Statement of Basis

Polyplex, Inc.
Morgan County
Decatur, Alabama
712-0101

This proposed Title V Major Source Operating Permit is issued under the provisions of ADEM Admin. Code r. 335-3-16. The above named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

This facility is classified as a chemical production plant which produces polyethylene terephthalate (PET) resin and film. The facility includes the PET resin plant, raw material silos, and film line D1. In addition to the production units, the facility operates a 99 HP emergency fire water pump and has applied to construct an additional film line (film line D2). Polyplex currently is considered a synthetic minor source with respect to volatile organic compounds (VOC), hazardous air pollutants (HAP), and particulate matter (PM). The facility is subject to the requirements of 40 CFR 63, Subpart VVVVVV (NESHAP for Chemical Manufacturing Area Sources). Since the facility utilizes a control device to maintain the facility's emissions below area source levels, Polyplex is required to obtain a Title V permit as stated in 40 CFR 63.11494(e).

Each of the individual production units is described below:

Resin Plant

The resin plant is designed to produce 180 metric tons of PET pellet chips per day from the raw materials purified terephthalic acid (PTA) and monoetyhlene glycol (MEG). This unit consists of an esterification reactor, polymerization reactor, distillation column, stripper column, and two (2) identical 20.5 MMBtu/hr heat transfer medium (HTM) heaters.

Control Equipment

During normal operation, the emissions from the resin plant are routed to a single HTM heater via a closed vent system while the second heater is utilized as a back-up. During periods of high heat demand, the heaters would run simultaneously, with the emissions being routed to one or both of the heaters.

Emission Standards

Opacity

The state opacity requirement would be applicable to the HTM heaters in this unit.

Particulate

The unit would be subject to the state regulation process weight curve.

The HTM heaters would be subject to the state regulation for fuel burning equipment. Based on the equation for allowable particulate emissions for heat input values of 10 MMBtu/hr to 250 MMBtu/hr ($E=1.38H^{-0.44}$), the allowable particulate emissions from each HTM heater would be 0.37 lb/MMBtu. The potential emissions from each HTM heater is estimated to be 0.31 lb/hr (0.02 lb/MMBtu), which would be less than the state allowable particulate emission rate. No periodic monitoring would be necessary due to the inherent nature of natural gas.

SO_2

The HTM heaters would be subject to the state regulation for control of SO_2 from fuel burning equipment. The potential emissions of SO_2 from each HTM heater is estimated to be 0.02 lb/hr (0.001 lb/MMBtu). Since the HTM heaters are permitted to burn natural gas only, the heaters would meet this limit inherently. No additional monitoring would be required.

VOC/HAP

Polyplex has accepted an anti-PSD emission limit that will require the HTM heaters to maintain 96% destruction efficiency or greater of VOC and HAP.

NSPS/NESHAPs

This unit is subject to 40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial – Commercial – Institutional Steam Generating Units, 40 CFR 60, Subpart DDD – Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry, and 40 CFR 63, Subpart VVVVVV – National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources.

Since the HTM heaters are permitted to fire natural gas only, the unit would be exempt from the emission requirements of Subpart Dc.

Subpart DDD requires the facility to control the total organic carbon (TOC) emissions from the esterification and polymerization processes to 0.04 and 0.02 kg/Mg product (0.08 and 0.04 lb/ton product), respectively.

Subpart VVVVVV requires the facility to control the organic HAP emissions from process vents by 95% by weight.

Periodic Monitoring

HAP

Subpart VVVVVV requires that the facility conduct quarterly inspections of the process vessels and equipment for this unit to look for indications of leaks using the detection methods incorporating sight, sound, or smell. Any leaks detected during the inspections must be repaired within 15 days. The facility would maintain records of the dates and results of each inspection event, the dates of equipment repairs, and reasons for any delay of repair. The monitoring, recordkeeping, and reporting requirements for this unit are included in the permit provisos.

