



Mitchell E. Daniels, Jr.  
Governor

Thomas W. Easterly  
Commissioner

100 North Senate Avenue  
Indianapolis, Indiana 46204  
(317) 232-8603  
(800) 451-6027  
www.IN.gov/idem

TO: Interested Parties / Applicant

DATE: December 7, 2005  
RE: Freudenberg – NOK General Partnership/145-21992-00027

FROM: Paul Dubenetzky  
Chief, Permits Branch  
Office of Air Quality

### Notice of Decision – Approval

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to 326 IAC 2, this approval was effective immediately upon submittal of the application.

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days from the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures  
FNPER-AM.dot 1/10/05



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

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December 7, 2005

Mr. Tom Julian
Freudenberg - NOK General Partnership
1700 Miller Avenue
Shelbyville, IN 46176

Re: 145-21992-00027
Notice-only change to
MSOP 145-14928-00027

Dear Mr. Julian:

Freudenberg - NOK General Partnership was issued a Minor Source Operating Permit (MSOP) on April 21, 2003 for a stationary rubber parts manufacturing plant located at State Road 44 West, Shelbyville, Indiana 46176. A letter notifying the Office of Air Quality of a notice-only change to the permit was received on November 15, 2005. The source is being modified through the addition of new emission units of the same type and capacity as existing permitted emission units, and will not cause the source's potential to emit to be greater than the threshold levels specified in 326 IAC 2-2 or 326 IAC 2-3. The source is adding seven (7) and removing four (4) rubber presses. The attached revised calculation table contains the revised potential to emit of regulated criteria pollutants and hazardous air pollutants (HAPs) for the entire source. The addition of these units is considered a notice-only change pursuant to 326 IAC 2-6.1-6(d)(13).

Pursuant to the provisions of 326 IAC 2-6.1-6, Section A.2 of the permit is hereby revised as follows with deleted language indicated with strikeout and new language as bold type:

A.2 Emissions Units and Pollution Control Equipment Summary

This stationary source is approved to operate the following emissions units and pollution control devices:

- (f) Seventy-four~~two~~ (74~~2~~) rubber presses, using no control, and exhausting to the atmosphere with the following capacities:
(1) ...
(2) eight~~ten~~ (8~~10~~) rubber presses, identified as N-50 Boots Presses, each with a maximum capacity of processing 7.0 pounds of rubber per hour;
(3) ...
(4) six~~seven~~ (6~~7~~) rubber presses, identified as PT-60 Presses, each with a maximum capacity of processing 7.1 pounds of rubber per hour;
(5) eight~~ten~~ (8~~10~~) rubber presses, identified as PT-90 Presses, each with a maximum capacity of processing 7.1 pounds of rubber per hour;
(6) ...
(7) nine~~teen~~seven~~teen~~ (9~~17~~) transfer rubber presses, identified as Transfer Presses, each with a maximum capacity of processing 34 pounds of rubber per hour;
(8) one (1) rubber press, identified as Zone C-02 Press, with a maximum capacity of processing 3 pounds of rubber per hour; and
(9) seven~~five~~ (7~~5~~) rubber presses, identified as NT-160 Presses, each with a maximum capacity of processing 14.2 pounds of rubber per hour.; and
(10) one (1) rubber press, identified as DESMA 110, with a maximum capacity of processing 3.4 pounds of rubber per hour.

- (g) ...
- (o) ...
- (p) laboratory equipped with one (1) Banbury Mixer BR 1600 and associated Electric Delta Therm, lab mill with 12" drop mill, one (1) Moriyama Mixer with 16" drop mill, three (3) electric molding presses, and four (4) molding ovens; one (1) rubber press, identified as ~~DESMA 110~~**SIM-30**, with a maximum capacity of processing 3.4 pounds of rubber per hour; and

The calculation tables are revised as indicated below.

Page 1 of 10, the uncontrolled and controlled potential to emit (tons/year) are revised as follows:

Emission Generating Activity						
Pollutant	Mold Release Agents	Mixers, Extruders and Presses	Rubber Warm-up Mills and Post Curing Ovens	Space Heaters HVAC Units	Vacublast ...	TOTAL
VOC	34.25	<del>42.79</del> <b>41.10</b>	4.44	0.29	0.00	<del>81.76</del> <b>80.07</b>
total HAPs	0.00	<del>2.42</del> <b>2.46</b>	1.24	negl.	0.00	<del>3.66</del> <b>3.70</b>

Page 2 of 10, the number of units, potential emissions of VOC for both lb/hr and tons/year of the presses are revised as follows. No changes have been made to the max capacity or VOC emission factor of the presses:

Unit Description	Number of Units	Potential Emissions VOC Lb/hr	Potential Emissions VOC ton/yr
<b>Presses</b>			
R-100 Boots Presses	8	1.38	6.04
N-50 Boots Presses	<del>810</del>	<del>0.370.47</del>	<del>1.642.05</del>
DC-60 Presses	7	0.33	1.45
PT-60	<del>67</del>	<del>0.280.33</del>	<del>1.251.45</del>
PT-90	<del>810</del>	<del>0.380.47</del>	<del>1.662.08</del>
SIM60 Presses	8	0.38	1.66
DESMA 110, <del>SIM-30 (removed)</del>	<del>42</del>	<del>0.020.05</del>	<del>0.100.20</del>
Transfer Presses	<del>1917</del>	<del>4.323.86</del>	<del>18.9016.91</del>
NT-160 Presses	<del>75</del>	<del>0.660.47</del>	<del>2.912.08</del>
Zone C-02 Press	1	0.02	0.03
<b>Totals</b>			<del>42.79</del> <b>41.10</b>

