



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **022017-011**

Project Number: 2016-09-037
Installation Number: 183-0262

Parent Company: Knapheide Truck Equipment Co.

Parent Company Address: 101 Logistics Center Dr., Wentzville, MO 63385

Installation Name: Knapheide Truck Equipment Co.

Installation Address: 101 Logistics Center Dr., Wentzville, MO 63385

Location Information: St. Charles County

Application for Authority to Construct was made for:

Installation of a paint booth and associated drying oven. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.


Prepared by
Chia Wei Young
New Source Review Unit


Director or Designee
Department of Natural Resources

FEB 28 2017

Effective Date

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Enforcement and Compliance Section of the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit using the contact information below.

Contact Information:

Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:

<http://dnr.mo.gov/regions/>

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Knapheide Truck Equipment Co.
St. Charles County

1. VOC and HAPs Emission Limitations

- A. Knapheide Truck Equipment Co. shall emit less than 40.0 tons of VOCs in any consecutive 12-month period from the paint booth (EP01) and dryer (EP02).
- B. Knapheide Truck Equipment Co. shall emit less than the SMAL given in Appendix A for each individual HAP and 25.0 tons of combined HAPs in any consecutive 12-month period from the paint booth (EP01) and dryer (EP02).
- C. Knapheide Truck Equipment Co. shall develop its own forms to track VOC and HAP emissions to show compliance with Special Conditions 1.A. and 1.B. The forms shall calculate the VOC and HAP emissions using the following methods.
 - 1) VOC and HAPs emissions from the paint guns shall be calculated using mass balances assuming that all of the VOC and HAPs in the paint are emitted. The following equations are given as examples.

$$[\text{VOC Emissions (lb)}] = [\text{Paint Usage (gal)}] \times [\text{VOC Content (lb/gal)}]$$

$$[\text{Individual HAP (lb) Emissions}] = [\text{Paint Usage (gal)}] \times [\text{Paint Density (lb/gal)}] \times [\text{HAPs Content (\%)}]$$

If a range of HAPs content is given in the safety data sheets (SDS), the higher value shall be used. All HAPs are volatile HAPs. No particulate HAPs are expected from the painting process.

- 2) VOC and HAPs emissions from the dryer shall be calculated using emission factors from EPA document AP-42, *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, Fifth Edition, Chapter 1.4, *Natural Gas Combustion*. If AP-42 is updated, the facility shall be responsible for using the most up-to-date emission factors.

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- 3) VOC and HAPs emissions from spray gun cleaning shall be calculated using mass balances and the percentage of solvent loss during the process as determined through Special Condition 2. The following equations are given as examples.

$$[\text{VOC Emissions (lb)}] = [\text{Solvent Usage (gal)}] \times [\text{VOC Content (lb/gal)}] \times [\% \text{ Wt. loss}]$$

$$[\text{Individual HAP (lb)}] = [\text{Solvent Usage (gal)}] \times \text{Solvent Density (lb/gal)} \times [\text{HAPs Content (\%)}] \times [\% \text{ Wt. loss}]$$

If a range of the HAP content is given in the safety data sheets (SDS), the higher value shall be used. All HAPs are volatile HAPs. No particulate HAPs are expected from the spray gun cleaning process.

- 4) VOC emissions from the use of the body cleaner solvent shall be calculated using mass balances assuming that all of the VOC in the body cleaner solvent are emitted. An example equation is given below.

$$[\text{VOC Emissions (lb)}] = [\text{Paint Usage (gal)}] \times [\text{VOC Content (lb/gal)}]$$

The body cleaner does not contain HAP.

2. Solvent Loss Testing

- A. Knapheide Truck Equipment Co. shall perform a study on the spray gun cleaning process to determine the amount of solvent lost during the process. The solvent loss shall be determined as a percentage of the solvent used (i.e. solvent lost per total solvent used).
- B. The study required in Special Condition 2.A. shall be performed using a method approved by the Air Pollution Control Program. A completed proposed plan form must be submitted to the Compliance/Enforcement Unit of the Air Pollution Control Program 30 days prior to the proposed date of the study so that the Air Pollution Control Program may arrange a pretest meeting, if necessary, and assure that the date is acceptable for an observer to be present. The Proposed Plan may serve the purpose of notification and must be approved by the Director prior to conducting the required emission testing.

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- C. The study shall be completed no later than 90 days after installation of the spray guns.
 - D. Two copies of a written report of the performance test results shall be submitted to the Director within 30 days of completion of the required testing. The report must include legible copies of the raw data sheets and complete sample calculations from the required method for at least one run.
3. Control Device Requirement – Paint Booth and Filters
- A. Knapheide Truck Equipment Co. shall control emissions from the paint guns using a booth and paint filters as specified in the permit application.
 - B. The booth and filters shall be operated and maintained in accordance with the manufacturer's specifications. The filters shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that Department of Natural Resources' employees may easily observe them.
 - C. Replacement filters shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
 - D. Knapheide Truck Equipment Co. shall monitor and record the operating pressure drop across the filters at least once every 24 hours during paint booth operation. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - E. Knapheide Truck Equipment Co. shall maintain a copy of the filter manufacturer's performance warranty on site.
 - F. Knapheide Truck Equipment Co. shall maintain an operating and maintenance log for the baghouses which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
4. Operational Requirements
- A. Knapheide Truck Equipment Co. shall close all openings (i.e. doors and

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

windows) of the paint booth during spraying operations, except for the filter exhaust and the air make up unit (AMU) inlet. The openings shall remain closed until painting is completed.

- B. Knapheide Truck Equipment Co. shall keep the paint solvents and cleaning solutions in sealed containers whenever the materials are not in use. Knapheide Truck Equipment Co. shall provide and maintain suitable, easily read, permanent markings on all paints, solvent and cleaning solution containers used with this equipment.
 - C. Knapheide Truck Equipment Co. shall only use a maximum of two (2) spray guns in the paint booth at one time.
 - D. During the gun cleaning operation, Knapheide Truck Equipment Co. shall spray the used cleaning solution into containers and close the containers immediately after the cleaning operation ends. Knapheide Truck Equipment may transfer the solutions into different containers as long as the containers are closed immediately after the transfer.
5. Record Keeping and Reporting Requirements
- A. Knapheide Truck Equipment Co. shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include SDS for all materials used.
 - B. Knapheide Truck Equipment Co. shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2016-09-037
Installation ID Number: 183-0262
Permit Number: 022017-011

Installation Address:

Knapheide Truck Equipment Co.
101 Logistics Center Dr.
Wentzville, MO 63385

Parent Company:

Knapheide Truck Equipment Co.
101 Logistics Center Dr.
Wentzville, MO 63385

St. Charles County

REVIEW SUMMARY

- Knapheide Truck Equipment Co. has applied for authority to install a paint booth and associated dryer.
- The application was deemed complete on September 26, 2016.
- HAP emissions are expected from both the use of the coatings and the dryer. The HAPs of concern are xylene and ethylbenzene.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the NESHAPs apply to this installation.
- None of the currently promulgated MACT regulations apply to the proposed equipment.
 - 40 CFR 63, Subpart IIII, *National Emission Standard for Hazardous Air Pollutants: Surface Coatings of Automobiles and Light-Duty Trucks*, of the MACT does not apply to this installation because it is not a major source of HAPs and it does not apply topcoat to new automobile or new light-duty truck bodies or body parts for new automobiles or new light-duty trucks.
 - 40 CFR 63, Subpart Mmmm, *National Emissions Standard for Surface Coating of Miscellaneous Metal Parts and Products*, and Subpart Pppp, *National Emission Standards for Hazardous Air Pollutants for Surface Coating of Plastic Parts and Products*, of the MACT does not apply to this installation because it is not a major source for HAP.
 - 40 CFR 63, Subpart HHHHHH, *National Emissions Standard for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources*, does not apply to the installation. The facility does not paint with material containing the Target HAPs listed in this subpart and does not paint any parts that are attached to a completed rolling vehicle chassis.

