



Connecticut Department of

**ENERGY &  
ENVIRONMENTAL  
PROTECTION**

**BUREAU OF AIR MANAGEMENT  
NEW SOURCE REVIEW PERMIT  
TO CONSTRUCT AND OPERATE A STATIONARY SOURCE**

Issued pursuant to Title 22a of the Connecticut General Statutes (CGS) and Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA).

<b>Owner/Operator</b>	The Gilman Bothers Company
<b>Address</b>	Gilman Road, Gilman, CT 06336
<b>Equipment Location</b>	Gilman Road, Gilman, CT 06336
<b>Equipment Description</b>	Polystyrene Foam Extrusion Line
<b>Town-Permit Numbers</b>	013-0007
<b>Premises Number</b>	013-0001
<b>Stack Number</b>	6
<b>Modification Issue Date</b>	April 19, 2017
<b>Prior Permit Issue Date(s)</b>	01/07/2011 (Modification) 07/23/1999 (Permit to Operate) 12/14/1998 (Permit to Construct)
<b>Expiration Date</b>	None

/s/ Anne Gobin for  
Robert J. Klee  
Commissioner

April 19, 2017  
Date

This permit specifies necessary terms and conditions for the operation of this equipment to comply with state and federal air quality standards. The Permittee shall at all times comply with the terms and conditions stated herein.

## **PART I. DESIGN SPECIFICATIONS**

### **A. General Description**

The Gilman Brothers Company operates a polystyrene foam extrusion line. The primary product manufactured will be an extruded foam board for the graphic arts trades. Molten polystyrene and isobutane blowing agent are extruded through an annular die, drawn over a cooling mandrel, and slit to form a sheet. As the polymer cools, it may be laminated on both sides with a thin film of polystyrene, paper or other similar material using the laminators. The edges are trimmed and the product is cut to specification and bundled before being transported to the finish goods warehousing area. The edge trimmings and scrap or reject product is ground and fed pneumatically to the fluff silos for storage prior to processing in the reclaim extruder where the fluff is reclaimed into resin pellets to later reuse. A portion of the scrap that cannot be reclaimed is sent to dumpsters to be disposed of. The laminators may operate as sheet extruders independently of the foam extrusion line.

### **B. Equipment Design Specifications**

U1. Virgin Resin Pellet Silo 1	3050 ft <sup>3</sup>
U2. Virgin Resin Pellet Silo 2	3050 ft <sup>3</sup>
U3. Truck Unloading Pneumatic Conveying System	
U4. Foam Extruder E-1	1200 lb/hr
U5. Extruder E-1/Laminators A&B	1600 lb/hr each
U6. Vacuum Transfer Blowing System	
U7. Edge Trimmers / Sheet Cutters	
U8. Central Scrap Processing Area	
U9. Fluff Conveying System	
U10. Fluff Storage Silo 1	2530 ft <sup>3</sup>
U11. Fluff Storage Silo 2	2530 ft <sup>3</sup>
U12. Reclaim Extruder Fluff Day Bin	
U13. Reclaim Extruder R-1	1500 lb/hr
U14. Reclaim Resin Pellet Silo 1	3050 ft <sup>3</sup>
U15. Reclaim Pellet Pneumatic Conveying System	
U16. Blowing Agent Non-Vented Storage Tank	18,000 gallons

### **C. Control Equipment Design Specifications**

1. Electrostatic Precipitator  
Equipment served: Extruder/Laminators A & B, stack S5  
Make & Model No: United Air Specialists, Smog Hog SH-10-CE  
Collecting Electrode Area: 1,660 ft<sup>2</sup>  
Voltage Across the Precipitator Plates: 6,000 Volts DC  
Number of Fields in the Precipitator: 2 Stages - Parallel plates

2. Baghouse Filter on each silo  
 Equipment served: Fluff Storage Silo 1 & 2, stacks S10 & S11  
 Make & Model No: Flex-Kleen Corp. 100 WSBS-64  
 Bag Material: 16 oz/yard<sup>2</sup> Glazed Polyester Felt (64 Bags)  
 Air/Cloth Ratio: 8.86:1 maximum, 6.15 typical  
 Cleaning Method: Reverse air
  
3. Baghouse Filter  
 Equipment served: Reclaim Extruder Day Bin, no stack  
 Make & Model No: Sterling Systems 10  
 Bag Material: 10 oz/yard<sup>2</sup> Glazed Polyester Felt (6 Bags - scrim supported)  
 Air/Cloth Ratio: 6.63:1  
 Cleaning Method: Shaker
  
