

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

B701854482

FACILITY: GENERAL FILTERS, INC.		SRN / ID: B7018
LOCATION: 43800 GRAND RIVER AVE, NOVI		DISTRICT: Southeast Michigan
CITY: NOVI		COUNTY: OAKLAND
CONTACT:		ACTIVITY DATE: 07/16/2020
STAFF: Iranna Konanahalli	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY 2020 SM CMS inspection of General Filters		
RESOLVED COMPLAINTS:		

General Filters, Inc. (B7018)
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Permit-to-Install Nos. 63-93A (PTI No. 63-93A, SC 13 limit: 9 pph & 9 tpy VOC and SC 14 limit: 1,475 gallons per year trichloroethylene (TCE) - TCE vapor degreaser subject to Area MACT T) dated February 27, 1998 and 179-01 (PTI No. 179-01, FG-SS, SC 1.1 limit: 9 tpy Single HAP & 1.2 limit: 22.5 tpy Aggregate HAPs - ROP & MACT major opt-out) dated July 19, 2001.

VNs: AQD issued Violation Notices (VNs) dated February 02, 2006 (for failing submit MACT T, § 63.468 (g), Annual Compliance Report & § 63.468 (h), Exceedance Report), April 24, 2001 (for failing to perform 208a registration renewal), about February 2004 (MACT T, Section 63.468(d) and 63.468(e), an initial statement of compliance for each regulated machine was due on May 1, 1998) and March 4, 1996 (Rule 336.621- 3 booths exceed the limits: 3.5 and 3.0 pounds VOC per gallon of coatings for air-dried and all other coatings, respectively).

Idle: TCE vapor degreaser idled since 2010. However, it can be turned on by a switch and, hence, it is perfectly operable.

VOIDS: PTI No. 25-79I (voided on 10/17/1996; incinerator with afterburner) and 63-93 (voided on 07/19/2001). PTI Application No. 803-93 (voided on 02/02/1994)

ROP: Renewable Operating Permit application ROP # 199600073 voided on September 28, 1999.

Subject to: Area Source (MACT Synthetic Minor PTI No. 179-01) 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

Initial Notification Received Date: August 23, 1995 (40 CFR, Part 63, Subpart T; NESHAP/ MACT T). The vapor degreaser was installed in August 1966. New vapor degreaser installed in September 1997 replaced the existing degreaser in order to comply with MACT T.

Permanently exempt from Area Source NESHAP/ MACT T ROP: Exemption of Certain Area Sources From Title V Operating Permit Programs, Final Rule; 75320 Federal Register / Vol. 70, No. 242 / Monday, December 19, 2005 / Rules and Regulations

On July 16, 2020, I conducted a level-2 self-initiated **FY 2020 SM CMS inspection** of General Filters, 43800 Grand River Avenue, Novi, Michigan 48376-8025. 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; Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) administrative rules; Area Source NESHAP/ MACT T (halogenated organic solvent [vapor phase TCE {trichloroethylene} at General Filters] degreaser); and the air use permits (PTI #63 -93A and 179-01) conditions.

During the inspection, Mr. John A. Redner (Phone: 248-513-3302; Fax: 248-349-2366; E-mail: JohnR@GeneralFilters.com), President and Owner, assisted me.

Mr. Dean Yannotti (Phone: 248-476-5100; Fax: 248-349-2366; E-mail: DeanY@GeneralFilters.com), Assistant Operations and Resources Manager, separated from the company about 2016.