- A paint booth and filter is being used to control the particulates emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are conditioned below de minimis levels.
- This installation is located in St. Charles County, a nonattainment area for the 8-hour ozone standard and the PM_{2.5} standard and an attainment area for all other criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Testing is required to determine solvent loss during the spray gun cleaning process.
- No operating permit is required for this installation.
- Approval of this permit is recommended with special conditions.

PROJECT DESCRIPTION

Knapheide Truck Equipment Company proposes to install a new paint booth with associated drying oven in Wentzille, MO. This is a new installation. The paint booth will be used to coat truck parts such as service bodies, flatbeds and accessories. The maximum hourly paint usage is 5.3 gallons per hour and is determined by timing a similar paint operation located in Quincy, IL. According to the facility, 0.9 quart of paint was sprayed in 5 minutes and 4 seconds of continuous spraying. This equates to 2.66 gallons per hour. This value was doubled to 5.3 gallons per hour to allow the possibility of using two spray guns simultaneously. The 0.5 gallons per hour maximum solvent usage during the gun cleaning process was determined through observing the operation. The spray gun capacity is 1 quart. The cleaning operation consists of rinsing with 0.25 quart of cleanup solvent at a maximum of four (4) times. The quantity was doubled to allow for the cleaning of a second gun. The gun cleaning operation occurs a few times during the day, but never more than once in any given hour. The dryer has maximum design rate of 2.75 MMBtu/hr and uses natural gas.

Particulate emissions from the paint gun are controlled by a totally enclosed paint booth and attached filters.

EMISSIONS/CONTROLS EVALUATION

Particulate emissions ($PM_{2.5}$, PM_{10} , and PM) from the spray guns were calculated using mass balances assuming a transfer efficiency of 50%, a capture efficiency of 100%, and a paint filter efficiency of 99%. The transfer efficiency of 50% was taken from Table 5-7 of the *Source and Control of Volatile Organic Air Pollutants, Student Manual, APTI Course 482*, Third Edition (11/2002). The capture efficiency of 100% was determined from the design of the paint booth. The booth has two walls and a roof. The other two sides contain door for exit and entry that will be closed during operations. There is an intake vent on top of the booth where an air-make-up unit supplies air flow through the booth. The exhaust air passes through paint over-spray filter before leaving the booth. The paint filter efficiency of 95% is the default value used by the Air Pollution Control Program.

VOC emissions from the body cleaners were calculated from mass balances assuming that all of the VOC are emitted. There are no HAPs emissions expected from the body cleaners.

Emissions from the natural-gas dryers were calculated using emission factors from EPA document AP-42, *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, fifth edition, Chapter 1.4, *Natural Gas Combustion*, 7/1998.

The VOC and HAPs emissions from the paint spray guns were calculated by using mass balances assuming that all of the VOC and HAPs content in the paints were emitted. VOC emissions from the gun cleaning process were calculated using mass balances and assuming that 10% of the VOC and HAPs are emitted. This is due to the fact that all of the solvent being used in the cleaning process are sprayed into a five gallon bucket after use and sealed. The content of the 5 gallon bucket is then transferred into a 55 gallon drum at the end of the shift. The facility suggested the use of 10% solvent loss. With the use of this number, VOC emissions from the project is calculated to be greater than the de minimis level of 40 tpy. The facility requested that the permit limit the VOC emissions to less than 40 tpy and is now required to perform testing to determine the actual solvent loss. The actual solvent loss should be used to calculate VOC emissions to show compliance with the 40 tpy limit. The combined HAP emissions from this project is greater than the major source level of 25.0 tpy and emissions of ethylbenzene is greater than the SMAL. The facility is given a 25.0 tpy combined HAPs and individual HAP limit to the SMAL. Limiting all of the individual HAP to the SMAL instead of just ethylbenzene enables the facility to use alternative coatings not included in the permit application. The actual solvent loss measured during the tests should also be used to calculate HAPs emissions for compliance with these limits.

The following table provides an emissions summary for this project. There are no existing actual and existing potential emissions because this is a new installation. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table 1: Emissions Summary (tpy)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Project	New Installation Conditioned Potential
PM	25.0	N/A	N/A	4.404	N/A
PM ₁₀	15.0	N/A	N/A	4.231	N/A
PM _{2.5}	10.0	N/A	N/A	4.080	N/A
SO _x	40.0	N/A	N/A	0.007	N/A
NO _x	40.0	N/A	N/A	2.244	N/A
VOC	40.0	N/A	N/A	81.665	<40.0
CO	100.0	N/A	N/A	0.992	N/A
GHG (CO ₂ e)	N/A	N/A	N/A	1,425.48	N/A
GHG (mass)	N/A	N/A	N/A	1,417.112	N/A
Combined HAPs	25.0	N/A	N/A	29.33	<25.0
Naphthalene	10.0	N/A	N/A	0.706	<SMAL
MMA	10.0	N/A	N/A	0.063	<SMAL
Butoxyethanol Acetate	5.0/10.0	N/A	N/A	4.810	<SMAL
Xylene	10.0	N/A	N/A	12.706	<SMAL
Ethylbenzene	10.0	N/A	N/A	3.176	<SMAL
Cumene	10.0	N/A	N/A	0.145	<SMAL
Individual HAP	10.0	N/A	N/A	N/A	<SMAL

N/A = Not Applicable

Note 1: 5.0 tpy is the SMAL, 10.0 tpy is the major source level.

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

Knapheide Truck Equipment Co. shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Start-Up, Shutdown, and Malfunction Conditions*, 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
 - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- *Control of Emissions from Industrial Surface Coating Operations*, 10 CSR 10-5.330.
 - This rule applies to surface coating operations, including related cleaning activities, with actual VOC emissions of at least three (3) tons per twelve (12)-month rolling period, before consideration of controls. As a new installation, this facility currently does not have any actual emissions and is not, therefore, subject to this rule. However, this rule will apply once the facility does emit more than three (3) tons per twelve (12)-month rolling period of actual VOC emissions.

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, it is recommended that this permit be granted with special conditions.

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated September 23, 2016, received September 26, 2016, designating Knapheide Truck Equipment Co. as the owner and operator of the installation.
-

- E-mail communications between the Missouri Air Pollution Control Program and Knapheide Truck Equipment Co.
- Safety Data Sheets for coatings and cleaners used by Knapheide Truck Equipment.
- Draft permits sent by Missouri Air Pollution Control Program to Knapheide Truck Equipment and the installation's response comments to the drafts.
- EPA document AP-42, "Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources," Fifth Edition

