



west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3147
Plant ID No.: 035-00054
Applicant: Technology Plastics, LLC
Facility Name: Millwood
Location: Millwood, Jackson County
NAICS Code: 325991 (Plastics resins, custom compounding of purchased)
Application Type: Construction
Received Date: October 21, 2013
Engineer Assigned: Laura Jennings
Fee Amount: \$1,000.00
Date Received: October 29, 2013
Complete Date: December 16, 2013
Due Date: March 16, 2014
Applicant Ad Date: January 14, 2014
Newspaper: *Jackson Newspapers*
UTM's: Easting: 427.4 km Northing: 4306.7 km Zone: 17
Description: Technology Plastics, LLC (TPI) proposes to construct and operate a polymer processing facility (plastics extruder) in Millwood, WV.

DESCRIPTION OF PROCESS

Technology Plastics, LLC (TPI) proposes to construct and operate a plastics manufacturing process line in Millwood, WV.

Pellets or chips of ABS or ABS-FR (flame retardant) plastic will be fed into a hopper above the extruder via a vacuum transfer system. A feeder mixes and feeds the resin from the hopper to the extruder. The resin is then electrically heated to form a fluid thermoplastic.

The emission unit [TPI-001] is an extruder/mold machine. It is one piece of equipment with two emission points (TPI-001A through the chiller and TPI-001B between the extruder and the mold machine). The vapors from the extruder vent [TPI-001A] pass through a chiller prior to being emitted into the atmosphere. The extruder uses a screw to force the fluid

thermoplastic through a die. Some emissions occur at the extruder die and are directed to the atmosphere through an emission point [TPI-001B] as indicated on the process flow diagram.

Pellets or chips of polyethylene (PE), polypropylene (PP), high impact polystyrene (HIPS), or HIPS-FR plastic will be fed into a hopper above the extruder via a vacuum transfer system. A feeder mixes and feeds the resin from the hopper to the extruder. The resin is then electrically heated to form a fluid thermoplastic. The extruder uses a screw to force the fluid thermoplastic through a die. Emissions occur at the extruder die and are directed to the atmosphere through an emission point [TPI-001B] as indicated on the process flow diagram.

The extruded plastics are processed through a mold machine. The product is packaged for shipment to customers. The manufactured product will be stacked on a wooden skid and wrapped in stretch film for transport to customers.

Emission Units Table:

| Emission Unit ID | Emission Point ID | Emission Unit Description | Year Installed / Modified | Design Capacity | Type and Date of Change | Control Device |
|------------------|---------------------|------------------------------------|---------------------------|-----------------|-------------------------|----------------|
| TPI-001 | TPI-001A & TPI-001B | Plastics Extruder/ Molding Machine | 2014 | 2,500 lb/hr | New 01/2014 | None |

Material Safety Data Sheets were provided for the following materials that are proposed to be extruded and molded in the process: ABS (CAS # 9003-56-9), ABS FR (CAS # 9003-56-9, 1309-64-4), Chlorinated Paraffin-70 (CAS # 106232-86-4), ArsenalTM Polyethylene Homopolymers (CAS # 9002-88-4), Polypropylene Copolymer (CAS # 9010-79-1), Polystyrene Resin (HIPS) (CAS # 9003-55-8), and Polysyrene Resin (HIPS) FR (CAS # 9003-55-8, 79-94-7, 1309-64-4).

SITE INSPECTION

A pre-construction site visit was conducted by the writer on January 23, 2014. An overview of the process was provided and a walk through of the location where the equipment is planned to be located was reviewed. Technology Plastics will be located in “Building C” area of Star Plastics. Technology Plastics and Star Plastics are separate companies.

The writer met with Todd Ritchie, Luke Schindler, Rick Anderson, Mike Moran, and Lori Steele (MSES Consultants).

Directions to the facility from Charleston: Take I-77N to the Ripley Exit (#138). Turn left at the bottom of the exit ramp onto WV-62. Drive 8.7 miles on WV-62 and turn right onto WV-2 and continue for 1.0 miles. Turn left onto Jack Burlingame Drive into the Industrial Park and continue until you come to the Star Plastics building on the left hand side of the road.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions were calculated using emission factors from stack tests of similar processes and materials at SDR Plastics, Inc. In Ravenswood, WV. Emissions were calculated based on a throughput of 2,500 lb/hr and 21.9 MM lb/yr. Emissions were reviewed and verified by the writer.

Polyethylene and Polypropylene do not contain HAPs. They are solid materials and their processing does not generate air emissions. The raw materials are pellets and the finished products are pellets. There is no dust or other regulated pollutants associated with this process.

Emissions Data Summary Table:

| Emission Point ID | Emission Unit ID | Emission Unit Description | Control Device | Regulated Pollutant | Maximum Potential Uncontrolled Emissions | |
|-------------------|------------------|---------------------------|----------------|---------------------|--|--------|
| | | | | | lbs/hr | tpy |
| TPI-001A | TPI-001 | Chiller Vacuum Pump | None | Acrylonitrile | 0.0001 | 0.0004 |
| | | | | Styrene | 0.625 | 2.74 |
| | | | | VOC's | 0.625 | 2.74 |
| TPI-001B | TPI-001 | Mold Machine | None | Acrylonitrile | 0.0001 | 0.0004 |
| | | | | Styrene | 1.25 | 5.48 |
| | | | | VOC's | 1.25 | 5.48 |

According to supplemental information provided to the application, there are no fugitive emissions associated with this process.

REGULATORY APPLICABILITY

The following state and federal regulations have been reviewed for applicability.