Page 4 of 10, the total number of presses, which were not revised in previous modifications, the rubber processing capacity and total potential HAP emissions (tons/year) are revised as follows:

One (1) Press	@	3.00 lb/hr capacity
<del>One (1)</del> <b>Two (2)</b> Presses	<b>each @</b>	3.40 lb/hr capacity
<del>Twenty</del> <b>Thirty two (32)</b> Presses	<b>each @</b>	7.10 lb/hr capacity
<del>Seven</del> <b>Ten (710)</b> Presses	<b>each @</b>	7.00 lb/hr capacity
One (1) Press	@	12.68 lb/hr capacity
<del>Three</del> <b>Five (35)</b> Presses	<b>each @</b>	14.20 lb/hr capacity
Eight (8) Presses	each @	25.80 lb/hr capacity
<del>Nineteen</del> <b>Seventeen (1917)</b> Presses	<b>each @</b>	34.00 lb/hr capacity
Rubber Processing Capacity		<del>1119.28</del> <b>1175.08</b> lb/hr

Pollutant	Potential Emissions Tons/yr
Total	<del>8.408</del> <b>8.2E-01</b>

All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this letter and the following revised permit pages to the front of the original permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact James Farrell, at (800) 451-6027, press 0 and ask for James Farrell or extension (3-8396) or dial directly (317) 233-8396.

Sincerely,

Original sign by

Nysa L. James, Section Chief  
Permits Branch  
Office of Air Quality

JF

Attachments

cc: File - Shelby County  
U.S. EPA, Region V  
Shelby County Health Department  
Air Compliance Section Inspector - DJ Knotts  
Compliance Data Section  
Administrative and Development



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## MINOR SOURCE OPERATING PERMIT OFFICE OF AIR QUALITY

**Freudenberg - NOK General Partnership  
State Road 44 West  
Shelbyville, Indiana 46176**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this permit.

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

Operation Permit No.: MSOP 145-14928-00027	
Issued by: Original signed by Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: April 21, 2003  Expiration Date: April 21, 2008

First Notice Only Change No.: 145-18557-00027, issued January 13, 2004  
Second Notice Only Change No.: 145-20570-00027, issued February 15, 2005

Third Notice Only Change No.: 145-21992-00027	Pages Affected: 3, 4 and 5
Issued by: Original signed by Nysa L. James, Section Chief Office of Air Quality	Issuance Date: December 7, 2005  Expiration Date: April 21, 2008

## SECTION A

## SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

### A.1 General Information [326 IAC 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

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The Permittee owns and operates a rubber parts manufacturing plant

Authorized Individual:	General Manager
Source Address:	State Road 44 West, Shelbyville, Indiana 46176
Mailing Address:	1700 Miller Avenue, Shelbyville, Indiana 46176
General Source Phone:	317-392-2571
SIC Code:	3053
County Location:	Shelby
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Minor Source, under PSD Rules; Minor Source, Section 112 of the Clean Air Act

### A.2 Emissions Units and Pollution Control Equipment Summary

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This stationary source is approved to operate the following emissions units and pollution control devices:

- (a) one (1) rubber mixer, identified as #1 Mixer, with a maximum capacity of processing 1,080 pounds of raw material per hour, with one (1) baghouse for particulate matter control, exhausting to one (1) stack identified as 929034;
- (b) one (1) rubber mixer, identified as #2 Mixer, with a maximum capacity of processing 1,215 pounds of raw material per hour, with two (2) baghouses for particulate matter control, exhausting to two (2) stacks, identified as 909002 and 909003;
- (c) one (1) rubber mixer, identified as 35L Moriyama Mixer, with a maximum capacity of processing 225 pounds of raw material per hour, with one (1) baghouse for particulate matter control, exhausting to one (1) stack, identified as 919005;
- (d) one (1) rubber mixer, identified as 55L Rubber Mixer, with a maximum capacity of processing 440 pounds of raw material per hour, with one (1) baghouse for particulate matter control, exhausting to one (1) stack, identified as 959008;
- (e) three (3) rubber extruders, identified as Barwell Rubber Extruders, each with a maximum capacity of processing 700 pounds of rubber per hour, using no control, and exhausting to the atmosphere;
- (f) Seventy-four (74) rubber presses, using no control, and exhausting to the atmosphere with the following capacities:

- (1) eight (8) rubber presses, identified as R-100 Boots Presses, each with a maximum capacity of processing 25.8 pounds of rubber per hour;
  - (2) ten (10) rubber presses, identified as N-50 Boots Presses, each with a maximum capacity of processing 7.0 pounds of rubber per hour;
  - (3) seven (7) rubber presses, identified as DC-60 Presses, each with a maximum capacity of processing 7.1 pounds of rubber per hour;
  - (4) seven (7) rubber presses, identified as PT-60 Presses, each with a maximum capacity of processing 7.1 pounds of rubber per hour;
  - (5) ten (10) rubber presses, identified as PT-90 Presses, each with a maximum capacity of processing 7.1 pounds of rubber per hour;
  - (6) eight (8) rubber presses, identified as SIM60 Presses, each with a maximum capacity of processing 7.1 pounds of rubber per hour;
  - (7) seventeen (17) transfer rubber presses, identified as Transfer Presses, each with a maximum capacity of processing 34 pounds of rubber per hour;
  - (8) one (1) rubber press, identified as Zone C-02 Press, with a maximum capacity of processing 3 pounds of rubber per hour; and
  - (9) five (5) rubber presses, identified as NT-160 Presses, each with a maximum capacity of processing 14.2 pounds of rubber per hour; and
  - (10) one (1) rubber press, identified as DESMA 110, with a maximum capacity of processing 3.4 pounds of rubber per hour.
- (g) one (1) single-head plastic injection molding press, identified as Ossberger Plastic Press - single-head, with a maximum capacity of processing 26.7 pounds of plastic per hour, using no control, and exhausting to the atmosphere;
- (h) three (3) double-head plastic injection molding presses, identified as Ossberger Plastic Presses - double-head, each with a maximum capacity of processing 53.4 pounds of plastic per hour, using no control, and exhausting to the atmosphere;
- (i) one (1) 42-inch rubber warm-up mill, identified as 42-inch rubber warm-up mill, with a maximum capacity of processing 700 pounds of rubber per hour, using no control, and exhausting to the atmosphere;
- (j) two (2) 60-inch rubber warm-up mills, identified as 60-inch rubber warm-up mills, each with a maximum capacity of processing 422 pounds of rubber per hour, using no control, and exhausting to the atmosphere;
- (k) one (1) electric post-curing oven, identified as N-50 Grieve electric post-curing oven, with a maximum capacity of processing 72 pounds of rubber per hour, using no control, and exhausting to the atmosphere;
- (l) one (1) electric post-curing oven, identified as Despatch electric post-curing oven, with a maximum capacity of processing 41 pounds of rubber per hour, using no control, and exhausting to the atmosphere;
- (m) two (2) rubber dip baths, identified as rubber dip bath for #1 Mixer and rubber dip bath for #2 Mixer, each with a maximum capacity of coating 1,080 pounds of rubber per hour, using no control, and exhausting to the atmosphere;
- (n) one (1) parts washer, identified as Graymills Clean-O-Matic parts washer, using approximately fifty (50) gallons of cleaner per year;

- (o) one (1) vacublast mold cleaning grit blaster with a maximum capacity of processing 2,400 pounds of material per hour, using no control, and exhausting to the atmosphere;
- (p) laboratory equipped with one (1) Banbury Mixer BR 1600 and associated Electric Delta Therm, lab mill with 12" drop mill, one (1) Moriyama Mixer with 16" drop mill, three (3) electric molding presses, and four (4) molding ovens; one (1) rubber press, identified as SIM-30, with a maximum capacity of processing 3.4 pounds of rubber per hour; and
- (q) two (2) wet blasters.

### Emission Calculations

**Company Name:** Freudenberg - NOK General Partnership  
**Address City IN Zip:** State Road 44 West, Shelbyville, Indiana  
**MSOP:** 145-20570  
**Plt ID:** 145-00027

**Reviewer:** Nathan C. Bell

**Application Received:** February 5, 2005

**Modified November 28, 2005:** James Farrell

Uncontrolled Potential Emissions (tons/year)						
Emissions Generating Activity						
Pollutant	Mold Release Agents	Mixers, Extruders and Presses	Rubber Warm-up Mills and Post Curing Ovens	Space Heaters HVAC Units	Vacublast Mold Cleaning Grit Blaster	TOTAL
PM	0.55	11.93	0.00	0.10	1.91	14.49
PM10	0.55	11.93	0.00	0.39	1.91	14.79
SO2	0.00	0.00	0.00	0.03	0.00	0.03
NOx	0.00	0.00	0.00	5.19	0.00	5.19
VOC	34.25	41.10	4.44	0.29	0.00	80.07
CO	0.00	0.00	0.00	4.36	0.00	4.36
total HAPs	0.00	2.46	1.24	negl.	0.00	3.70
worst case single HAP	0.00	0.53	0.39	negl.	0.00	0.53
		Acetophenone	Acetophenone			
Total emissions based on rated capacity at 8,760 hours/year.						
Controlled Potential Emissions (tons/year)						
Emissions Generating Activity						
Pollutant	Mold Release Agents	Mixers, Extruders and Presses	Rubber Warm-up Mills and Post Curing Ovens	Space Heaters HVAC Units	Vacublast Mold Cleaning Grit Blaster	TOTAL
PM	0.55	0.01	0.00	0.10	1.91	2.57
PM10	0.55	0.01	0.00	0.39	1.91	2.87
SO2	0.00	0.00	0.00	0.03	0.00	0.03
NOx	0.00	0.00	0.00	5.19	0.00	5.19
VOC	34.25	41.10	4.44	0.29	0.00	80.07
CO	0.00	0.00	0.00	4.36	0.00	4.36
total HAPs	0.00	2.46	1.24	negl.	0.00	3.70
worst case single HAP	0.00	0.53	0.39	negl.	0.00	0.53
		Acetophenone	Acetophenone			
Total emissions based on rated capacity at 8,760 hours/year after control						

