217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)

PERMITTEE

Huntsman International LLC
Attn: Don Wood, EHS Manager TPU
5015 Barnard Mill Road
Ringwood, Illinois 60072

Application No.: 04030040 I.D. No.: 111811AAU
Applicant's Designation: Date Received: March 15, 2004
Subject: Thermoplastic Polyurethane Production Operation
Date Issued: Expiration Date:
Location: 5015 Barnard Mill Road, Ringwood, McHenry County

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of:

TPU Production;
TPU Grinding/Milling/Blending Operation with two (2) Dust Collectors;
Manual and Automatic Powder Addition Processes;
Pneumatic Conveying and Bagging Systems;
Seventeen (17) Liquid Raw Material Storage and Day Tanks; and
One (1) 0.35 mmBtu/hour Natural Gas-Fired Burnoff Oven with Afterburner

pursuant to the above-referenced application. This permit is subject to standard conditions attached hereto and the following special condition(s):

1a. This federally enforceable state operating permit is issued:

i. To limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 10 tons/year for any single Hazardous Air Pollutant (HAP) and 25 tons/year for any combination of such HAPs]). As a result, the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit are described in Attachment A.

ii. To limit the potential emissions of VOM from the source to less than 25 tons/year. As a result, the source is excluded from the requirement of 35 Ill. Adm. Code Part 205, Emission Reduction Market System. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.

iii. To establish federally enforceable production and operating limitations, which restrict the potential to emit for VOM to less than 25 tons per year so that the source is not subject to the requirements of 35 Ill. Adm. Code Part 218 Subpart TT (Other Emission Units).

b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.

c. This permit supersedes all operating permit(s) for this location.

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2a. Pursuant to 35 Ill. Adm. Code 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 Ill. Adm. Code 212.122.

b. Pursuant to 35 Ill. Adm. Code 212.123(b), the emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 m (1000 ft) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period.

c. Pursuant to 35 Ill. Adm. Code 212.321(a), no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 Ill. Adm. Code 212.321(c).

3. Pursuant to 35 Ill. Adm. Code 214.301, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.

4a. Pursuant to 35 Ill. Adm. Code 218.122(a), no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lbs/hr) of organic material into the atmosphere during the loading of any organic material from the aggregate loading pipes of any loading area having through-put of greater than 151 cubic meters per day (40,000 gal/day) into any railroad tank car, tank truck or trailer unless such loading area is equipped with submerged loading pipes or a device that is equally effective in controlling emissions and is approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with 35 Ill. Adm. Code 218.108.

b. Pursuant to 35 Ill. Adm. Code 218.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 l (250 gal), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with 35 Ill. Adm. Code 218.108, or unless such tank is a pressure tank as described in 35 Ill. Adm. Code 218.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 218.121(b)(2).

c. Pursuant to 35 Ill. Adm. Code 218.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 218.302, 218.303, 218.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 218 Subpart G shall apply only to photochemically reactive material.

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5a. This permit is issued based on the source not being subject to the New Source Performance Standards (NSPS) for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry, 40 CFR 60 Subpart DDD because the source is not involved in the manufacture of polypropylene, polyethylene, polystyrene, or poly (ethylene terephthalate) as defined in 40 CFR 60.561.

b. This permit is issued based on the source being subject to the New Source Performance Standards (NSPS) for Stationary Spark Ignition Internal Combustion Engines, 40 CFR 60 Subpart JJJJ, because the 49 kW emergency generator commenced construction after June 12, 2006 and was manufactured after January 1, 2009.

6a. This permit is issued based on the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Group I Polymers and Resins, 40 CFR 63 Subpart U because the source is an area source, and further, does not manufacture an elastomer product as defined in 40 CFR 63.482.

b. This permit is issued based on the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Organic Chemical Manufacturing, 40 CFR 63 Subpart FFFF, as the source is an area source and not a major source of HAPs. Furthermore, and pursuant to 40 CFR 63.2435(c)(4), the requirements in 40 CFR 63 Subpart FFFF do not apply to fabricating operations (such as spinning or compressing a solid polymer into its end use); compounding operations (in which blending, melting, and resolidification of a solid polymer product occur for the purpose of incorporating additives, colorants, or stabilizers); and extrusion and drawing operations (converting an already produced solid polymer into a different shape by melting or mixing the polymer and then forcing it or pulling it through an orifice to create an extruded product). An operation is not exempt if it involves processing with HAP solvent or if an intended purpose of the operation is to remove residual HAP monomer.