STATE REGULATIONS:

45CSR13 PERMITS FOR CONSTRUCTION, MODIFICATION, RELOCATION AND OPERATION OF STATIONARY SOURCES OF AIR POLLUTANTS, NOTIFICATION REQUIREMENTS, ADMINISTRATIVE UPDATES, TEMPORARY PERMITS, GENERAL PERMITS, PERMISSION TO COMMENCE CONSTRUCTION, AND PROCEDURES FOR EVALUATION

The facility submitted an application for a construction permit under

45CSR13. The applicant has met the requirements of 45CSR13 by placing a Class I legal notice in *the Jackson Newspapers* on January 14, 2014, providing a complete permit application, and paying the required \$1,000 application fee.

45CSR21 REGULATION TO PREVENT AND CONTROL AIR POLLUTION FROM THE EMISSION OF VOLATILE ORGANIC COMPOUNDS

The scope of this rule is limited to sources located in Putnam County, Kanawha County, Cabell County, Wayne County, and Wood County. The applicant is located in Jackson County and therefore is not subject to 45CSR21.

45CSR22 AIR QUALITY MANAGEMENT FEE PROGRAM

The facility is subject to the fee program of 45CSR22. The facility has demonstrated compliance by paying the \$1,000 application fee for this construction permit application.

The facility will be added to the database for the collection of annual certification fees.

45CSR27 TO PREVENT AND CONTROL THE EMISSIONS OF TOXIC AIR POLLUTANTS

The purpose of 45CSR27 is to prevent and control the discharge of toxic air pollutants requiring the application of best available technology. Acrylonitrile is included in the definition of a "toxic air pollutant"; however, the equipment in this process does not meet the definition of toxic air pollutant service per 45 CSR 27 § 2.11. The process does not involve fluids.

"Toxic air pollutant service" means for the purpose of this rule that a piece of equipment such as a pump, valve or flange contains or contacts a process fluid containing 10% or more by weight of a toxic air pollutant.

The applicant is not subject to 45CSR27.

45CSR30 REQUIREMENTS FOR OPERATING PERMITS

The facility is not subject to 45CSR30. They do not meet the major source thresholds for either criteria pollutants or for hazardous air pollutants. The facility is not subject to any federal regulations that are subject to 45CSR30.

FEDERAL REGULATIONS:

40 CFR 60,
Subpart DDD STANDARDS OF PERFORMANCE FOR VOLATILE ORGANIC
COMPOUND EMISSIONS FROM THE POLYMER MANUFACTURING
INDUSTRY

The provisions of this subpart apply to affected facilities involved in the manufacture of polypropylene, polyethylene, polystyrene, or poly (ethylene terephthalate) as defined in § 60.561. The Millwood facility processes purchased polymer products and is not a polymer manufacturing process. The applicant is not subject to this subpart.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Acrylonitrile:

Exposure to acrylonitrile is primarily occupational: it is used in the manufacture of acrylic acid and modacrylic fibers. Acute (short-term) exposure of workers to acrylonitrile has been observed to cause mucous membrane irritation, headaches, dizziness, and nausea. No information is available on the reproductive or developmental effects of acrylonitrile in humans. Based on limited evidence in humans and evidence in rats, EPA has classified acrylonitrile as a probable human carcinogen (Group B1).

Antimony Compounds:

Everyone is exposed to low levels of antimony in the environment. Acute (short-term) exposure to antimony by inhalation in humans results in effects on the skin and eyes. Respiratory effects, such as inflammation of the lungs, chronic bronchitis, and chronic emphysema, are the primary effects noted from chronic (long-term) exposure to antimony in humans via inhalation. Human studies are inconclusive regarding antimony exposure and cancer, while animal studies have reported lung tumors in rats exposed to antimony trioxide via inhalation. EPA has not classified antimony for carcinogenicity. Antimony is alloyed with other metals such as lead to increase its hardness and strength; its primary use is in antimonial lead, which is used in grid metal for lead acid storage batteries.

Styrene:

Styrene is primarily used in the production of polystyrene plastics and resins. Acute (short-term) exposure to styrene in humans results in mucous membrane and eye irritation, and gastrointestinal effects. Chronic (long-term) exposure to styrene in humans results in effects on the central nervous system (CNS), such as headache, fatigue, weakness, and depression, CSN dysfunction, hearing loss, and peripheral neuropathy. Human studies are inconclusive on the reproductive and developmental effects of styrene; several studies did not report an increase in developmental effects in women who worked in the plastics industry, while an increased frequency of spontaneous abortions and decreased frequency of births were reported in another study. Several epidemiologic studies suggest there may be an association between

styrene exposure and an increased risk of leukemia and lymphoma. However, the evidence is inconclusive due to confounding factors. EPA has not given a formal carcinogen classification to styrene.

AIR QUALITY IMPACT ANALYSIS

The proposed project does not meet the definition of a major modification according to the definitions in 45CSR14 and 45CSR19; therefore, modeling is not required for this permit application.

MONITORING OF OPERATIONS

- Monthly and annual production records including hours of operation will be maintained to demonstrate compliance with the production rate and annual throughput limit.

CHANGES TO PERMIT

This is a new construction permit at a new facility.

RECOMMENDATION TO DIRECTOR

The writer recommends that Construction Permit R13-3147 be granted to Technology Plastics, LLC Millwood facility located in Jackson County, WV. Based on the information provided in the permit application, the applicant meets all applicable federal and state air regulations pertaining to the requested change.

Laura Jennings
Permit Engineer

Date