**Emission Calculations  
PM and VOC  
From Mixers, Extruders and Presses**

Attachment calculatic

Company Name: Freudenberg - NOK General Partnership

Address: State Road 44 West, Shelbyville, Indiana

MSOP: 145-20570

Plt ID: 145-00027

Reviewer: Nathan C. Bell

Application Received: February 5, 2005

Modified November 28, 2005: James Farrell

Unit Description	Number of Units	Max. Capacity lb/hr	PM Emission Factor lb/lb	VOC Emission Factor lb/lb	Potential Emissions PM lb/hr	Uncontrolled Potential Emissions PM ton/yr	Controlled Potential Emissions PM ton/yr	Control Efficiency %	Potential Emission: VOC lb/hr
<b>Mixers</b>									
Mixer #1	1	1080.0	9.20E-04	4.40E-04	0.99	4.35	4.35E-03	99.90	0.48
Mixer #2	1	1215.0	9.20E-04	4.40E-04	1.12	4.90	4.90E-03	99.90	0.53
35L Moriyama Mixer	1	225.0	9.20E-04	4.40E-04	0.21	0.91	9.07E-04	99.90	0.10
55L Rubber Mixer	1	440.0	9.20E-04	4.40E-04	0.40	1.77	1.77E-03	99.90	0.19
<b>Extruders</b>									
Barwell Rubber Extruders	3	700.0	1.12E-07	1.06E-04	0.00	0.00	n/a	n/a	0.22
<b>Presses</b>									
R-100 Boots Presses	8	25.8	n/a	6.68E-03	n/a	n/a	n/a	n/a	1.38
N-50 Boots Presses	10	7.0	n/a	6.68E-03	n/a	n/a	n/a	n/a	0.47
DC-60 Presses	7	7.1	n/a	6.68E-03	n/a	n/a	n/a	n/a	0.33
PT-60	7	7.1	n/a	6.68E-03	n/a	n/a	n/a	n/a	0.33
PT-90	10	7.1	n/a	6.68E-03	n/a	n/a	n/a	n/a	0.47
SIM60 Presses	8	7.1	n/a	6.68E-03	n/a	n/a	n/a	n/a	0.38
DESMA 110, SIM-30	2	3.4	n/a	6.68E-03	n/a	n/a	n/a	n/a	0.05
Transfer Presses	17	34.0	n/a	6.68E-03	n/a	n/a	n/a	n/a	3.86
NT-160 Presses	5	14.2	n/a	6.68E-03	n/a	n/a	n/a	n/a	0.47
Zone C-02 Press	1	3.0	n/a	6.68E-03	n/a	n/a	n/a	n/a	0.02
<b>Plastic Injection/Blow Mold Presses</b>									
					lb/ton				
Ossberger Plastic Press single-head	1	26.7	n/a	1.00E+00	n/a	n/a	n/a	n/a	0.01
Ossberger Plastic Press double-head	3	53.4	n/a	1.00E+00	n/a	n/a	n/a	n/a	0.08
<b>TOTALS</b>						<b>11.93</b>	<b>0.01</b>		

**Methodology**

Emission factors mixers, extruders and presses taken from the study completed for the Rubber Manufacturers Association (RMA), 9/96;

Emission Factors for Plastic Injection/Blow Mold Presses taken from a study conducted for the State of Wisconsin.

Potential emissions in tons per year = maximum production rate (lbs/yr) \* e.f. (lb/lb)/2000