Appendix A: List of SMAL

Chemical	CAS #	SMAL (lbs)	Group ID	VOC	PM	Synonyms
ACETALDEHYDE	75-07-0	9		Y	N	ACETIC ALDEHYDE, ALDEHYDE, ETHANAL, ETHYL ALDEHYDE
ACETAMIDE	60-35-5	1		Y	N	ACETIC ACID AMIDE, ETHANAMIDE
ACETONITRILE	75-05-8	4		Y	N	METHYL CYANIDE, ETHANENITRILE, CYANOMETHANE
ACETOPHENONE	98-86-2	1		Y	N	ACETYLBENZENE, METHYL PHENYL KETONE AND HYPNONE
ACETYLAMINOFLUORINE, [2-]	53-96-3	0.005	V	Y	Y	N-2-FLUORENYL ACETAMIDE, N-FLUOREN-2-YL ACETAMIDE, 2-ACETAMIDOFLUORENE
ACROLEIN	107-02-8	0.04		Y	N	ACRYLALDEHYDE, ACRYLIC ALDEHYDE, ALLYL ALDEHYDE, PROPENAL
ACRYLAMIDE	79-06-1	0.02		Y	N	PROPENAMIDE, ACRYLIC AMIDE, ACRYLAMIDE MONOMER, ETHYLENOCARBOXAMIDE
ACRYLIC ACID	79-10-7	0.6		Y	N	PROPENOIC ACID, ETHYLENE CARBOXYLIC ACID, VINYLFORMIC ACID
ACRYLONITRILE	107-13-1	0.3		Y	N	VINYL CYANIDE, CYANOETHYLENE, PROPENE NITRILE, AN
ALLYL CHLORIDE	107-05-1	1		Y	N	1-CHLORO-2-PROPENE, 3-CHLOROPROPYLENE, CHLORALLYLENE, ALPHA-PROPYLENE
AMINOBIHENYL, [4-]	92-67-1	1	V	Y	N	BIPHENYL, P-PHENYLANILINE, XENYLAMINE, 4-AMINODIPHENYL, 4-BIPHENYLAMINE
ANILINE	62-53-3	1		Y	N	AMINO BENZENE, PHENYLAMINE, ANILINE OIL, AMINOPHEN, ARYLAMINE
ANISIDINE, [ORTHO-]	90-04-0	1		Y	N	O-METHOXYANILINE
ANTHRACENE	120-12-7	0.01	V	Y	N	ANTHRACIN, GREEN OIL, PARANAPHTHALENE, TETRAOLIVE N2G
ANTIMONY	7440-36-0	5	H	N	Y	ANTIMONY BLACK, ANTIMONY REGULUS, C.I. 77050, STIBIUM
ANTIMONY COMPOUNDS		5	H	N	Y	ANTIMONY (PENTACHLORIDE, TRIBROMIDE, TRICHLORIDE, TRIFLUORIDE)
ANTIMONY PENTAFLUORIDE	7783-70-2	0.1	H	N	Y	
ANTIMONY POTASSIUM TARTRATE	28300-74-5	1	H	N	Y	
ANTIMONY TRIOXIDE	1309-64-4	1	H	N	Y	
ANTIMONY TRISULFIDE	1345-04-6	0.1	H	N	Y	
ARSENIC (INORGANIC)	7440-38-2	0.005	I	N	Y	ARSENICALS, ARSENIC-75, ARSENIC BLACK, METALLIC ARSENIC, COLLOIDAL ARSENIC
ARSENIC COMPOUNDS (INORGANIC + ARSINE)		0.005	I	N	Y	ARSENIC (DIETHYL, DISULFIDE, PENTOXIDE, TRICHLORIDE, TRIOXIDE, TRISULFIDE)
ASBESTOS	1332-21-4	0	A	N	Y	CHRYCOTILE, AMOSITE, CROCIDOLITE, TREMOLITE, ANTHOPHYLLITE, ACTINOLITE
ASBESTOS, AMOSITE	1332-21-4	0	A	N	Y	ASBESTOS FIBER, MINERAL SILICATE FIBER
ASBESTOS, CHRYCOTILE	1332-21-4	0	A	N	Y	ASBESTOS FIBER, MINERAL SILICATE FIBER
ASBESTOS, CROCIDOLITE	1332-21-4	0	A	N	Y	ASBESTOS FIBER, MINERAL SILICATE FIBER
ASBESTOS, OTHER FORMS	1332-21-4	0	A	N	Y	ASBESTOS FIBER, MINERAL SILICATE FIBER
BARIUM CYANIDE	542-62-1	5	O	Y	N	BARIUM DICYANIDE
BENZ(A)ANTHRACENE	56-55-3	0.01	V	Y	N	BENZANTHRENE, BENZO(A)ANTHRACENE, BENZPHENANTHRENE, NAPHTHANTRACENE
BENZENE	71-43-2	2		Y	N	BENZOL, PHENYL HYDRIDE, COAL NAPHTHA, PHENE, BENXOLE, CYCLOHEXATRIENE
BENZIDINE	92-87-5	0.0003	V	Y	N	4,4'-BIPHENYLDIAMINE, P-DIAMINODIPHENYL, 4,4'-DIAMINOBIHENYL, BENZIDINE BASE
BENZO(A)PYRENE	50-32-8	0.01	V	Y	N	3,4-BENZOPYRENE
BENZO(B)FLUORANTHENE	205-99-2	0.01	V	Y	N	

Appendix A: List of SMAL

BENZO(K)FLUORANTHENE	207-08-9	0.01	V	Y	N	
BENZOTRICHORIDE	98-07-7	0.006		Y	N	BENZOIC TRICHORIDE, PHENYL CHLOROFORM, TRICHOROMETHYLBENZENE
BENZYL CHLORIDE	100-44-7	0.1		Y	N	ALPHA-CHLOROTOLUENE, TOLYL CHLORIDE
BERYLLIUM	7440-41-7	0.008	J	N	Y	BERYLLIUM-9, GLUCINUM
BERYLLIUM COMPOUNDS		0.008	J	N	Y	
BERYLLIUM SALTS		0.00002	J	N	Y	
BIPHENYL, [1,1-]	92-52-4	10	V	Y	N	DIPHENYL, PHENYLBENZENE
BIS(CHLOROETHYL)ETHER	111-44-4	0.06		Y	N	DICHLOROETHYL ETHER, DICHLOROETHER, DICHLOROETHYL OXIDE, BCEE
BIS(CHLOROMETHYL)ETHE R	542-88-1	0.0003		Y	N	BCME, SYM-DICHLOROMETHYL ETHER, DICHLOROMETHYL ETHER, OXYBIS-(CHLOROMETHANE)
BROMOFORM	75-25-2	10		Y	N	TRIBROMOMETHANE, METHYL TRIBROMIDE
BROMOMETHANE	74-83-9	10		Y	N	METHYL BROMIDE
BUTADIENE, [1,3-]	106-99-0	0.07		Y	N	BIETHYLENE, BIVINYL, BUTADIENE MONOMER, DIVINYL ERYTHRENE, VINYLETHYLENE
BUTYLENE OXIDE, [1,2-]	106-88-7	1		Y	N	1,2-EPOXYBUTANE, 1-BUTENE OXIDE, 1,2-BUTENE OXIDE
CADMIUM	7440-43-9	0.01	K	N	Y	C.I. 77180
CADMIUM COMPOUNDS		0.01	K	N	Y	CADMIUM(DUST, FUME, ACETATE, CHLORATE, CHLORIDE, FLUORIDE, OXIDE, SULFATE, SULFIDE)
CALCIUM CHROMATE (ANHYDROUS)	13765-19-0	0.002	L	N	Y	CHROMIC ACID CALCIUM SALT, CALCIUM CHROME YELLOW, CI. PIGMENT YELLOW 33, GELBIN
CALCIUM CYANAMIDE	156-62-7	10	O	Y	Y	NITROLIME, CALCIUM CARBIMIDE, CYANAMIDE
CAPROLACTAM (Delisted)	105-60-2					HEXAHYDRO-2H-AZEPIN-2-ONE, AMINOCAPROIC LACTAM, EPSILON-CAPROLACTAM
CAPTAN	133-06-2	10		Y	Y	N-TRICHLOROMETHYLMERCAPTO-4-CYCLOHEXENE-1,2-DICARBOXIMIDE
CARBARYL	63-25-2	10	V	Y	Y	1-NAPHTHYL-N-METHYLCARBAMATE
CARBON DISULFIDE	75-15-0	1		Y	N	CARBON BISULFIDE, DITHIOCARBONIC ANHYDRIDE
CARBON TETRACHLORIDE	56-23-5	1		Y	N	TETRACHLOROMETHANE, PERCHLOROMETHANE
CARBONYL SULFIDE	463-58-1	5		Y	N	CARBON OXIDE SULFIDE, CARBONOXYSULFIDE
CATECHOL	120-80-9	5		Y	N	PYROCATECHOL, O-DIHYDROXYBENZENE
CHLORAMBEN	133-90-4	1		Y	Y	3-AMINO-2,5-DICHLORO BENZOIC ACID, AMBEN, AMIBEN*, VEGIBEN* (*TRADEMARK)
CHLORDANE	57-74-9	0.01		Y	Y	ENT9932, OCTACHLOR
CHLORINE	7782-50-5	0.1		N	N	BERTHOLITE
CHLORINE CYANIDE	506-77-4	5	O	Y	N	CYANOGEN CHLORIDE, CHLOROCYANOGEN, CHLORCYAN
CHLOROACETIC ACID	79-11-8	0.1		Y	N	MONOCHLOROACETIC ACID, CHLOROETHANOIC ACID
CHLOROACETOPHENONE, [2-]	532-27-4	0.06		Y	N	PHENACYL CHLORIDE, CHLOROMETHYL PHENYL KETONE, TEAR GAS, MACE
CHLOROBENZENE	108-90-7	10		Y	N	BENZENE CHLORIDE, MONOCHLOROBENZENE, CHLOROBENZOL, PHENYL CHLORIDE, MCB
CHLOROBENZILATE	510-15-6	0.4	V	Y	Y	ETHYL-4,4'-DICHLOROBENZILATE, ETHYL-4,4'-DICHLOROPHENYL GLYCOLLATE
CHLOROFORM	67-66-3	0.9		Y	N	TRICHLOROMETHANE
CHLOROMETHYL METHYL ETHER	107-30-2	0.1		Y	N	CMME, METHYL CHLOROMETHYL ETHER, CHLOROMETHOXYMETHANE, MONOCHLOROMETHYL ETHER
CHLOROPRENE	126-99-8	1		Y	N	2-CHLORO-1,3-BUTADIENE, CHLOROBUTADIENE, NEOPRENE RUBBER COUMPOUND
CHROMIC ACID	7738-94-5	0.002	L	N	Y	
CHROMIC CHLORIDE	10025-73-7	0.1	L	N	Y	
CHROMIUM	7440-47-3	5	L	N	Y	CHROMIUM METAL