Founded in 1936, General Filters manufactures humidifiers, air filters, air purifiers for forced air space heating and cooling systems. It also makes fuel oil filters for fuel oil fired furnaces (which you may find in the New England States) used for space heating. GENERALAire's AC -1 Air Cleaner has 78 square feet filter area (pleated design). The pleated high filtration area is designed to maintain low-pressure drop. AC-2 Air Purifier incorporates activated carbon pellets (more than 7 million square feet of adsorption surface area) to remove common household vapors, cooking and pet odors, etc. However, AC-2 product discontinued since 2005. AC-22 replaced AC-1. GENERALAire's AC-22 Air Cleaner has 20" H X 25" W X 6" D filter area dimensions (pleated design). AC-22 is not equipped with activated carbon to remove gaseous contaminants such as odors. Dehumidifiers were introduced in 2014. Dehumidifiers control bugs in southern states by controlling moisture in crawl spaces.

General Filters added few new products such as Hybrid PC02450 UV Air Purifier, GUV100A83 UV Air Purifier, GUV25403A UV Air Purifier, VectorFlo PC02450 Photocatalytic Ultraviolet (UV) Air Purifier, Elite Steam Humidifier, etc. In UV Air Purifier products, like sun's UV light, lamp's UV light destroys germs, bacteria, viruses, and other bio-aerosols. The germicidal bandwidth C (UV-C), measuring 200-280 Nano-meters, is effectively used to destroy harmful microorganisms by destroying ability to reproduce (asexual reproduction by cell division). UV-C destroys cellular nucleic acid and disrupts DNA. Short wavelength UV or UV-C is also known as Germicidal UV. Super plasma, an excitation of gas by the energy from light, measuring 100-200 Nano-meters bandwidth, is used to ionize gas that has ability to breakdown organic contaminants. The plasma is produced by 5-inch pure quartz broad spectrum ultraviolet lamp (UVV5CL). VectorFlo Photocatalytic Ultraviolet (UV) Air Purifier uses TiO 2 semiconductor as catalyst to oxidize organic air contaminants.

General Filters also makes MAC series air filtration devices: MAC1400, MAC2020, MAC2400, MAC3000, etc. with cartridge media.

General Filters' devices control:

1. Particulate (organic and inorganic – dust, smoke, pollen, animal dander and dust mites)
2. Gases (VOC, odors, toxins)
3. Germs (bacteria, viruses, fungi, pathogens, allergins)

GeneralAire TERSus Models 1200 and 2000 (10 inches width and 21 inches Height) remove all three categories of indoor air contaminants: particulate, gases, germs using MERV13 electrostatic filtration, ultraviolet (UV) disinfection and photocatalytic purification.

25-79I (incinerator with afterburner) Voided 10/17/1996

This was designed for burning 100 pounds per batch of Type I waste. The equipment has been out of service for at least 25 years. The equipment has been removed and hauled away. PTI No. 25-79I was voided on October 10, 1996, based AQD inspection.

63-93A (Detrex VS-800-E vapor degreaser) - Idle

Replacing MACT T non-compliant 1966 vapor degreaser, this TCE vapor degreaser equipment was installed in September 1997 in order comply with the degreaser NESHAP / MACT T. The degreaser solvent is electrically heated to vaporize TCE solvent. Heated vapor cleans the oil filter can upon condensing on the can's surface. The TCE vapor degreaser is equipped with two sets of cooling coils: water jacket (primary) and freeboard refrigerated chiller (secondary), which is above the primary. The chiller coils are finned to increase heat transfer area. The refrigeration unit maintains chiller coils below freezing temperature. This is a closed system with no vent. Styrofoam cover is used to cover the degreaser to prevent heat transfer from ambient room to the degreaser (PTI No. 63-98A, SC16). Fugitive emissions are emitted indoors only; i.e. there is no ventilation to outside air (PTI No. 63-98A, SC26); any escape of TCE vapors are definitely detected by human nose. When degreasing solvent gets dirty (maybe once in six months when regularly used), the dirty solvent is boiled off, condensed and collected in a sump for recovery of clean solvent. Concentrated dirt, practically solvent-free, is disposed of in accordance with proper waste management practices; i.e. the waste is treated as RCRA Hazardous Waste and properly disposed of and manifested per RCRA. Make-up solvent, trichloroethylene (TCE), is added. Parts are kept in the degreaser for 5-10 minutes for degreasing. Once a week, the degreaser was running before CY2009. About 25 gallons of waste (sludge) was disposed of every six months during normal operations before 2009; but recently there is no disposal since the vapor degreaser is idled since 2010.