## Emission Calculations

## HAP Emissions

Company Name: Freudenberg - NOK General Partnership

Address: State Road 44 West, Shelbyville, Indiana

MSOP: 145-20570

Plt ID: 145-00027

Reviewer: Nathan C. Bell

Application Received: February 5, 2005

Modified November 28, 2005: James Farrell

Barwell Extruders

3 units each @ 700 lb/hr capacity

Rubber Processing Capacity

2100 lb/hr

Pollutant	Emission Factor lb/lb	Hourly Emissions lb/hr	Daily Emissions lb/day	Potential Emissions tons/yr
1,1,1 Trichloroethane	4.29E-06	9.01E-03	2.16E-01	3.95E-02
1,2,4 Trichlorobenzene	2.00E-07	4.20E-04	1.01E-02	1.84E-03
1,3 Butadiene	7.50E-06	1.58E-02	3.78E-01	6.90E-02
1,4 Dichlorobenzene	9.20E-06	1.93E-02	4.64E-01	8.46E-02
Methyl Ethyl Ketone	3.00E-06	6.30E-03	1.51E-01	2.76E-02
2,4 Toluene Diamine	2.30E-07	4.83E-04	1.16E-02	2.12E-03
Methyl Isobutyl Ketone	3.10E-06	6.51E-03	1.56E-01	2.85E-02
Acetaldehyde	7.60E-06	1.60E-02	3.83E-01	6.99E-02
Acetonitrile	6.10E-06	1.28E-02	3.07E-01	5.61E-02
Acetophenone	5.71E-05	1.20E-01	2.88E+00	5.25E-01
Acrylonitrile	6.10E-06	1.28E-02	3.07E-01	5.61E-02
Aniline	1.50E-07	3.15E-04	7.56E-03	1.38E-03
Benzene	1.20E-06	2.52E-03	6.05E-02	1.10E-02
Benzidene	8.00E-07	1.68E-03	4.03E-02	7.36E-03
Biphenyl	9.00E-07	1.89E-03	4.54E-02	8.28E-03
Bis (2-ethylhex) Phthalate	2.60E-06	5.46E-03	1.31E-01	2.39E-02
Carbon Disulfide	4.20E-06	8.82E-03	2.12E-01	3.86E-02
Carbonyl Sulfide	3.80E-06	7.98E-03	1.92E-01	3.50E-02
Chloroethane	3.10E-06	6.51E-03	1.56E-01	2.85E-02
Cumene	2.80E-06	5.88E-03	1.41E-01	2.58E-02
Dibenzofuran	9.00E-07	1.89E-03	4.54E-02	8.28E-03
Dimethyl Phthalate	7.00E-07	1.47E-03	3.53E-02	6.44E-03
Dibutylphthalate	7.20E-06	1.51E-02	3.63E-01	6.62E-02
Ethylbenzene	1.10E-06	2.31E-03	5.54E-02	1.01E-02
Hexachlorobutadiene	3.90E-07	8.19E-04	1.97E-02	3.59E-03
Dichloromethane	5.00E-08	1.05E-04	2.52E-03	4.60E-04
Xylene	1.60E-06	3.36E-03	8.06E-02	1.47E-02
Napthalene	4.00E-06	8.40E-03	2.02E-01	3.68E-02
Hexane	1.64E-05	3.44E-02	8.27E-01	1.51E-01
o-Toluidine	1.50E-07	3.15E-04	7.56E-03	1.38E-03
o-Xylene	1.70E-06	3.57E-03	8.57E-02	1.56E-02
Phenol	1.30E-06	2.73E-03	6.55E-02	1.20E-02
Propylene Oxide	6.10E-06	1.28E-02	3.07E-01	5.61E-02
Tetrachloroethylene	3.10E-06	6.51E-03	1.56E-01	2.85E-02
Toluene	2.70E-06	5.67E-03	1.36E-01	2.48E-02
<b>Total</b>				<b>1.58E+00</b>

Note: Each extruder is a separate facility.

## Methodology

Emission factors taken from a study completed for the Rubber Manufacturers Association (RMA), 9/96;

Potential emissions in tons per year = maximum production rate (lbs/yr) \* e.f. (lb/lb)/2000

**HAP Emissions (continued)**

Freudenberg-NOK General Partnership  
Shelbyville, Indiana

Attachment calculations, page 4 of 10

<b>One (1) Press</b>	@	<b>3.00 lb/hr capacity</b>
<b>Two (2) Press</b>	each @	<b>3.40 lb/hr capacity</b>
<b>Thirty two (32) Presses</b>	each @	<b>7.10 lb/hr capacity</b>
<b>Ten (10) Presses</b>	each @	<b>7.00 lb/hr capacity</b>
<b>One (1) Press</b>	@	<b>12.68 lb/hr capacity</b>
<b>Five (5) Presses</b>	each @	<b>14.20 lb/hr capacity</b>
<b>Eight (8) Presses</b>	each @	<b>25.80 lb/hr capacity</b>
<b>Seventeen (17) Presses</b>	each @	<b>34.00 lb/hr capacity</b>
<b>Rubber Processing Capacity</b>		<b>1175.08 lb/hr</b>

Pollutant	Emission Factor lb/lb	Hourly Emissions lb/hr	Daily Emissions lb/day	Potential Emissions tons/yr
1,1,1 Trichloroethane	4.29E-06	5.04E-03	1.21E-01	2.21E-02
1,2,4 Trichlorobenzene	2.00E-07	2.35E-04	5.64E-03	1.03E-03
1,3 Butadiene	7.50E-06	8.81E-03	2.12E-01	3.86E-02
1,4 Dichlorobenzene	9.20E-06	1.08E-02	2.59E-01	4.74E-02
Methyl Ethyl Ketone	3.00E-06	3.53E-03	8.46E-02	1.54E-02
2,4 Toluene Diamine	2.30E-07	2.70E-04	6.49E-03	1.18E-03
Methyl Isobutyl Ketone	3.10E-06	3.64E-03	8.74E-02	1.60E-02
Acetaldehyde	7.60E-06	8.93E-03	2.14E-01	3.91E-02
Acetonitrile	6.10E-06	7.17E-03	1.72E-01	3.14E-02
Acetophenone	5.71E-05	6.71E-02	1.61E+00	2.94E-01
Acrylonitrile	6.10E-06	7.17E-03	1.72E-01	3.14E-02
Aniline	1.50E-07	1.76E-04	4.23E-03	7.72E-04
Benzene	1.20E-06	1.41E-03	3.38E-02	6.18E-03
Benzidene	8.00E-07	9.40E-04	2.26E-02	4.12E-03
Biphenyl	9.00E-07	1.06E-03	2.54E-02	4.63E-03
Bis (2-ethylhexyl) Phthalate	2.60E-06	3.06E-03	7.33E-02	1.34E-02
Carbon Disulfide	4.20E-06	4.94E-03	1.18E-01	2.16E-02
Carbonyl Sulfide	3.80E-06	4.47E-03	1.07E-01	1.96E-02
Chloroethane	3.10E-06	3.64E-03	8.74E-02	1.60E-02
Cumene	2.80E-06	3.29E-03	7.90E-02	1.44E-02
Dibenzofuran	9.00E-07	1.06E-03	2.54E-02	4.63E-03
Dimethyl Phthalate	7.00E-07	8.23E-04	1.97E-02	3.60E-03
Dibutylphthalate	7.20E-06	8.46E-03	2.03E-01	3.71E-02
Ethylbenzene	1.10E-06	1.29E-03	3.10E-02	5.66E-03
Hexachlorobutadiene	3.90E-07	4.58E-04	1.10E-02	2.01E-03
Dichloromethane	5.00E-08	5.88E-05	1.41E-03	2.57E-04
Xylene	1.60E-06	1.88E-03	4.51E-02	8.23E-03
Napthalene	4.00E-06	4.70E-03	1.13E-01	2.06E-02
Hexane	1.64E-05	1.93E-02	4.63E-01	8.44E-02
o-Toluidine	1.50E-07	1.76E-04	4.23E-03	7.72E-04
o-Xylene	1.70E-06	2.00E-03	4.79E-02	8.75E-03
Phenol	1.30E-06	1.53E-03	3.67E-02	6.69E-03
Propylene Oxide	6.10E-06	7.17E-03	1.72E-01	3.14E-02
Tetrachloroethylene	3.10E-06	3.64E-03	8.74E-02	1.60E-02
Toluene	2.70E-06	3.17E-03	7.61E-02	1.39E-02
<b>Total</b>				<b>8.82E-01</b>