Appendix A: List of SMAL

CHROMIUM (III) COMPOUNDS		5	L	N	Y	CHROMIUM(III) [ACETATE, BROMIDE, FLUORIDE, NITRATE, OXIDE, SULFATE]
CHROMIUM (VI) COMPOUNDS		0.002	L	N	Y	CHROMATE(VI)[LEAD, BILITHIUM, TRIOXIDE, PHOSPHATE, POTASSIUM, ZINC]
CHROMIUM COMPOUNDS		5	L	N	Y	CHROMIUM, CHROMIUM(II) COMPOUNDS
CHRYSENE	218-01-9	0.01	V	Y	N	
COBALT	7440-48-4	0.1	M	N	Y	SEE SPECIFIC COBALT COMPOUNDS
COBALT COMPOUNDS		0.1	M	N	Y	COBALT(BROMIDE, CARBOYL, CHLORIDE, DIACETATE, FORMATE, NITRATE, OXIDE, SULFAMATE)
COKE OVEN EMMISIONS	8007-45-2	0.03	N	Y	N	COAL TAR, COAL TAR PITCH, COAL TAR DISTILLATE
COPPER CYANIDE	544-92-3	5	O	Y	N	CUPRICIN, CUPROUS CYANCIDE
CRESOL, [META-]	108-39-4	1	B	Y	N	3-CRESOL, M-CRESYLIC ACID, 1-HYDROXY-3-METHYLBENZENE, M-HYDROXYTOLUENE
CRESOL, [ORTHO-]	95-48-7	1	B	Y	N	2-CRESOL, O-CRESOLIC ACID, 1-HYDROXY-2-METHYLBENZENE, 2-METHYLPHENOL
CRESOL, [PARA-]	106-44-5	1	B	Y	N	4-CRESOL, P-CRESYLIC ACID, 1-HYDROXY-4-METHYLBENZENE, 4-HYDROXYTOLUENE
CRESOLS (MIXED ISOMERS)	1319-77-3	1	B	Y	N	CRESYLIC ACID
CUMENE	98-82-8	10		Y	N	ISOPROPYL BENZENE, 2-PHENYLPROPANE
CYANIDE COMPOUNDS		5	O	Y	N	
CYANOGEN	460-19-5	5	O	Y	N	DICYANOGEN, DICYAN, ETHANEDINITRILE, OXALONITRILE
CYANOGEN BROMIDE	506-68-3	5	O	Y	N	BROMINE CYANIDE, BROMOCYANOGEN,
DDE	72-55-9	0.01	V	Y	Y	DICHLORODIPHENYLDICHLOROETHYLENE
DI(2-ETHYLHEXYL) PHTHALATE, (DEHP)	117-81-7	5		Y	N	DI(2-ETHYLHEXYL)PHTHALATE, DOP, DI-SEC-OCTYL PHTHALATE
DIAMINOTOLUENE, [2,4-]	95-80-7	0.02		Y	N	2,4-TOLUENE DIAMINE, 3-AMINO-PARA-TOLUIDINE, 5-AMINO-ORTHO-TOLUIDINE
DIAZOMETHANE	334-88-3	1		Y	N	AZIMETHYLENE, DIAZIRINE
DIBENZ(A,H)ANTHRACENE	53-70-3	0.01	V	Y	N	1,2,5,6-BENZANTHRACENE, DIBENZO(A,H)ANTHRACENE
DIBENZODIOXINS AND DIBENZOFURANS		6E-07	D, V	Y	N	
DIBENZOFURAN	132-64-9	5	D, V	Y	N	DIPHENYLENE OXIDE
DIBROMO-3-CHLOROPROPANE, [1,2-]	96-12-8	0.01		Y	N	DBCP
DIBROMOETHANE, [1,2-]	106-93-4	0.1		Y	N	ETHYLENE DIBROMIDE, ETHYLENE BROMIDE, SYM-DIBROMOETHANE
DIBUTYL PHTHALATE	84-74-2	10		Y	Y	DBP, DIBUTYL 1,2-BENZENEDICARBOXYLATE, DI-N-BUTYL PHTHALATE
DICHLOROBENZENE, [1,4-]	106-46-7	3		Y	N	1,4-DICHLORO-P-DCB, 1,4-DCB, PDB, PDCB
DICHLOROBENZIDENE, [3,3-]	91-94-1	0.2	V	Y	Y	4,4'-DIAMINO-3,3'-DICHLOROBIPHENYL, 3,3'-DICHLOROBIPHENYL-4,4'-DIAMINE, DCB
DICHLOROETHANE, [1,1-]	75-34-3	1		Y	N	ETHYLIDENE DICHLORIDE, 1,1-ETHYLIDENE DICHLORIDE, ASYMMETRICAL DICHLOROETHANE
DICHLOROETHANE, [1,2-]	107-06-2	0.8		Y	N	ETHYLENE DICHLORIDE, 1,2-DICHLOROETHANE, GLYCOL DICHLORIDE, ETHYLENE CHLORIDE
DICHLOROETHYLENE, [1,1-]	75-35-4	0.4		Y	N	VINYLDENE CHLORIDE, DCE, VDC
DICHLOROMETHANE	75-09-2	10		N	N	METHYLENE CHLORIDE, METHANE DICHLORIDE
DICHLOROPHOXY ACETIC ACID, [2,4-]	94-75-7	10	C	Y	Y	2,4-D ACID
DICHLOROPROPANE, [1,2-]	78-87-5	1		Y	N	PROPYLENE DICHLORIDE
DICHLOROPROPENE, [1,3-]	542-75-6	1		Y	N	1,3-DICHLOROPROPYLENE, ALPHA-CHLORALLYL CHLORIDE
DICHLORVOS	62-73-7	0.2		Y	N	DDVP, 2,2-DICHLOROVINYLDIMETHYLPHOSPHATE