All degreasing takes place in the vapor zone (i.e., parts are NOT immersed in liquid solvent) as TCE condenses on parts being cleaned. Contaminated solvent drips into the solvent tank. This degreaser equipment has no ventilation indicating practically nil TCE emissions; odor can be detected in the room if vapors escape.

When operational (before being idled), oil filter cans are degreased in the vapor degreaser. Cans are placed in a basket. TCE vapor condenses on a can surface to perform cleaning (PTI No. 63-98A, SC17). A can in a basket is held with a slope such that TCE liquid drips back into the degreaser's tank (PTI No. 63-98A, SC17.e). One basket per batch is placed in the vapor zone for cleaning, which lasts for 10-15 minutes (PTI No. 63-98A, SC17). All cleaning takes place in the vapor zone; parts are not immersed in liquid. The basket is raised and held in the tank until all liquid drips, about 15 minutes (PTI No. 63-98A, SC17). No solvent spray operation is present (PTI No. 63-98A, SC17).

All degreasing is for fuel oil filter cans. The operation begins with starting first refrigerated chiller and water jacket (PTI No. 63-98A, SC17.f). Then, after 15-30 minutes, turn TCE liquid heater on for about an hour until the liquid temperature reaches 180 deg F. The interlock system does not allow spray work at all if temperature has not reached minimum 175 deg F. Upon reaching these stable vapor liquid equilibrium and condenser temperature conditions, a basket of cans is inserted so that condensed TCE liquid falls into the degreaser's tank (PTI No. 63-98A, SC17.e). During February 2008 inspection, incorrect basket was installed such that cans were not tilted properly that the liquid was accumulated in the cans. I pointed out this to the plant manager and I asked him to label the baskets properly so that such an incident did not repeat. I asked him to hold the basket manually to ensure all liquid dripped into the tank. After 2008 incident, such incorrect operation was never observed. Degreasing lasts 10-15 minutes. Styrofoam cover is installed and used; it prevents TCE vapors from escaping and provides insulation (PTI No. 63-98A, SC16.a).

Fuel oil filter cans used to be painted with water based black paint. The can tops are painted either red or blue. While black paint on the cans used to be flow-coated, red / blue paint on the tops are spray coated. All coatings are water based. In all for the entire facility, about 225 gallons of paint is consumed in CY 2013. Paint usage has drastically reduced (down from 700 [CY2008] to 500 [CY2009] gallons). 225 gallons of paint represents only lids coating as cans coating is outsourced to Burkard.

However, since Jan 2010, all oil can degreasing and coating (cans but not lids) stopped; the machine is still present on site but idled. According to Yonnotti / Redner, oil can coating is outsourced since Jan 2010 to Burkard Industries (586-791-6520) of Clinton Township. Burkard coats both inside and outside of cans using powder coatings. Lids (or tops) are still coated by Gen Filters using water-based coatings in two booths. All liquid solvent from the degreasing machine is removed. The degreaser may be removed in few of years.

Filter cans used to be made of raw steel. So, TCE degreasing was necessary to remove oils from the surface before coating. Since CY2010, General Filters shifted to using galvanized steel, which does not require degreasing. In addition, the cans are powder-coated at Burkard.

Because can coating is not done anymore (since Jan 2010), flow coat booth was removed in May 2010. The associated heat lamps and stack were removed as well. The hole in the ceiling associated with stack has been covered and sealed.

Two paint spray booths

As stated before, although powder coating of cans is outsourced to Burkard, coating lid or top is still done at General Filters. Although a part of source wide permit for HAPs limits (PTI No.