Note: Each press is a separate facility.

**Methodology**

Emission factors taken from a study completed for the Rubber Manufacturers Association (RMA), 9/96;

Potential emissions in tons per year = maximum production rate (lbs/yr) \* e.f. (lb/lb)/2000

**HAP Emissions (continued)**

Freudenberg-NOK General Partnership  
Shelbyville, Indiana

Attachment calculations, page 5 of 10

One (1) 42 inch rubber warm-up mill @ 700.00 lb/hr capacity  
Two (2) 60 inch rubber warm-up mill @ 422.00 lb/hr capacity  
Rubber Processing Capacity 1544.00 lb/hr

Pollutant	Emission Factor lb/lb	Hourly Emissions lb/hr	Daily Emissions lb/day	Potential Emissions tons/yr
VOC	6.48E-04	1.00E+00	2.40E+01	4.38E+00
1,1,1 Trichloroethane	4.29E-06	6.62E-03	1.59E-01	2.90E-02
1,2,4 Trichlorobenzene	2.00E-07	3.09E-04	7.41E-03	1.35E-03
1,3 Butadiene	7.50E-06	1.16E-02	2.78E-01	5.07E-02
1,4 Dichlorobenzene	9.20E-06	1.42E-02	3.41E-01	6.22E-02
Methyl Ethyl Ketone	3.00E-06	4.63E-03	1.11E-01	2.03E-02
2,4 Toluene Diamine	2.30E-07	3.55E-04	8.52E-03	1.56E-03
Methyl Isobutyl Ketone	3.10E-06	4.79E-03	1.15E-01	2.10E-02
Acetaldehyde	7.60E-06	1.17E-02	2.82E-01	5.14E-02
Acetonitrile	6.10E-06	9.42E-03	2.26E-01	4.13E-02
Acetophenone	5.71E-05	8.82E-02	2.12E+00	3.86E-01
Acrylonitrile	6.10E-06	9.42E-03	2.26E-01	4.13E-02
Aniline	1.50E-07	2.32E-04	5.56E-03	1.01E-03
Benzene	1.20E-06	1.85E-03	4.45E-02	8.12E-03
Benzidene	8.00E-07	1.24E-03	2.96E-02	5.41E-03
Biphenyl	9.00E-07	1.39E-03	3.34E-02	6.09E-03
Bis (2-ethylhexyl) Phthalate	2.60E-06	4.01E-03	9.63E-02	1.76E-02
Carbon Disulfide	4.20E-06	6.48E-03	1.56E-01	2.84E-02
Carbonyl Sulfide	3.80E-06	5.87E-03	1.41E-01	2.57E-02
Chloroethane	3.10E-06	4.79E-03	1.15E-01	2.10E-02
Cumene	2.80E-06	4.32E-03	1.04E-01	1.89E-02
Dibenzofuran	9.00E-07	1.39E-03	3.34E-02	6.09E-03
Dimethyl Phthalate	7.00E-07	1.08E-03	2.59E-02	4.73E-03
Dibutylphthalate	7.20E-06	1.11E-02	2.67E-01	4.87E-02
Ethylbenzene	1.10E-06	1.70E-03	4.08E-02	7.44E-03
Hexachlorobutadiene	3.90E-07	6.02E-04	1.45E-02	2.64E-03
Dichloromethane	5.00E-08	7.72E-05	1.85E-03	3.38E-04
Xylene	1.60E-06	2.47E-03	5.93E-02	1.08E-02
Napthalene	4.00E-06	6.18E-03	1.48E-01	2.71E-02
Hexane	1.64E-05	2.53E-02	6.08E-01	1.11E-01
o-Toluidine	1.50E-07	2.32E-04	5.56E-03	1.01E-03
o-Xylene	1.70E-06	2.62E-03	6.30E-02	1.15E-02
Phenol	1.30E-06	2.01E-03	4.82E-02	8.79E-03
Propylene Oxide	6.10E-06	9.42E-03	2.26E-01	4.13E-02
Tetrachloroethylene	3.10E-06	4.79E-03	1.15E-01	2.10E-02
Toluene	2.70E-06	4.17E-03	1.00E-01	1.83E-02
<b>TOTAL</b>				<b>1.16E+00</b>

Note: Each warm-up mill is a separate facility.

