



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).

Owner/Operator:	Tegrant Diversified Brands, Inc.
Address:	29 Park Road, Putnam, Connecticut 06260
Equipment Location:	29 Park Road, Putnam, Connecticut 06260
Equipment Description:	Custom Shape Expandable Polystyrene (EPS) Foam Molding Facility

Permit Number:	152-0017
Town/Premises Numbers:	152/8
Original Permit Issue Date:	11/22/1993
Modification Issue Date:	August 2, 2011
Expiration Date:	None

/s/Anne Gobin for
Daniel C. Esty
Commissioner

August 2, 2011
Date

PERMIT FOR PROCESS EQUIPMENT

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PART I. PROCESS DESCRIPTION

A. General Process Description

Tegrant operates an expandable polystyrene molding plant in Putnam, Connecticut. The Putnam plant has been in existence since 1966.

Tegrant is a custom-shape molder of expandable polystyrene (EPS), similar polystyrene-based polymers, ARCEL (a high impact polystyrene/polyethylene copolymer), and R-MER (a copolymer similar to ARCEL, but with a lower volatile content) into products for packaging, materials handling, and structural component uses.

These polymeric resins are received in bead form, then expanded and fused into molded product through a series of production steps. Volatile organic compounds (VOCs) from the premises result from the use of the blowing agent pentane. Pentane functions as an expansion agent for the bead. Most of the VOCs are released as the raw material is pre-expanded, aged, molded, and stored as finished product. Finished goods retain a small amount of residual VOCs indefinitely.

Emission loss rate at each phase of the operation varies depending on such factors as bead size and volatile content, density of the expanded bead, and shape and size of the molded product.

There are four production phases that comprise the overall process, the Pre-Expansion (PE), where the raw materials are partially expanded in preparation for molding; the Pre-Puff Storage (SB), where aging and storage of the pre-expanded beads is done prior to molding; the Molding (MP), where fusing of beads into various shapes is done, and the Finished Goods Storage (FGS), the warehousing of molded product.

B. Equipment Specifications

2 Pre-Expansion Units

60 Pre-puff Storage Bags: Aging and storage of pre-expanded beads in mesh bags prior to molding

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PART I. PROCESS DESCRIPTION, Continued

11 Molding Presses: Fusing of beads into various shapes (3 of the presses will be used primarily for molding on non-VOC materials)
 Finished Goods Storage: Warehousing of molded product
 Curing Room
 Drying Tunnel

C. Stack Parameters

Process Phase	Emission Point No.	Direct or Room Exhaust	Type Code ^a	Height (feet)	Diameter (inches)	Flow ^b (acfm)	Temperature (degrees F)
PE (6000)	S39	Direct	A	36	4	100	185
PE (3000)	S41	Direct	A	36	4	80	185
PE Area	S-PX	Room	D	TBD	TBD	>5,000	100
MP Area	S10	Room	D	32	28	24,100	Ambient + 10
MP Area	S11	Room	D	32	28	24,100	Ambient + 10
MP Area	S12	Room	D	32	28	24,100	Ambient + 10
MP Area	S13	Room	D	32	28	24,100	Ambient + 10
MP Area	S36	Room	D	32	53	46,400	Ambient + 10
MP Area	S37	Room	D	28	53	46,400	Ambient + 10
MP Area	S38	Room	D	28	53	46,400	Ambient + 10
MP Drain Vents	DV01-DV10	Direct	A	36	8	1,000	160-220
PP	S7	Room	D	35	28	17,100	Ambient + 10
Storage Area	S4	Room	C	36	24	5,100	Ambient + 10
Storage Area	S5	Room	C	35	24	24,100	Ambient + 10
Storage Area	S6	Room	A	35	28	24,100	Ambient + 10
FGS Area	S8	Room	A	32	28	5,100	Ambient + 10
FGS Area	S9	Room	A	32	28	17,200	Ambient + 10
FGS Area	S-FGS1	Room	B	25	24	9,900	Ambient + 10
FGS Area	S-FGS2	Inoperative	-	-	-	-	-
FGS Area	S-FGS3	Room	B	25	45	9,900	Ambient + 10
FGS Area	S-FGS4	Room	C	27	45	9,900	Ambient + 10

Notes:

^a. Type Codes: A = vertical stack (unobstructed), B = horizontal/downward stack, C = vertical stack (obstructed); and D = fugitive process emissions

^b. Indicated flows for points S39 and S41 are averages - actual flow rates are highly variable; flow for points DV01-DV09 is maximum - actual flow rates are highly variable.

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PART II. OPERATING REQUIREMENTS

Notwithstanding the specifications or description provided in Part I, above, the Permittee of the subject source shall comply with the following operating requirements.

A. Operating Parameter Limitations

1. The Weighted Average Pentane Content of the Beads in each Calendar Month shall not exceed:

EPS: 4.2%
ARCEL: 8.5%

2. Annual throughput is based on the following equation:

$$\sum_x (U_x) (V_x) (L_E) + \sum_y (U_y) (V_y) (L_A) \leq 112,400 \text{ lbs VOC/yr}$$

where:

- U_x = Pounds of EPS beads from lot x used during the 12-month period.
- V_x = VOC content of EPS beads from lot x, in percent by weight expressed as a decimal.
- L_E = Overall emission loss rate for EPS beads, in percent by weight expressed as a decimal.
- U_y = Pounds of ARCEL beads from lot y used during the 12-month period.
- V_y = VOC content of ARCEL beads from lot y, in percent by weight expressed as a decimal.
- L_A = Overall emission loss rate for ARCEL beads, in percent by weight expressed as a decimal.