179-01, FG-SS, 1.1 & 1.2 limits: 9 tpy single HAP & 22.5 Aggregate HAPs), the booths are exempt pursuant to Rule 287(2)(c) based upon current usage (**CY 2019: 220** gallons per year which includes Red P/N 30035 = **60** gallons per year, Blue WA P/N 30038 = **15** gallons per year and Blue Lacquer P/N 30086 = **145** gallons per year). The lids are always coated with either blue (Unifilters) or red (General Filters); i.e. the products are sold under two brand names like Buick and Cadillac. The booths (2) are used once per week. 10-20 gallons per month of water-based coatings are used. Both booths are equipped with back-draft filters. Two layers of filters are present to increase efficiency. First layer is pre-filter that saves final filter and second is final filter, which is backed up with a cloth. Two layers result in saving costs because inexpensive front (primary) filter protects expensive back (secondary) filter and extends the expensive filter's longevity.

One of two booths is used for lids. The second booth is used to coat filters so that the filter can be identified as a product of General Filters.

I asked Mr. Redner to install the filters such that they fit, at all times, snugly without gaps and holes. I also asked him to continue keep records of paint and solvent usage.

The vapor degreaser is subject to NESHAP for Halogenated Solvent Cleaning (40 CFR, Part 63, Subpart T; Federal Register / Vol. 59, No. 231 / Friday, December 2, 1994). In 1995, a correction was promulgated [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] In 2007, NESHAP / MACT T was 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]

The provisions of NESHAP / MACT T apply to each individual batch vapor, in-line vapor, in-line cold, and batch cold solvent cleaning machine that uses any solvent containing methylene chloride (CAS No. 75-09-2), perchloroethylene (CAS No. 127-18-4), trichloroethylene (CAS No. 79-01-6), 1,1,1-trichloroethane (CAS No. 71-55-6), carbon tetrachloride (CAS No. 56-23-5) or chloroform (CAS No. 67-66-3), or any combination of these halogenated HAP solvents, in a total concentration greater than 5 percent by weight, as a cleaning and/or drying agent. The concentration of these solvents may be determined using EPA test method 18, material safety data sheets, or engineering calculations.

General Filter keeps monthly and annual trichloroethylene (TCE) emissions records. Total TCE emissions are **0** pounds (0 gal – idled since 2010) per year in CY 2013-19 (Vs. 1,649 lbs/yr in CY 2007 & 532 lbs/yr in CY 2009), not including reclaims (PTI No. 63-93A, SC 14 limit: 1, 475 gallons per year). The total CY 2019 HAP emissions are **373** (Vs 307 in CY 2013) pounds per year due to both coating HAP (**373** lbs/yr **CY2019**) and TCE (**0** lbs/yr **CY2017** - idle) (PTI No. 63-93A, SC13 limit: 9 tpy VOC; PTI No. 179-01, SC 1.1 & SC 1.2 limits: 9 (single) and 22.5 (aggregate) tons of HAPs per year) Vs 2,725 pounds per year in CY 2007. **0** gallons (0 lbs. - idle) of TCE per year were used in CY2019 (PTI No. 63-93A, SC14 limit: 1,475 gal TCE) Vs 136 gallons of TCE per year in CY 2007.

CY 2019 coating usage: **220** gallons of coatings were used in the booths (2). Red P/N 30035 = **60** gal / yr., Blue WA P/N 30038 = **15** and Blue Lacquer P/N 30086 = **145** gal / yr.

CY 2017 VOC = **60** gal / yr.*1.23 lbs. VOC /gal (water-based red coating) + **15** gal / yr. *1.25 lbs. VOC /gal (water-based blue WA coating) **145** gal / yr. * 4.79 lbs. VOC /gal (blue lacquer) = 74 + 19 + 695 = **788** pounds of VOC per year.

CY 2019 HAPs = **374** pounds of coating HAPs. The TCE vapor degreaser is idle since 2010.