Appendix A: List of SMAL

DIETHANOLAMINE	111-42-2	5		Y	N	BIS(2-HYDROXYETHYL)AMINE,2,2'-DIHYDROXYDIETHYLAMINE,DI(2-HYDROXYETHYL)AMINE
DIETHYL SULFATE	64-67-5	1		Y	N	DIETHYL ESTER SULFURIC ACID, ETHYL SULFATE
DIETHYLENE GLYCOL MONOBUTYL ETHER	112-34-5	5	P	Y	N	2-(2-BUTOXYETHOXY)ETHANOL, BUTYL CARBITOL, BUTYL DIGOL
DIMETHOXYBENZIDINE, [3,3-]	119-90-4	0.1	V	Y	Y	FAST BLUE B BASE, DIANISIDINE, O-DIANISIDINE
DIMETHYL BENZIDINE, [3,3-]	119-93-7	0.008	V	Y	Y	O-TOLIDINE, BIANISIDINE, 4,4'-DIAMINO-3,3'DIMETHYLBIPHENYL,DIAMINODITOYL
DIMETHYL CARBAMOYL CHLORIDE	79-44-7	0.02		Y	N	DMCC, CHLOROFORMIC ACID DIMETHYL AMIDE, DIMETHYL CARBAMYL CHLORIDE
DIMETHYL FORMAMIDE	68-12-2	1		Y	N	DMF, FORMYLDIMETHYLAMINE
DIMETHYL HYDRAZINE, [1,1-]	57-14-7	0.008		Y	N	UNSYMMETRICAL DIMETHYLHYDRAZINE, UDMH, Dimazine
DIMETHYL PHTHALATE	131-11-3	10		Y	N	PHTHALIC ACID, DIMETHYL ESTER, DIMETHYL 1,2-BENZENEDICARBOXYLATE, DMP
DIMETHYL SULFATE	77-78-1	0.1		Y	N	SULFURIC ACID DIMETHYL ESTER, METHYL SULFATE, DMS
DIMETHYLAMINOAZOBENZENE, [4-]	60-11-7	1		Y	N	N,N-DIMETHYL-P-PHENYLAZO-ANILINE, BENZENEAZO DIMETHYLANILINE
DIMETHYLANILINE, [N-N-]	121-69-7	1		Y	N	N,N-DIETHYL ANILINE, N,N-DIMETHYLPHENYLAMINE, DMA
DINITRO-O-CRESOL, [4,6-]	534-52-1	0.1	E	Y	Y	DNOC, 3,5-DINITRO-O-CRESOL, 2-METHYL-4,6-DINITROPHENOL
DINITROPHENOL, [2,4-]	51-28-5	1		Y	N	DNP
DINITROTOLUENE, [2,4-]	121-14-2	0.02		Y	N	DINITROTOLUOL, DNT, 1-METHYL-2,4-DINITROBENZENE
DIOXANE, [1,4-]	123-91-1	6		Y	N	1,4-DIETHYLENEOXIDE, DIETHYLENE ETHER, P-DIOXANE
DIPHENYLHYDRAZINE, [1,2-]	122-66-7	0.09	V	Y	Y	HYDRAZOBENZENE, N,N'-DIPHENYLHYDRAZINE, N,N'-BIANILINE, 1,1'-HYDRODIBENZENE
DIPHENYLMETHANE DIISOCYANATE, [4,4-]	101-68-8	0.1	V	Y	N	METHYLENE BIS(PHENYLISOCYANATE), METHYLENE DIPHENYL DIISOCYANATE, (MDI)
EPICHLOROHYDRIN	106-89-8	2		Y	N	1-CHLORO-2,3-EPOXYPROPANE, EPI, CHLOROPROPYLENE OXIDE, CHLOROMETHYLOXIRANE
ETHOXYETHANOL, [2-]	110-80-5	10	P	Y	N	CELLOSOLVE SOLVENT, ETHYLENE GLYCOL MONOETHYL ETHER
ETHYL ACRYLATE	140-88-5	1		Y	N	ETHYL PROPENOATE, ACRYLIC ACID ETHYL ESTER
ETHYL BENZENE	100-41-4	10		Y	N	ETHYLBENZOL, PHENYLETHANE,EB
ETHYL CHLORIDE	75-00-3	10		Y	N	CHLOROETHANE, MONOCHLOROETHANE, HYDROCHLORIC ETHER
ETHYLENE GLYCOL	107-21-1	10		Y	N	1,2-ETHANEDIOL, GLYCOL ALCOHOL, GLYCOL, EG
ETHYLENE GLYCOL MONOBUTYL ETHER (Delisted)	111-76-2					BUTYL CELLOSOLVE, 2-BUTOXYETHANOL
ETHYLENE IMINE [AZIRIDINE]	151-56-4	0.003		Y	N	AZACYCLOPROPANE, DIMETHYLENEIMINE, ETHYLENIMINE, VINYLAMINE, AZIRANE
ETHYLENE OXIDE	75-21-8	0.1		Y	N	1,2-EPOXYETHANE, OXIRANE, DIMETHYLENE OXIDE, ANPROLENE
ETHYLENE THIOUREA	96-45-7	0.6		Y	Y	2-IMIDAZOLIDINETHIONE, ETU
FORMALDEHYDE	50-00-0	2		Y	N	OXYMETHYLENE, FORMIC ALDEHYDE, METHANAL, METHYLENE OXIDE, OXOMETHANE
GLYCOL ETHER (ETHYLENE GLYCOL ETHERS)		5	P	Y	N	
GLYCOL ETHER(DIETHYLENE GLYCOL ETHERS)		5	P	Y	N	