B. O&M Requirements

The Permittee shall operate and maintain all equipment at this facility in accordance with the manufacturer's recommendations and specifications.

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PART II. OPERATING REQUIREMENTS, Continued

C. Emission Limits

1. Criteria Pollutants

The Permittee shall not exceed the emission limits stated herein at any time.

<u>Pollutant</u>	<u>tons/month</u>	<u>tons/year</u>
VOC (Pentane)	5.62	56.2

Demonstration of compliance with the above emission limits shall be met by calculating the emission rates using emission factor from the following sources:

i. Material Balance

The above statement shall not preclude the commissioner from requiring other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

2. Hazardous Air Pollutants (HAPs)

Refer to Part IV, Monitoring and Record Keeping Requirements for HAP limitations and Maximum Allowable Stack Concentration compliance.

PART III. STACK EMISSION TEST REQUIREMENTS (see Appendix B for General Requirements if applicable)

Stack emission/performance testing shall be required for the following:

- None at this time
- TSP
- SOx
- CO
- Pb
- PM-10
- NOx
- VOC
- Other (HAPs): _____,

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PART IV. MONITORING, RECORD KEEPING, AND REPORTING REQUIREMENTS

A. Material Records

1. The Permittee shall maintain records of each bead shipment. Each bead shipment shall include a shipping receipt from the bead supplier and a certification from the bead supplier certifying the percentage of pentane in the bead shipment. The shipping receipt and/or certification shall include the name of the bead supplier, and the percentage of pentane by weight of all the beads. The Permittee shall maintain records of each shipping receipt and certification.
2. The Permittee shall keep records of monthly and annual throughput by bead types. Annual bead throughput shall be based on any consecutive 12 month time period and shall be determined by adding the current month's bead throughput to that of the previous 11 months. The Permittee shall make these calculations each month.
3. The Permittee shall keep records of monthly and annual VOC (pentane) emissions. The Permittee shall make calculations of emissions on a daily basis. Annual VOC emissions shall be based on any consecutive 12 month time period and shall be determined by adding the current month's VOC emissions to that of the previous 11 months. The Permittee shall make such annual emissions calculations each month.
4. The Permittee shall keep records on premises indicating continual compliance with all above conditions at all times and shall make them available upon request by the commissioner for the duration of this permit. Such records must be retained on the premises for five years from the date they were generated.
5. Records shall be kept complete and up-to-date, in a consistent and legible format.

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PART IV. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS, Cont.

B. Continuous Emission Monitoring (see Appendix A for General Requirements if applicable)

CEM is not required at this time for the EPS Production Line.

C. Hazardous Air Pollutants (HAPs) MASC

Chemical compounds, e.g., coatings, solvents, etc., used by this source now or in the future, either for production or on a trial basis, which contain hazardous air pollutants (HAPs) that are regulated under RCSA Section 22a-174-29 are allowed provided that:

1. the Permittee can demonstrate that the HAPs actual stack concentration (ASC) does not exceed the maximum allowable stack concentration (MASC) using the following equation,

$$\text{MASC} = [0.885(\text{HLV}) (X + 1.08\text{Vo}^{0.64})^{1.56}] / \text{Vo}$$

where

MASC = Maximum Allowable Stack Concentration (ug/m³ or ppmv)
 HLV = Hazard Limiting Value (ug/m³ or ppmv)
 Vo = average actual flow rate (acms)
 X = ten (10) meters, or the distance from the discharge point to the closest property line, whichever is greater.

The MASC is derived using the HAPs corresponding HLV as listed in RCSA Section 22a-174-29 and the stack parameters given in Part I of this permit.

For EPS and Arcel materials, the ASC shall be derived using the HAPs content in each material (ppmw), the HAPs loss rate (% by weight), and the maximum material processing rate (lbs/hr) as a worst case, and any applicable controls. This gives the actual stack emissions in lb/hr which can be converted to a concentration in ug/m³ or ppmv;

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PART IV. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS, Cont.

2. the Permittee keeps records of all compounds used, and MSDS's or technical data sheets; and,
3. the Permittee shall keep records and reports of any changes and demonstrations of compliance with permit limits in accordance with RCSA Section 22a-174-4(d).

NOTE: The emissions from any new compounds, for production or trial runs, shall be counted toward any applicable emission limit in this permit.

PART V. PREMISES 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.
- B. The Permittee shall operate this source and all accompanying equipment at all times in a manner so as not to violate or significantly contribute to the violation of any applicable state noise control regulations, as set forth in RCSA Sections 22a-69-1 through 22a-69-7.4.

PART VI. 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

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PART VI. ADDITIONAL TERMS AND CONDITIONS, Continued

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.

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PART VI. ADDITIONAL TERMS AND CONDITIONS, Continued

- G.** Within fifteen 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.

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