**Methodology**

Emission factors taken from a study completed for the Rubber Manufacturers Association (RMA), 9/96;

Potential emissions in tons per year = maximum production rate (lbs/yr) \* e.f. (lb/lb)/2000

**HAP Emissions (continued)**

Freudenberg-NOK General Partnership  
Shelbyville, Indiana

Attachment calculations, page 6 of 10

One (1) N-50 Grieve electric post-curing oven @ 72.00 lb/hr capacity  
 One (1) Despatch electric post-curing oven @ 41.00 lb/hr capacity  
 Rubber Processing Capacity 113.00 lb/hr

Pollutant	Emission Factor lb/lb	Hourly Emissions lb/hr	Daily Emissions lb/day	Potential Emissions tons/yr
VOC	1.16E-04	1.31E-02	3.15E-01	5.74E-02
1,1,1 Trichloroethane	4.29E-06	4.85E-04	1.16E-02	2.12E-03
1,2,4 Trichlorobenzene	2.00E-07	2.26E-05	5.42E-04	9.90E-05
1,3 Butadiene	7.50E-06	8.48E-04	2.03E-02	3.71E-03
1,4 Dichlorobenzene	9.20E-06	1.04E-03	2.50E-02	4.55E-03
Methyl Ethyl Ketone	3.00E-06	3.39E-04	8.14E-03	1.48E-03
2,4 Toluene Diamine	2.30E-07	2.60E-05	6.24E-04	1.14E-04
Methyl Isobutyl Ketone	3.10E-06	3.50E-04	8.41E-03	1.53E-03
Acetaldehyde	7.60E-06	8.59E-04	2.06E-02	3.76E-03
Acetonitrile	6.10E-06	6.89E-04	1.65E-02	3.02E-03
Acetophenone	5.71E-05	6.45E-03	1.55E-01	2.83E-02
Acrylonitrile	6.10E-06	6.89E-04	1.65E-02	3.02E-03
Aniline	1.50E-07	1.70E-05	4.07E-04	7.42E-05
Benzene	1.20E-06	1.36E-04	3.25E-03	5.94E-04
Benzidene	8.00E-07	9.04E-05	2.17E-03	3.96E-04
Biphenyl	9.00E-07	1.02E-04	2.44E-03	4.45E-04
Bis (2-ethylhexl) Phthalate	2.60E-06	2.94E-04	7.05E-03	1.29E-03
Carbon Disulfide	4.20E-06	4.75E-04	1.14E-02	2.08E-03
Carbonyl Sulfide	3.80E-06	4.29E-04	1.03E-02	1.88E-03
Chloroethane	3.10E-06	3.50E-04	8.41E-03	1.53E-03
Cumene	2.80E-06	3.16E-04	7.59E-03	1.39E-03
Dibenzofuran	9.00E-07	1.02E-04	2.44E-03	4.45E-04
Dimethyl Phthalate	7.00E-07	7.91E-05	1.90E-03	3.46E-04
Dibutylphthalate	7.20E-06	8.14E-04	1.95E-02	3.56E-03
Ethylbenzene	1.10E-06	1.24E-04	2.98E-03	5.44E-04
Hexachlorobutadiene	3.90E-07	4.41E-05	1.06E-03	1.93E-04
Dichloromethane	5.00E-08	5.65E-06	1.36E-04	2.47E-05
Xylene	1.60E-06	1.81E-04	4.34E-03	7.92E-04
Napthalene	4.00E-06	4.52E-04	1.08E-02	1.98E-03
Hexane	1.64E-05	1.85E-03	4.45E-02	8.12E-03
o-Toluidine	1.50E-07	1.70E-05	4.07E-04	7.42E-05
o-Xylene	1.70E-06	1.92E-04	4.61E-03	8.41E-04
Phenol	1.30E-06	1.47E-04	3.53E-03	6.43E-04
Propylene Oxide	6.10E-06	6.89E-04	1.65E-02	3.02E-03
Tetrachloroethylene	3.10E-06	3.50E-04	8.41E-03	1.53E-03
Toluene	2.70E-06	3.05E-04	7.32E-03	1.34E-03
<b>Total</b>				<b>8.48E-02</b>

Note: Each post-curing oven is a separate facility.