Appendix A: List of SMAL

HEPTACHLOR	76-44-8	0.02		Y	N	1,4,5,6,7,8,8A-HEPTACHLORO-3A,4,7,7A-TETRAHYDRO-4,7-METHANOINDIENE
HEXACHLOROBENZENE	118-74-1	0.01		Y	N	PERCHLOROBENZENE, HCB, PENTACHLOROPHENYL BENZENE, PHENYL PERCHLORYL
HEXACHLOROBUTADIENE	87-68-3	0.9		Y	N	PERCHLOROBUTADIENE, 1,3-HEXACHLOROBUTADIENE, HCB
HEXACHLOROCYCLOHEXANE, [ALPHA-]	319-84-6	0.01	F	Y	N	BENZENE HEXACHLORIDE-alpha isomer, ENT-9232, ALPHA-LINDANE, ALPHA-BHC
HEXACHLOROCYCLOHEXANE, [BETA-]	319-85-7	0.01	F	Y	N	trans-alphaBENZENEHEXACHLORIDE, BETA-BHC, BETA-LINDANE, BETA-HEXACHLOROBENZENE
HEXACHLOROCYCLOHEXANE, [DELTA-]	319-86-8	0.01	F	Y	N	delta-BENZENE HEXACHLORIDE, DELTA-BHC, DELTA-LINDANE, ENT 9236
HEXACHLOROCYCLOHEXANE, [TECHNICAL]	608-73-1	0.01	F	Y	N	BENZENE HEXACHLORIDE, HCH, BHC, ENT 8601, GAMMEXANE, COMPOUND-666
HEXACHLOROCYCLOPENTADIENE	77-47-4	0.1		Y	N	HCCPD, HEX
HEXACHLORODIBENZO-P-DIOXIN (MIXTURE)	19408-74-3	6E-07	D, V	Y	N	HxCDD, 1,2,3,6,7,8-HEXACHLORO-DIBENZO-p-DIOXIN [or 1,2,3,7,8,9-HEXACHLORO-]
HEXACHLOROETHANE	67-72-1	5		Y	N	PERCHLOROETHANE, CARBON HEXACHLORIDE, HCE, 1,1,1,2,2,2-HEXACHLOROETHANE
HEXAMETHYLENE,-1,6-DIISOCYANATE	822-06-0	0.02		Y	N	1,6-DIISOCYANATOHEXANE, 1,6-HEXANEDIOL DISOCYANATE
HEXAMETHYLPHOSPHORAMIDE	680-31-9	0.01		Y	N	HEXAMETHYLPHOSPHORIC TRIAMIDE, HEMPA, HEXAMETAPOL, HEXAMETHYLPHOSPHORAMIDE
HEXANE, [N-]	110-54-3	10		Y	N	HEXANE, NCI-c60571
HYDRAZINE	302-01-2	0.004		N	N	METHYLHYDRAZINE, DIAMIDE, DIAMINE, HYDRAZINE BASE
HYDROGEN CHLORIDE	7647-01-0	10		N	N	HYDROCHLORIC ACID, MURIATIC ACID, ANHYDROUS HYDROCHLORIC ACID
HYDROGEN CYANIDE	74-90-8	5		Y	N	HYDROCYANIC ACID, PRUSSIC ACID, CYCLONE B, ZACLON DISCOIDS
HYDROGEN FLUORIDE	7664-39-3	0.1		N	N	HYDROFLUORIC ACID GAS, FLUOROHYDRIC ACID GAS, ANHYDROUS HYDROFLUORIC ACID
HYDROQUINONE	123-31-9	1		Y	N	QUINOL, HYDROQUINOL, P-DIPHENOL, 1,4-BENZENEDIOL, HYDROCHINONE, ARCTUVIN
INDENO(1,2,3CD)PYRENE	193-39-5	0.01	V	Y	N	
ISOPHORONE	78-59-1	10		Y	N	3,3,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE, TRIMETHYLCYCLOHEXONE, ISOACETOPHORONE
LEAD	7439-92-1	0.01		N	Y	LEAD FLAKE, LEAD S2, C.I.77575, LEAD ELEMENTAL
LEAD ACETATE	301-04-2	0.01	Q	N	Y	SUGAR OF LEAD, ACETIC ACID LEAD(2+) SALT, PLUMBOUS ACETATE, SALT OF SATURN
LEAD COMPOUNDS		0.01	Q	N	Y	LEAD (ARSENATE, CHLORIDE, FLUORIDE, IODIDE, NITRATE, SULFATE, SULFIDE)
LEAD SUBACETATE	13335-32-6	0.01	Q	N	Y	
LINDANE [GAMMA-HEXACHLOROCYCLOHEXANE]	58-89-9	0.01	F	Y	N	BENZENE HEXACHLORIDE-GAMMA ISOMER
MALEIC ANHYDRIDE	108-31-6	1		Y	N	2,5-FURANEDIENE, CIS-BUTENEDIOIC ANHYDRIDE, TOXILIC ANHYDRIDE
MANEB	12427-38-2	0.8	R	N	Y	VANCIDE, MANGANESE 1,2-ETHANEDIYLBIS(CARBAMODITHIOATE) COMPLEX, ENT14875, MEB
MANGANESE	7439-96-5	0.8	R	N	Y	COLLOIDAL MANGANESE
MANGANESE COMPOUNDS		0.8	R	N	Y	MANGANESE (ACETATE, CHLORIDE, DIOXIDE, (II)-OXIDE, (III)-OXIDE, (II)-SULFATE)
MERCURY (ELEMENTAL)	7439-97-6	0.01	S	N	N	COLLOIDAL MERCURY, QUICK SILVER, NCI-c60399

Appendix A: List of SMAL

MERCURY COMPOUNDS (ALKYL & ARYL)		0.01	S	N	N	MERCURY COMPOUNDS (ETHYL-, PHENYL-)
MERCURY COMPOUNDS (INORGANIC)		0.01	S	N	N	MERCURY (CHLORIDE, CYANIDE, (I,II)-[BROMIDE, IODIDE, NITRATE, SULFATE], OXIDE)
METHANOL	67-56-1	10		Y	N	METHYL ALCOHOL, CARBINOL, WOOD ALCOHOL, WOOD SPIRIT
METHOXYCHLOR	72-43-5	10	V	Y	Y	2,2-BIS(P-METHOXYPHENYL)-1,1,1-TRICHLOROETHANE, DIMETHOXY-DDT
METHOXYETHANOL, [2-]	109-86-4	10	P	Y	N	ETHYLENE GLYCOL MONOMETHYL ETHER, METHYL CELLOSOLVE,
METHYL CHLORIDE	74-87-3	10		Y	N	CHLOROMETHANE, MONOCHLOROMETHANE
METHYL ETHYL KETONE (Delisted)	78-93-3					2-BUTANONE, MEK, BUTANONE, ETHYL METHYL KETONE
METHYL HYDRAZINE	60-34-4	0.06		Y	N	MONOMETHYLHYDRAZINE, HYDROZOMETHANE, 1-METHYLHYDRAZINE
METHYL IODIDE	74-88-4	1		Y	N	IDOMETHANE
METHYL ISOBUTYL KETONE	108-10-1	10		Y	N	HEXONE, 4-METHYL-2-PENTANONE, ISOBUTYL METHYL KETONE, MIBK
METHYL ISOCYANATE	624-83-9	0.1		Y	N	ISOCYANATOMETHANE, ISOCYANIC ACID, METHYL ESTER
METHYL MERCURY	22967-92-6	0.01	S	N	N	MERCURY (1+) METHYL ION, METHYLMERCURY(II) CATION, METHYLMERCURY ION
METHYL METHACRYLATE	80-62-6	10		Y	N	METHYL 2-METHYL-2-PROPENOATE, METHACRYLIC ACID METHYL ESTER, MME
METHYL TERT-BUTYL ETHER	1634-04-4	10		Y	N	MTBE
METHYLCYCLOPENTADIENYL MANGANESE	12108-13-3	0.1	R	N	Y	
METHYLENE BIS(2-CHLOROANILINE), [4,4-]	101-14-4	0.2	V	Y	Y	CURENE, MOCA, 4,4'-DIAMINO-3,3'-DICHLORODIPHENYLMETHANE
METHYLENEDIANILINE, [4,4-]	101-77-9	1	V	Y	N	4,4'-DIAMINODIPHENYLMETHANE, DDM, MDA, BIS(4-AMINOPHENYL)METHANE, DAPM
MINERAL FIBERS	TP14	0	T	N	Y	
NAPHTHALENE	91-20-3	10	V	Y	N	NAPHTHALIN, MOTH FLAKE, TAR CAMPHOR, WHITE TAR, MOTH BALLS
NAPHTHYLAMINE, [ALPHA-]	134-32-7	0.01		Y	N	1-NAPHTHYLAMINE, 1-AMINONAPHTHALENE, NAPHTHALIDINE
NAPHTHYLAMINE, [BETA-]	91-59-8	0.01		Y	N	2-AMINONAPHTHALENE, 6-NAPHTHYLAMINE, 2-NAPHTHYLAMINE MUSTARD
NICKEL	7440-02-0	1	U	N	Y	C.I.77775, NICKEL CATALYST WET, NICKEL SPONGE, RANEY ALLOY, RANEY NICKEL
NICKEL CARBONYL	13463-39-3	0.1	U	N	Y	NICKEL TETRACARBONYL
NICKEL COMPOUNDS		1	U	N	Y	NICKEL (ACETATE, AMMONIUM SULFATE, CHLORIDE, HYDROXIDE, NITRATE, SULFATE)
NICKEL OXIDE	1313-99-1	1	U	N	Y	NICKEL (II) OXIDE, BUNSENITE, C.I.77777, NICKELOUS OXIDE, NICKEL PROTOXIDE
NICKEL REFINERY DUST		0.08	U	N	Y	NICKEL DUST, CAS #7440-02-0, NICKEL PARTICLES
NICKEL SUBSULFIDE	12035-72-2	0.04	U	N	Y	NICKEL SULPHIDE, HEAZLEWOODITE, NICKEL TRITADISULPHIDE
NITROBENZENE	98-95-3	1		Y	N	NITROBENZOIL, OIL OF MIRBANE, OIL OF BITTER ALMONDS
NITROBIPHENYL, [4-]	92-93-3	1	V	Y	N	4-NITRODIPHENYL, P-NITROBIPHENYL, P-NITROPHENYL, PNB
NITROPHENOL, [4-]	100-02-7	5		Y	N	4-HYDROXYNITROBENZENE, PARA-NITROPHENOL
NITROPROPANE, [2-]	79-46-9	1		Y	N	DIMETHYLNITROMETHANE, SEC-NITROPROPANE, ISONITROPROPANE, NITROISOPROPANE