4. Baghouse Filter  
 Equipment served: Non-Reclaim Scrap Bin, no stack  
 Make & Model No: Sterling Systems 13  
 Bag Material: 10 oz/yard<sup>2</sup> Glazed Polyester Felt (9 Bags - scrim supported)  
 Air/Cloth Ratio: 3:1  
 Cleaning Method: Shaker
  
5. Blower Filters  
 Equipment served: Virgin Pellet Silos 1 & 2, Truck Unloading Pneumatic Conveying System, Vacuum Transfer Blower System, Reclaim Resin Pellet Silo 1, Reclaim Pellet Pneumatic Conveying System

**D. Stack Parameters**

1. Stack No.: S5  
 Minimum Stack Height (ft above grade): 25 ft  
 Stack Diameter: 0.5 ft  
 Stack Exit Temperature: 60-90°F  
 Design Exhaust Gas Flow Rate: 2,000 acfm  
 Minimum Distance from Stack to Property Line: 300 ft
  
2. Stack No.: S10  
 Minimum Stack Height (ft above grade): 6 ft  
 Stack Diameter: 1 ft x 2 ft rectangle  
 Stack Exit Temperature: 60-90°F  
 Design Exhaust Gas Flow Rate: 1,000 acfm  
 Minimum Distance from Stack to Property Line: 83 ft
  
3. Stack No.: S11  
 Minimum Stack Height (ft above grade): 6 ft  
 Stack Diameter: 1 ft x 2 ft rectangle  
 Stack Exit Temperature: 60-90°F  
 Design Exhaust Gas Flow Rate: 1,000 acfm  
 Minimum Distance from Stack to Property Line: 83 ft

## PART II. OPERATIONAL CONDITIONS

### A. Equipment

1. Allowable Blowing Agent: Isobutane
2. Blowing Agent injection rate shall not exceed a consecutive 12 month average of 52.4 pounds per hour.
3. Maximum Foam Board Extruded: 9,937,000 pounds/consecutive 12 months
4. Maximum Scrap Foam Reclaimed: 1,987,400 pounds/consecutive 12 months
5. The Permittee shall continuously cover all open drums and vessels when not in use that contain solvents, cleaners, coatings, or cleaning rags so as to minimize the amounts of VOCs emitted to the atmosphere.

## PART III. ALLOWABLE EMISSION LIMITS

The Permittee shall not cause or allow this equipment to exceed the emission limits stated herein at any time.

### A. Criteria Pollutants

Polystyrene Foam Extrusion line, Reclaim Process, Warehouse, and Fluff Silos

Pollutant	lb/hr	lb VOC/100 lb foam board	tpy
PM/PM <sub>10</sub> /PM <sub>2.5</sub> (silos)	0.24		1.1
VOC Extruder	3.9		
VOC Grinder Reclaim		4.38 lb (combined grinder pelletizer emission rate)	
VOC Warehouse		0.00067	
Total VOC Emissions			61.4

### B. Hazardous Air Pollutants

This equipment shall not cause an exceedance of the Maximum Allowable Stack Concentration (MASC) for any hazardous air pollutant (HAP) emitted and listed in RCSA Section 22a-174-29. [STATE ONLY REQUIREMENT]

- C. Demonstration of compliance with the above emission limits shall be met by calculating the emission rates using emission factors from the following sources:

- *PM/PM<sub>10</sub>/PM<sub>2.5</sub>: Manufacturer's Data*  
*Fluff Silos: Based on testing of fluff silos for a similar facility. Emission Factor = 92 lbs of particulate per million pounds of fluff. Laminating Coextruders: Based on mass balance for a similar facility for a similar facility of 20 gallons of waste captured annually.*

- *VOC: Material balance of the blowing agent*  
*Extruder E-1: 7% of the total blowing agent is emitted.*  
*Reclaim Process: 100% of blowing agent in the reclaimable scrap is emitted*  
*Warehouse: 0.00067 lb of blowing agent is emitted per 100 lb of foam storage*

The commissioner may require other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