**Methodology**

Emission factors taken from a study completed for the Rubber Manufacturers Association (RMA), 9/96;

Potential emissions in tons per year = maximum production rate (lbs/yr) \* e.f. (lb/lb)/2000

**Emissions Calculations  
VOC and Particulate  
From Mold Release Agents**

Attachr

**Company Name: Freudenberg - NOK General Partnership  
Address: State Road 44 West, Shelbyville, Indiana  
MSOP: 145-20570  
Pit ID: 145-00027  
Reviewer: Nathan C. Bell  
Application Received: February 5, 2005**

Process	Material	Density (Lb/Gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Mat. (gal/lb of rubber)	Maximum (lb of rubber/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Pot VOC per
Transfer Molding 19 Presses	RR-5 Hot NF	7.01	98.0%	0.0%	98.0%	0.0%	0.00%	1.40E-03	646	6.87	6.87	6.21	149.11	2i
	RR-5 Hot, No ODCs (removed)									0.00	0.00	0.00	0.00	0
	McLube 1711L Aerosol	7.58	97.0%	0.0%	97.0%	0.0%	0.00%	8.38E-05	646	7.35	7.35	0.40	9.55	1
N50 Presses & TPE	McLube 1725L Aerosol	7.08	97.0%	0.0%	97.0%	0.0%	0.00%	1.67E-05	227	6.87	6.87	0.03	0.62	0
Rubber Dip Bath for #1	Quickote CLM Wet	8.27	8.0%	0.0%	8.0%	0.0%	0.00%	3.92E-04	1080	0.66	0.66	0.28	6.72	1
	Crystal 2000	8.33	1.0%	0.0%	1.0%	0.0%	0.00%	5.01E-03	745	0.08	0.08	0.31	7.46	1
Rubber Dip Bath for #2	Quickote CLM Wet	8.27	8.0%	0.0%	8.0%	0.0%	0.00%	3.92E-04	1080	0.66	0.66	0.28	6.72	1
	Crystal 2000	8.33	1.0%	0.0%	1.0%	0.0%	0.00%	5.01E-03	745	0.08	0.08	0.31	7.46	1

Note: Each Press is considered a separate facility.

**7.82    187.66    34**

**Potential Emissions**

**METHODOLOGY**

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) \* Weight % Organics) / (1-Volume % water)

Pounds of VOC per Gallon Coating = (Density (lb/gal) \* Weight % Organics)

Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) \* Gal of Material (gal/unit) \* Maximum (units/hr)

Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) \* Gal of Material (gal/unit) \* Maximum (units/hr) \* (24 hr/day)

Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) \* Gal of Material (gal/unit) \* Maximum (units/hr) \* (8760 hr/yr) \* (1 ton/2000 lbs)

Particulate Potential Tons per Year = (units/hour) \* (gal/unit) \* (lbs/gal) \* (1- Weight % Volatiles) \* (1-Transfer efficiency) \*(8760 hrs/yr) \*(1 ton/2000 lbs)

**Emissions Calculations  
Natural Gas Combustion Only  
MM BTU/HR <100  
Space Heaters/HVAC Units**

**Company Name: Freudenberg - NOK General Partnership  
Address City IN Zip: State Road 44 West, Shelbyville, Indiana  
MSOP: 145-20570  
Plt ID: 145-00027  
Reviewer: Nathan C. Bell  
Application Received: February 5, 2005**

Heat Input Capacity                      Potential Throughput  
MMBtu/hr                                      MMCF/yr

11.85

103.81

Heat Input Capacity includes thirty one (31) space heaters totaling 11.85 MMBtu/hr.

Pollutant

	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.10	0.39	0.03	5.19	0.29	4.36

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 9 for HAPs emissions calculations.

**Appendix A: Emissions Calculations**

Attachment calculations, page 9 of 10

**Natural Gas Combustion Only****MM BTU/HR <100****Space Heaters/HVAC Units****HAPs Emissions**

**Company Name:** Freudenberg - NOK General Partnership  
**Address City IN Zip:** State Road 44 West, Shelbyville, Indiana  
**MSOP:** 145-20570  
**Plt ID:** 145-00027  
**Reviewer:** Nathan C. Bell  
**Application Received:** February 5, 2005

**HAPs - Organics**

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.090E-04	6.228E-05	3.893E-03	9.343E-02	1.765E-04

**HAPs - Metals**

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	2.595E-05	5.709E-05	7.266E-05	1.972E-05	1.090E-04

Methodology is the same as page 8.

The five highest organic and metal HAPs emission factors are provided above.  
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

**Emission Calculations**

Attachment calculations, page 10 of 10

**PM**

**Vacublast Mold Cleaning Grit Blasters**

**Company Name:** Freudenberg - NOK General Partnership  
**Address City IN Zip:** State Road 44 West, Shelbyville, Indiana  
**MSOP:** 145-20570  
**Plt ID:** 145-00027  
**Reviewer:** Nathan C. Bell  
**Application Received:** February 5, 2005

This source also consists of the following insignificant activity:

**Two (2) Vacublast Mold Cleaning Grit Blasters**

The maximum capacity of each of the units is 2,400 lb/hr. The airflow through each of the units is 850 cfm.

For each blaster, the potential emissions are as follows:

$$\text{PM} = \text{PM-10} = \frac{(0.03 \text{ gr})(850 \text{ cf})(60 \text{ min})(1 \text{ lb})}{(\text{cf}) (\text{min}) (\text{hr}) (7000 \text{ gr})}$$

$$\begin{aligned} \text{PM} = \text{PM-10} &= 0.22 \text{ lb/hr} \\ &= 0.96 \text{ ton/yr} \end{aligned}$$

For two blasters, the total potential emissions are:

$$\text{Total PM} = \text{Total PM-10} = 1.91 \text{ ton/yr}$$