Appendix A: List of SMAL

NITROSODIMETHYLAMINE, [N-]	62-75-9	0.001		Y	N	DIMETHYLNITROSAMINE, DMN, DMNA
NITROSOMORPHOLINE, [N-]	59-89-2	1		Y	N	4-NITROSOMORPHOLINE
NITROSO-N-METHYLUREA, [N-]	684-93-5	0.0002		Y	N	N-METHYL-N-NITROSOUREA, N-NITROSO-N-METHYLCARBAMIDE
OCTACHLORONAPHTHALENE	2234-13-1	0.01		Y	N	HALOWAX 1051
PARATHION	56-38-2	0.1		Y	Y	DNTP, MONOTHIOPHOSPHATE, DIETHYL-p-NITROPHENYL
PCB [POLYCHLORINATED BIPHENYLS]	1336-36-3	0.009	X	Y	Y	AROCLORS.
PENTACHLORONITROBENZENE	82-68-8	0.3		Y	N	QUINTOBENZENE, PCNB, QUINIOZENE
PENTACHLOROPHENOL	87-86-5	0.7		Y	N	PCP, PENCHOROL, PENTACHLOROPHENATE, 2,3,4,5,6-PENTACHLOROPHENOL
PHENOL	108-95-2	0.1		Y	N	CARBOLIC ACID, PHENIC ACID, PHENYLIC ACID, PHENYL HYDRATE, HYDROXYBENZENE
PHENYL MERCURIC ACETATE	62-38-4	0.01	S	N	N	ACETOXYPHENYLMERCURY, (ACEATO)PHENYLMERCURY, (ACETOXYMERCURI)BENZENE, CERESAN
PHENYLENEDIAMINE, [PARA-]	106-50-3	10		Y	N	P-AMINOANILINE, 1,4-DIAMINO BENZENE, BENZENE DIAMINE, PARA
PHOSGENE	75-44-5	0.1		Y	N	CARBONYL CHLORIDE, CARBON OXYCHLORIDE, CARBONIC ACID DICHLORIDE
PHOSPHINE	7803-51-2	5		N	N	HYDROGEN PHOSPHIDE, PHOSPHORETTED HYDROGEN, PHOSPHORUS TRIHYDRIDE
PHOSPHOROUS (YELLOW OR WHITE)	7723-14-0	0.1		N	N	COMMON SENSE COCKROACH AND RAT PREPARATIONS
PHTHALIC ANHYDRIDE	85-44-9	5		Y	N	PHTHALIC ACID ANHYDRIDE, BENZENE-O-DICARBOXYLIC ACID ANHYDRIDE, PHTHALANDIONE
POLYCYCLIC ORGANIC MATTER	TP15	0.01	V	Y	N	PAH, POLYAROMATIC HYDROCARBONS, POM
POTASSIUM CYANIDE	151-50-8	0.1	O	Y	N	HYDROCYANIC ACID POTASSIUM SALT, POTASSIUM CYANIDE (LIQUID OR SOLID), KCN
POTASSIUM SILVER CYANIDE	506-61-6	5	O	Y	N	SILVER POTASSIUM CYANIDE
PROPANE SULTONE, [1,3-]	1120-71-4	0.03		Y	Y	1,2-OXATHIOLANE-2,2-DIOXIDE, 3-HYDROXY-1-PROPANESULPHONIC ACID SULTONE
PROPIOLACTONE, [BETA-]	57-57-8	0.1		Y	N	2-OXETANONE, PROPIOLACTONE, BPL, 3-HYDROXY-B-LACTONE-PROPANOIC ACID
PROPIONALDEHYDE	123-38-6	5		Y	N	PROPANAL, PROPYL ALDEHYDE, PROPIONIC ALDEHYDE
PROPOXUR [BAYGON]	114-26-1	10		Y	Y	O-ISOPROPOXYPHENOL METHYLCARBAMATE, 2-(1-METHYLOXY)PHENOL METHYLCARBAMATE
PROPYLENE OXIDE	75-56-9	5		Y	N	1,2-EPOXYPROPANE, METHYLETHYLENE OXIDE, METHYL OXIRANE, PROPENE OXIDE
PROPYLENEIMINE, [1,2-]	75-55-8	0.003		Y	N	2-METHYL AZIRIDINE, 2-METHYL AZACYCLOPROPANE, METHYLETHYLENEIMINE
QUINOLINE	91-22-5	0.006		Y	N	1-AZANAPHTHALENE, 1-BENZAZINE, BENZO(B)PYRIDINE, CHINOLEINE, LEUCOLINE
QUINONE	106-51-4	5		Y	N	BENZOQUINONE, CHINONE, P-BENZOQUINONE, 1,4-BENZOQUINONE
RADIONUCLIDES (INCLUDING RADON) (Note 1)	TP16		Y	N	Y	
RADIUM 226,228 (Note 1)	7440-14-4		Y	N	Y	
RADON 222 (Note 1)	14859-67-7		Y	N	Y	