Coating usage has substantially reduced because only lids (mostly red, sparingly blue) are coated and cans themselves are powder coated at Burkard of Clinton Twp.; few years ago, General Filter used liquid coatings to coat cans in its Novi facility.

Mr. Redner stated that free board ratio is 1.0 (PTI No. 63-93A SC 16 limit: 0.75). Parts handling system speed is 2.5 meters per minute (PTI No. 63-93A SC 16 limit: 3.4 m/min. or less). Sliding cover is present and, in addition, Styrephome cover is placed on it as an insulator. The degreaser is equipped with auto-start-and-shut-down device (PTI No. 63-93A, SC 17)

General Filter is no longer required to submit Rule 208a registration. A letter of violation dated April 24, 2001 was sent by certified mail for failure to submit 208a registration. Consequently, General Filter obtained a ROP opt-out Permit-to-Install No. 179-01 dated July 19, 2001.

PTI No. 179-01 (FG-SS, 1.1 & 1.2 limits: 9 tpy single HAP & 22.5 Aggregate HAPs), which is like an addendum to PTI No. 63-93A, requires source wide HAP records for all coatings used. The company is keeping these HAP records: TCE for vapor degreaser (0 lbs. / yr. – idle) and coating HAPs for two booths.

Per General Filter's request, on September 28, 1999, Air Quality Division (AQD) voided the renewable operating permit application ROP # 199600073.

The company was required by federal regulations (National Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning; Correction; 29484 Federal Register / Vol. 60, No. 107 / Monday, June 5, 1995 / Rules and Regulations) to submit an administratively complete renewable operating permit application by December 09, 2000. Area sources of vapor degreasers were given five more years of extension to obtain Title V operating permit until December 9, 2004 (Title V Operating Permit Deferrals for Area Sources: National Emission Standards for Hazardous Air Pollutants (NESHAP) for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks; Ethylene Oxide Commercial Sterilization and Fumigation Operations; Perchloroethylene Dry-cleaning Facilities; Halogenated Solvent Cleaning Machines; and Secondary Lead Smelting; Final Rule; amendments; 69637 Federal Register / Vol. 64, No. 239 / Tuesday, December 14, 1999 / Rules and Regulations).

The opt-out Permit-to-Install No. 179-01 (FG-SS, 1.1 & 1.2 limits: 9 tpy single HAP & 22.5 Aggregate HAPs), which reduced General Filters from Major to Synthetic Minor or Area Source, exempts the company from ROP requirements based upon US EPA promulgation of a proposed rule (03/25/05; 70 FR 15250) and final rule (Exemption of Certain Area Sources From Title V Operating Permit Programs, Final Rule; 75320 Federal Register / Vol. 70, No. 242 / Monday, December 19, 2005 / Rules and Regulations) to permanently exempt area sources subject to NESHAP from Operating Permit Program.

US EPA contacts are: Paul A. Almodovar (Phone: 919-541-0283, Mail: C539-03, E-mail: almodovar.paul@epa.gov) for degreaser NEHSAP and Ms. Joanna C. Swanson (Phone: 919-541-5282, Mail: C304-04, E-mail: swanson.joanna@epa.gov) for Operating Permit; both of Research Triangle Park, NC 27711.

Conclusion

The company has replaced the existing degreaser in September 1997 in order to comply with NESHAP standards for Halogenated Solvent Cleaners (40 CFR, Part 63, Subpart T). US EPA promulgated a final rule to permanently exempt area sources subject to NESHAP from Operating Permit Program. The TCE vapor degreasing machine has been idled since 2010. Coating usage has substantially reduced due to outsourced powder coating. While coating usage has substantially reduced (<< 200 gallons per month), TCE emissions are zero due to idling. GF complies with its permits.

NAME *J. S. Marshall*

DATE August 6, 2020

SUPERVISOR *Joyce*