied once per month.

**287(2)(c) paint spry booth**

One (16 ft. W * 24 ft. D * 10 ft. H) paint spray booth is present. The booth is fully enclosed when doors are closed. Glue and paint is sprayed in the booth. The booth is equipped with back-draft filters. Intake air filters for product quality are present on the front doors. Intake air filters operate properly only if the door is closed in a leak-tight manner. About 5 gallons per

month glue and 15 gallons per month paint (oil / solvent based) are used. I asked Mr. Forbes 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. The exhaust gases are discharged to outside ambient air via stack with a rain flapper, which is not AQD recommended practice. AQD requires unobstructed vertical discharge of exhaust gases. However, AQD has not received fallout / odor complaints.

**Thermoforming machine**

One thermoforming machine is present (installed in 2015). All exhaust released to in-plant environment. The machine is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285(2)(l).

One (CNC area) of two baghouses is idled (starting 2014) due to installation of mist busters.

**Conclusion**

Spray booths, plastic / metal cutting and wood cutting machines are exempt from Rule 336.1201 per Rules 287, 285. One (CNC) of two baghouses is idled due to installation of mist busters.

NAME J Allenamahall DATE 2/8/2018 SUPERVISOR Joyce Zhou