

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

U83141583628068

FACILITY: Avon Protection Systems, Inc.		SRN / ID: U831415836
LOCATION: 503 Eighth St., Cadillac		DISTRICT: Cadillac
CITY: Cadillac		COUNTY: WEXFORD
CONTACT: John Strickland , Facilities Manager		ACTIVITY DATE: 12/17/2014
STAFF: Kurt Childs	COMPLIANCE STATUS:	SOURCE CLASS:
SUBJECT: Compliance inspection.		
RESOLVED COMPLAINTS:		

I conducted an unannounced scheduled inspection of Avon Protection Systems Inc. (APS) a subsidiary of Avon Rubber P.L.C. Despite the similarity in name and the proximity of the two plants, APS is not related to Avon Automotive. APS has been operating at this location, which formerly housed Avon Technical Services and Piranha Hose, since 2007. A review of MACES and the District files indicates this facility has not been previously inspected with regard to compliance with the Air Pollution Control Rules. No air use permits were identified for this source though an SRN (N6426) assigned to Avon Technical Products was still active in MACES. Air permits previously issued to Avon Technical Products have been voided. I have changed the MACES entry for Avon Technical Products to indicate that it is permanently closed.

I met with Mr. John Strickland, Facilities Manager who accompanied me on the inspection. APS produces respiratory protection equipment primarily for the military, law enforcement and fire fighting including full face mask air purifying respirators and SCBA supplied air respirators. Processes at the facility are primarily assembly of parts manufactured off-site with a few exceptions. There is also a lab on-site that does quality control leak testing of the masks.

Mr. Strickland showed each of the departments in the plant and described the operations with emphasis on air emission points. We began with the Bonding Oven, this department bonds the plastic lenses to the rubber full face mask. Bonding is accomplished in a humidity oven which is a chamber into which steam is generated to maintain high temperature and humidity (75%). The steam is generated by an electric heater outside the oven and masks travel through the oven on a conveyor. The oven door opens to discharge each mask and ductwork is installed over the door opening to ventilate heat from the oven.

We observed the Casting area on two occasions during the inspection. The casting process produces the plastic lenses that are bonded to masks. The lenses are made by injection molding of a two part liquid polyurethane that is stored in small tanks and pumped into the casting machine. The tanks are maintained under a vacuum to prevent exposure to the atmosphere and hardening of the raw material. The vacuum pump is equipped with a condenser-like "cold tank" and vented outside the plant. The lenses are treated in pre-cure and post-cure ovens. The pre-cure oven is a gas fired 500,000 Btu oven with an exterior venting stack that has an exhaust flow rate of 227 CFM. The post-cure oven is electrically heated and has no vent other than the door which is open to the plant environment. The polyurethane lines and mixing head are flushed with approximately 2 gallons of N-Methylpyrrolidone (NMP) (ITSL = $700 \mu\text{g}/\text{m}^3$ based on a 24 hr. average) solvent each shift. Excess solvent is collected in a drum and disposed of by Northern A-1 Environmental Services as a non-hazardous waste. Mr. Strickland stated that they do not generate hazardous waste at this facility.

Filter cartridges for the respirators are assembled on-site using a highly automated production line. The filter cartridges consist of plastic housings, fabric filters, activated carbon and a useful life detector that is manufactured on site. Plastic parts are bonded using ultrasonic welding. These portions of the production line as well as the carbon filling portion are controlled by a large cartridge filter dust collector located outside the building but that discharges back inside the plant. In this area there is also a small dust collector located outdoors that controls dust from loading the trash compactor.

Final assembly of the masks takes place in a separate area of the plant with no air emissions vented outside the plant.

APS operates a lab within the plant that does quality control testing on the masks and cartridges to test for performance and leaks. Activated carbon received by APS is also tested to ensure it meets production standards prior to use in the cartridges. Mask testing is

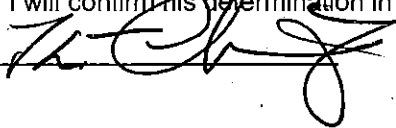
conducted in enclosed vessels within several lab hoods using a variety of compounds including cyanogen chloride, cyclohexane (ITSL = 6000 $\mu\text{g}/\text{m}^3$ 24 hr average), Dimethyl methylphosphonate (DMMP), SO_2 , and hydrogen cyanide (ITSL = 0.8 $\mu\text{g}/\text{m}^3$ annual average). Predetermined concentrations of the compound are generated as gasses in the vessels and the gas concentrations are measured outside and inside the mask. Each test runs for about 20 minutes. The lab hoods are vented outside with each hood connected to ductwork venting out one stack on the southwest corner of the plant.

There is additional equipment that vents to the general in-plant environment including the Thermotron ovens, auto glue machine, and the small production line that produces the useful life detector buttons for the filter cartridges.

Following our walk through of the plant Mr. Strickland and I discussed our observations and the potential application of exemptions to the various processes. Several Part 2 exemptions would appear to apply. For other processes additional review may be required. I summarized this discussion in the attached email to Mr. Strickland. The plastic lens casting may be exempt per R 286(b). Lens casting polyurethane mixing solvent flush and vacuum pump emissions may be exempt per R 290. Lab activities may be exempt per R 283(b). Other processes in the plant vent to the general plant environment.

The lens casting pre-cure oven may require a permit unless a way to determine compliance with R 290 can be established. Mr. Strickland will be conducting further investigation into these issues and take the appropriate action. I will confirm his determination in two weeks.

NAME



DATE

12-18-14

SUPERVISOR