c. This permit is issued based on the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Chemical Manufacturing Area Sources, 40 CFR 63 Subpart VVVVVV. The chemical manufacturing process units (CMPU) at this source do not use as feedstocks, generates as byproducts, or produces as products any of the HAPs listed in Table 1 to 40 CFR 63 Subpart VVVVVV.

d. This permit is issued based on the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Area Sources: Chemical Preparations Industry, 40 CFR 63 Subpart BBBBBBB because the source does not manufacture a chemical preparation. Pursuant to 40 CFR 63.11588, chemical preparation means a target HAP-containing (metal compounds for chromium, lead, manganese, and nickel) product, or intermediate used in the manufacture of other products, manufactured in a process operation described by the NAICS code 325998.

7a. This permit is issued based on the storage tanks at this source not being subject to 35 Ill. Adm. Code 218.120 (Control Requirements for Storage Containers of VOL). Pursuant to 35 Ill. Adm. Code 218.119, the limitations of 35 Ill. Adm. Code 218.120 shall apply to all storage containers of volatile organic liquid (VOL) with a maximum true vapor

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pressure of 0.5 psia or greater in any stationary tank, reservoir, or other container of 151 cubic meters (40,000 gal) capacity or greater, except to vessels as provided below:

i. Vessels with a capacity greater than or equal to 40,000 gallons storing a liquid with a maximum true pressure of less than 0.5 psia;

ii. Vessels of coke oven by-product plants;

iii. Pressure vessels designed to operate in excess of 29.4 psia and without emissions to the atmosphere;

iv. Vessels permanently attached to mobile vehicles such as trucks, rail cars, barges, or ships;

v. Vessels storing petroleum liquids; or

vi. Vessels used to store beverage alcohol.

vii. Vessels with storage capacity less than 40,000 gallons must comply with 35 Ill. Adm. Code 219.129(f).

b. Pursuant to 35 Ill. Adm. Code 218.122(c), if no odor nuisance exists the limitations of 35 Ill. Adm. Code 218.122 shall only apply to the loading of VOL with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).

8a. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.

b. The afterburner shall be in operation at all times when the associated burnoff oven is in operation and emitting air contaminants.

c. The afterburner's combustion chamber of the burnoff oven shall be preheated to at least the manufacturer’s recommended temperature but no less than the temperature at which compliance was demonstrated in the most recent compliance test, or 1400°F in the absence of a compliance test, before the burnoff oven process is begun. This temperature shall be maintained during operation.

d. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the afterburner associated with the burnoff oven and the dust collectors associated with the TPU Grinding/Milling/Blending Operation such that the afterburner and dust collectors are kept in proper working condition and not cause a violation of the Illinois Environmental Protection Act or regulations promulgated therein.

e. The burnoff oven shall only be operated with natural gas as the fuel. The use of any other fuel in the burnoff oven requires that the Permittee first obtain a construction permit from the Illinois EPA and then perform stack testing to verify compliance with all applicable requirements.

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f. Material insulated with polyvinyl chloride or asbestos, or scrap containing the fuming metals tin, zinc, or lead shall not be charged to the burnoff oven.

9a. Emissions and operation of the TPU Production process shall not exceed the following limits:

VOM/HAP Solvent Usage		VOM/HAP Emissions	
(Tons/Month)	(Tons/Year)	(Tons/Month)	(Tons/Year)
0.9	8.82	0.9	8.82

These limits are based on maximum solvent usage at continuous operation with all solvent used being emitted.

b. Emissions and operation of product Grinding/Milling/Blending Operation shall not exceed the following limits:

Process Rate		Particulate Matter Emissions		VOM/HAP Emissions	
(Tons/Month)	(Tons/Year)	(Tons/Month)	(Tons/Year)	lb/Month	Tons/Year
3,000	30,000	0.60	6.00	200	1.00

These limits are based on maximum production at continuous operation and 1% of product fed to the respective dust collector with 98% control efficiency.

c. Emissions and operation of burnoff oven shall not exceed the following limits:

i. Emissions from the combustion of natural gas:

Pollutant	Emission Factor (lbs/mmscf)	Emissions (lb/hr)	Emissions (Tons/Yr)
Carbon Monoxide (CO)	84.0	0.03	0.13
Nitrogen Oxides (NO_x)	100.0	0.04	0.15
Sulfur Dioxide (SO_2)	0.6	0.01	0.01