Raw Material Silos with Baghouse

The raw material silos include the receiver, two (2) bright chip silos, off specification chip silo, two (2) recycle chip silos, and the silica chip silo. The PET pellets produced from the resin plant are stored in the raw material silos before being transferred to the film lines for further processing.

Control Equipment

The emissions from the raw material silos are vented to a single baghouse for control during transfer operations.

Emissions Standards

This unit is not subject to any NSPS, NESHAP, or MACT standards.

Opacity

The state opacity requirement would be applicable to the baghouse in the raw material silos unit.

Particulate

The baghouse in this unit would be subject to the state regulation process weight curve; however, Polyplex has proposed a more stringent anti-PSD limit of 2.50 lb/hr for the raw materials silos baghouse.

Periodic Monitoring

Opacity and Particulate

As an indicator of compliance, Polyplex would be required to conduct daily visual inspections of the raw material silos baghouse. If visual emissions are observed, the facility must investigate and take appropriate action within 24 hours and must conduct an additional observation to confirm that the emissions are reduced to normal operation. The monitoring, recordkeeping, and reporting requirements for the raw material silos baghouse are included in the permit provisos.

PET Film Line D1 with Baghouse

Film Line D1 utilizes PET pellets produced by the resin plant and silica stored in the raw material silos to produce PET film. Film Line D1 includes the chip transfer operations (two (2) bright chip hoppers, two (2) silica hoppers, and chip transfer silo), corona treatment, wet coating process, tenter oven, grinders, fluff silos 1 and 2, and fluff transfer silo.

Control Equipment

The Film Line D1 fluff silo 1 (D1FT1), fluff silo 2 (D1FT2), and fluff transfer silo (D1FTR) have a baghouse associated with each emission point. A single baghouse is utilized to control emissions during chip transfer operations from the two (2) bright chip hoppers (D1BCH1 and D1BCH2), two (2) silica hoppers (D1CESH1 and D1CESH2), and the chip transfer silo (D1CHTR).

Emission Standards

This unit is not subject to any NSPS, NESHAP, or MACT standards.

Opacity

The state opacity requirement would be applicable to the baghouses in the Film Line D1 unit.

Particulate

The baghouses in this unit would be subject to the state regulation process weight curve; however, Polyplex has proposed more stringent anti-PSD limits for each baghouse in this unit. The proposed limits are listed in the table below.

Emission Point	Point Description	Emission Limit
D1CHTR, D1BCH1, D1BCH2, D1CESH1, D1CESH2	Chip Transfer Baghouse	1.43 lb/hr
D1FT1	Fluff Silo 1 Baghouse	0.14 lb/hr
D1FT2	Fluff Silo 2 Baghouse	0.14 lb/hr
D1FTR	Fluff Transfer Baghouse	0.29 lb/hr

Table 1: Proposed PM emission limits for Film Line D1 emission points.

Periodic Monitoring

Opacity and Particulate

As an indicator of compliance, Polyplex would be required to conduct daily visual inspections of the chip transfer baghouse, fluff silo 1 baghouse, fluff silo 2 baghouse, and fluff transfer baghouse. If visual emissions are observed, the facility must investigate and take appropriate action within 24 hours and must conduct an additional observation to confirm that the emissions are reduced to normal operation. The monitoring, recordkeeping, and reporting requirements for the baghouses associated with the Film Line D1 unit are included in the permit provisos.

99 HP Reciprocating Internal Combustion Engine (RICE) Emergency Fire-Water Pump

The 99 HP RICE emergency fire water pump is subject to 40 CFR 60, Subpart IIII and 40 CFR 63, Subpart ZZZZ. This generator has specific emission limits, and is limited to 100 hr/year of non-emergency operation. This unit must have a non-resettable hour meter installed in order to insure compliance.

Compliance Assurance Monitoring (CAM)

CAM is applicable to pollutant-specific emissions units at a major source as indicated in 40 CFR 64.2(a). Polyplex is considered an area source with respect to Title V; therefore, CAM would not be applicable to Polyplex.