## **PART IV. MONITORING and RECORD KEEPING REQUIREMENTS**

### **A. Monitoring and Record Keeping**

1. The Permittee shall continuously monitor and continuously record the hourly blowing agent injection rate at all times during extrusion. The monitoring device(s) shall be maintained according to manufacturer's written recommendations for accuracy and precision.
2. The Permittee shall calculate and record the monthly and consecutive 12 month PM/PM<sub>10</sub>/PM<sub>2.5</sub> and VOC emissions in units of tons. The consecutive 12 month emissions shall be determined by adding (for each pollutant) the current month's emissions to that of the previous 11 months. Such records shall include a sample calculation for each of the three stages of the process emissions (extrusion, reclaim, and warehouse) The Permittee shall make these calculations within 30 days of the end of the previous month.
3. The Permittee shall record the monthly and consecutive 12 month polystyrene usage, isobutane usage, total foam board extruded, total scrap foam extruded, scrap foam to reclaim and scrap foam to dumpster in pounds. The consecutive 12 month material usage or production shall be determined by adding the current month's usage or production to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the previous month.
4. The Permittee shall calculate and record the monthly and consecutive 12 month isobutane percentage. The isobutane percentage shall be determined by dividing the isobutane usage by total foam board production. The Permittee shall make these calculations within 30 days of the previous month.
5. The Permittee shall calculate and record the consecutive 12 month average blowing agent injection rate.
6. The Permittee shall keep detailed operation and maintenance records of the equipment. Operation records shall include the time and date of start and stop of operation of the extruder and ESP. Maintenance records shall include the time and date removed from service, the cause for removal from service, the date and description of each service performed, and the time and date put back into service.
7. The Permittee shall keep all records required by this permit for a period of no less than five years and shall submit such records to the commissioner upon request.

## **PART V. STACK EMISSION TEST REQUIREMENTS**

- A.** Stack emission testing shall be performed in accordance with the [Emission Test Guidelines](#) available on the DEEP website.
- B.** Stack testing shall be required for the following pollutant(s):
  - VOC
- C.** The Permittee shall conduct a Department approved test of the extruder blowing agent emissions.
- D.** The Permittee shall conduct a Department approved test of the foam board:
  - 1. To determine actual blowing agent percentage contained in the final foam board after production and;
  - 2. The emissions from such foam board over 21 days of warehouse storage.
- E.** The Permittee shall submit an Intent to Test application and protocol pursuant to the Department's Emissions Test Guidelines no later than thirty days prior to the proposed test.
- F.** The Permittee shall conduct stack testing not later than 180 days after the modification date to this permit. (Application Number 201502085)
- G.** Extruder emissions test results shall be reported in units of lb/hr and lb VOC/100 lbs of Board (if possible). VOC testing of the foam board shall be in percentage and lb VOC/100 lb of Board.

## **PART VI. OPERATION AND MAINTENANCE REQUIREMENTS**

- A.** The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations.
- B.** The Permittee shall properly operate the control equipment at all times that this equipment is in operation and emitting air pollutants.

## **PART VII. SPECIAL REQUIREMENTS**

- A.** The Permittee shall not cause or permit the emission of any substance or combination of substances which creates or contributes to an odor beyond the property boundary of the premises that constitutes a nuisance as set forth in RCSA Section 22a-174-23. [STATE ONLY REQUIREMENT]
- B.** The Permittee shall operate this facility at all times in a manner so as not to violate or contribute significantly to the violation of any applicable state noise control regulations, as set forth in RCSA Sections 22a-69-1 through 22a-69-7.4. [STATE ONLY REQUIREMENT]

## **PART VIII. ADDITIONAL TERMS AND CONDITIONS**

- A.** This permit does not relieve the Permittee of the responsibility to conduct, maintain and operate the regulated activity in compliance with all applicable requirements of any federal, municipal or other state agency. Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.
- B.** Any representative of the DEEP may enter the Permittee's site in accordance with constitutional limitations at all reasonable times without prior notice, for the purposes of inspecting, monitoring and enforcing the terms and conditions of this permit and applicable state law.
- C.** This permit may be revoked, suspended, modified or transferred in accordance with applicable law.
- D.** This permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the facility or regulated activity affected thereby. This permit shall neither create nor affect any rights of persons of municipalities who are not parties to this permit.
- E.** Any document, including any notice, which is required to be submitted to the commissioner under this permit shall be signed by a duly authorized representative of the Permittee and by the person who is responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under Section 22a-175 of the Connecticut General Statutes, under Section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute."
- F.** Nothing in this permit shall affect the commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law, including but not limited to violations of this or any other permit issued to the Permittee by the commissioner.
- G.** Within 15 days of the date the Permittee becomes aware of a change in any information submitted to the commissioner under this permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the commissioner.
- H.** The date of submission to the commissioner of any document required by this permit shall be the date such document is received by the commissioner. The date of any notice by the commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" means calendar day. Any

document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.

- I. Any document required to be submitted to the commissioner under this permit shall, unless otherwise specified in writing by the commissioner, be directed to: Office of Director; Engineering & Enforcement Division; Bureau of Air Management; Department of Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.