These limits are based on the maximum firing rate (0.35 mmBtu/hour) and standard emission factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998).

ii. This permit is issued based on negligible emissions of particulate matter and volatile organic material from burnoff oven. For this purpose emissions of each contaminant shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.

d. This permit is issued based on negligible emissions of particulate matter from the powder addition processes in the TPU Production process. For this purpose emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.

e. This permit is issued based on negligible emissions of particulate matter from the pneumatic conveying and bagging systems. For this purpose emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.

f. This permit is issued based on negligible emissions of volatile organic material from the storage tanks and associated material transfer (i.e.,

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process tanks). For this purpose, emissions from the process tanks shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.

g. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act from this source shall not exceed 0.9 tons/month and 9.0 tons/year of any single HAP and 2.25 tons/month and 22.5 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirement to obtain a CAAPP permit from the Illinois EPA.

h. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

10a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:

i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures, and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.

ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.

b. Testing required by Condition 11 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.

11. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days

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after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.

12. The burnoff oven with afterburner shall be equipped with a continuous temperature indicator and strip chart recorder or disk storage for the afterburner combustion chamber temperature. The Permittee shall retain all records of equipment operation and strip charts or disk storage for at least two years from the date of occurrence. These records shall be available for inspection by the Illinois EPA.

13. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to Section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.

14. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.

15. Pursuant to 35 Ill. Adm. Code 218.129(f), the owner or operator of each storage vessel specified in 35 Ill. Adm. Code 218.119 shall maintain readily accessible records of the dimension of the storage vessel and an analysis of the capacity of the storage vessel. Each storage vessel with a design capacity less than 40,000 gallons is subject to no provisions of 35 Ill. Adm. Code Part 218 other than those required by maintaining readily accessible records of the dimensions of the storage vessel and analysis of the capacity of the storage vessel.

16a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:

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i. Records addressing use of good operating practices for the afterburner associated with the burnoff oven and the dust collectors associated with the TPU Grinding/Milling/Blending Operation:

A. Records for periodic inspection of the afterburner and dust collectors with date, individual performing the inspection, and nature of inspection; and

B. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

ii. Material usage of raw materials used in TPU Production (tons/month and tons/year);

iii. Production rate for the product Grinding/Milling/Blending Operation (tons/month and tons/year);

iv. Material throughput of the Seventeen (17) Liquid Raw Material Storage and Day Tanks (gal/month and gal/year);

v. Natural gas usage (mmscf/month and mmscf/yr); and

vi. Monthly and annual emissions of CO, NO_x, PM, SO_2, VOM and HAPS from the source with supporting calculations (tons/month and tons/year).

b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer storage device) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.

17. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.

18. Pursuant to 35 Ill. Adm. Code 218.990, upon request by the Illinois EPA, the owner or operator of an emission unit which is exempt from the requirements of 35 Ill. Adm. Code 218 Subparts PP, QQ, RR, TT or 35 Ill. Adm. Code 218.208(b) shall submit records to the Illinois EPA within 30 calendar days from the date of the request that document that the emission unit is exempt from those requirements.

19a. If there is an exceedance of or a deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance or

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deviation. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or deviation and efforts to reduce emissions and future occurrences.

b. Two (2) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison Street
Des Plaines, Illinois 60016

If you have any questions on this permit, please contact Jocelyn Stakely at 217/782-2113.

Edwin C. Bakowski, P.E. Date Signed: _____
Manager, Permit Section
Division of Air Pollution Control

ECB:JRS:jws

cc: Illinois EPA, FOS Region 1
Lotus Notes

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Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from the Thermoplastic Polyurethane Production plant operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels, (e.g., 10 tons/year for any single HAP, and 25 tons/year for any combination of such HAP) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled, and control measures are more effective than required in this permit.

	E M I S S I O N S (Tons/Year)						
Emission Unit	CO	NO_x	PM	SO_2	VOM	Single HAP	Combined HAPs
TPU Production					8.82		
TPU Grinding/ Milling/Blending Operation			6.00		1.00		
Burnoff Oven	0.13	0.15	0.44	0.01	0.44		
Powder Addition Processes			0.44				
Pneumatic Conveying/Bagging Systems			0.44				
17 Raw Material Storage and Day Tanks	--	--	--	--	0.44	--	--
Totals	0.13	0.15	7.32	0.01	10.70	9.00	22.50

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