Appendix A: List of SMAL

SELENIOS ACID	7783-00-8	0.1	W	N	Y	SELENOUS ACID
SELENIUM	7782-49-2	0.1	W	N	Y	SELENIUM ALLOY, SELENIUM BASE, C.I.77805, SELNIUM HOMOPOLYMER,SELENIUM DUST
SELENIUM COMPOUNDS		0.1	W	N	Y	SELENIUM (DIOXIDE, DISULFIDE, HEXAFLUORIDE)
SELENIUM SULFIDE	7446-34-6	0.1	W	N	Y	SELENIUM MONOSULFIDE, NCI-c50033
SELENOUREA	630-10-4	0.1	W	N	Y	CARBAMIMIDOSELENOIC ACID, ISOSELENOUREA, 2-SELENOUREA, SELENOURIUM
SILVER CYANIDE	506-64-9	5	O	Y	N	UN 1684
SODIUM CYANIDE	143-33-9	0.1	O	Y	N	HYDROCYANIC ACID SODIUM SALT, CYANIDE OF SODIUM, NaCN
STYRENE	100-42-5	1		Y	N	CINNAMENE, CINNAMOL, PHENETHYLENE, PHENYLETHYLENE, VINYL BENZENE
STYRENE OXIDE	96-09-3	1		Y	N	EPOXYETHYL BENZENE, PHENYLETHYLENE OXIDE, PHENYL OXIRANE, EPOXYSTYRENE
TETRACHLORODIBENZO-P-DIOXIN, [2,3,7,8-]	1746-01-6	6E-07	D, V	Y	Y	TCDD
TETRACHLOROETHANE, [1,1,2,2-]	79-34-5	0.3		Y	N	SYM-TETRACHLOROETHANE, ACETYLENE TETRACHLORIDE, ETHANE TETRACHLORIDE
TETRACHLOROETHYLENE	127-18-4	10		N	N	PERCHLOROETHYLENE, CARBON DICHLORIDE, ETHYLENE TETRACHLORIDE, PCE, PERCLENE
TETRAETHYL LEAD	78-00-2	0.01	Q	N	Y	TEL, LEAD TETRAETHYL, TETRAETHYLPLUMBANE, NCI-c54988
THALLIUM SELENITE	12039-52-0	0.1	W	N	Y	THALLIUM SELENIDE, THALLIUM MONOSELENIDE
TITANIUM TETRACHLORIDE	7550-45-0	0.1		N	N	TITANIUM CHLORIDE
TOLUENE	108-88-3	10		Y	N	TOLUOL, METHYLBENZENE, PHENYLMETHANE, METHYLBENZOL
TOLUENE DIISOCYANATE, [2,4-]	584-84-9	0.1		Y	N	TDI, TOLYLENE DIISOCYANATE, DIISOCYANATOLUENE
TOLUIDINE, [ORTHO-]	95-53-4	4		Y	N	ORTHO-AMINOTOLUENE, ORTHO-METHYLANILINE, 1-METHYL-1,2-AMINO BENZENE
TOXAPHENE	8001-35-2	0.01		Y	N	CHLORINATED CAMPHERE, CAMPHECHLOR, POLYCHLORCAMPHERE
TRICHLOROBENZENE, [1,2,4-]	120-82-1	10		Y	N	UNSYM-TRICHLOROBENZENE
TRICHLOROETHANE, [1,1,1-]	71-55-6	10		N	N	METHYL CHLOROFORM
TRICHLOROETHANE, [1,1,2-]	79-00-5	1		Y	N	VINYL TRICHLORIDE, BETA-TRICHLOROETHANE
TRICHLOROETHYLENE	79-01-6	10		Y	N	ETHYLENE TRICHLORIDE, ETHINYL TRICHLORIDE, TRICHLOROETHENE, TRI, TCE
TRICHLOROPHENOL, [2,4,5-]	95-95-4	1		Y	N	2,4,5-TCP
TRICHLOROPHENOL, [2,4,6-]	88-06-2	6		Y	N	2,4,6-TCP
TRIETHYLAMINE	121-44-8	10		Y	N	N,N-DIETHYLETHANAMINE, TEA, (DIETHYLAMINO)ETHANE
TRIFLURALIN	1582-09-8	9		Y	Y	2,6-DINITRO-N-N-DIPROPYL-4-(TRIFLUOROMETHYL)BENZENEAMINE
TRIMETHYLPENTANE, [2,2,4-]	540-84-1	5		Y	N	ISOBUTYLTRIMETHYLETHANE, ISOCTANE
URANIUM (NATURAL) (Note 1)	7440-61-1		Y	N	Y	URANIUM METAL
URETHANE [ETHYL CARBAMATE]	51-79-6	0.8		Y	N	ETHYL URETHANE, O-ETHYLURETHANE, LEUCOTHANE, NSC 746, URETHAN
VINYL ACETATE	108-05-4	1		Y	N	ACETIC ACID VINYL ESTER, VINYL ACETATE MONMER, ETHENYL ETHANOATE
VINYL BROMIDE	593-60-2	0.6		Y	N	BROMOETHYLENE, BROMOETHENE

Appendix A: List of SMAL

VINYL CHLORIDE	75-01-4	0.2		Y	N	CHLOROETHYLENE, CHLOROETHENE, MONOCHLOROETHYLENE
XYLENE, [META-]	108-38-3	10	G	Y	N	M-DIMETHYLBENZENE, 1,3-XYLENE, 1,3-DIMETHYLBENZENE, M-XYLOL
XYLENE, [ORTHO-]	95-47-6	10	G	Y	N	O-XYLOL, O-DIMETHYLBENZENE, O-METHYLTOLUENE, 1,2-XYLENE, 1,2-DIMETHYLBENZENE
XYLENE, [PARA-]	106-42-3	10	G	Y	N	P-DIMETHYLBENZENE, P-METHYLTOLUENE, 1,4-XYLENE, 1,4-DIMETHYLBENZENE, P-XYLOL
XYLENES (MIXED ISOMERS)	1330-20-7	10	G	Y	N	AROMATIC HYDROCARBONS MIXED, DIMETHYLBENZENE,
ZINC CYANIDE	557-21-1	5	O	Y	N	ZINC DICYANIDE

Notes:	
1	Screening Model Action Level (SMAL) is defined as the effective dose equivalent to 0.3 millirems per year for 7 years exposure associated with a cancer risk of 1 in 1 million

Group ID	SMAL (Const. $\mu\text{Ci/g}$)	Aggregate Group Name
A	0	Asbestos
B	1	Cresols/Cresylic Acid (isomers and mixtures)
C	10	2,4 - D, Salts and Esters
D	0.000006	Dibenzofurans, Dibenzodioxins
E	0.1	4, 6 Dinitro-o-cresol, and Salts
F	0.01	Lindane (all isomers)
G	10	Xylenes (all isomers and mixtures)
H	5	Antimony Compounds
I	0.005	Arsenic Compounds
J	0.008	Beryllium Compounds
K	0.01	Cadmium Compounds
L	5	Chromium Compounds
M	0.1	Cobalt Compounds
N	0.03	Coke Oven Emissions
O	5	Cyanide Compounds
P	5	Glycol Ethers
Q	0.01	Lead Compounds (except elemental Lead)
R	0.8	Manganese Compounds
S	0.01	Mercury Compounds
T	0	Fine Mineral Fibers
U	1	Nickel Compounds
V	0.01	Polycyclic Organic Matter
W	0.1	Selenium Compounds
X	0.009	Polychlorinated Biphenyls (Aroclors)
Y	Note 1	Radionuclides

APPENDIX B

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual cubic feet per minute	MW	megawatt
BACT	Best Available Control Technology	MHDR	maximum hourly design rate
BMPs	Best Management Practices	MMBtu ...	Million British thermal units
Btu	British thermal unit	MMCF	million cubic feet
CAM	Compliance Assurance Monitoring	MSDS	Material Safety Data Sheet
CAS	Chemical Abstracts Service	NAAQS ..	National Ambient Air Quality Standards
CEMS	Continuous Emission Monitor System	NESHAPs	National Emissions Standards for Hazardous Air Pollutants
CFR	Code of Federal Regulations	NO_x	nitrogen oxides
CO	carbon monoxide	NSPS	New Source Performance Standards
CO₂	carbon dioxide	NSR	New Source Review
CO_{2e}	carbon dioxide equivalent	PM	particulate matter
COMS	Continuous Opacity Monitoring System	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
CSR	Code of State Regulations	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
dscf	dry standard cubic feet	ppm	parts per million
EIQ	Emission Inventory Questionnaire	PSD	Prevention of Significant Deterioration
EP	Emission Point	PTE	potential to emit
EPA	Environmental Protection Agency	RACT	Reasonable Available Control Technology
EU	Emission Unit	RAL	Risk Assessment Level
fps	feet per second	SCC	Source Classification Code
ft	feet	scfm	standard cubic feet per minute
GACT	Generally Available Control Technology	SDS	Safety Data Sheet
GHG	Greenhouse Gas	SIC	Standard Industrial Classification
gpm	gallons per minute	SIP	State Implementation Plan
gr	grains	SMAL	Screening Model Action Levels
GWP	Global Warming Potential	SO_x	sulfur oxides
HAP	Hazardous Air Pollutant	SO₂	sulfur dioxide
hr	hour	tph	tons per hour
hp	horsepower	tpy	tons per year
lb	pound	VMT	vehicle miles traveled
lbs/hr	pounds per hour	VOC	Volatile Organic Compound
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		



Eric R. Greitens, Governor • Carol S. Comer, Acting Director

DEPARTMENT OF NATURAL RESOURCES

dnr.mo.gov

FEB 28 2017

Mr. Russ Hartz
General Manager
Knapheide Truck Equipment Co.
101 Logistics Center Dr.
Wentzville, MO 63385

RE: New Source Review Permit - Project Number: 2016-09-037

Dear Mr. Hartz:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.



Recycled paper

Mr. Russ Hartz
Page Two

If you have any questions regarding this permit, please do not hesitate to contact Chia-Wei Young, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



Susan Heckenkamp
New Source Review Unit Chief

SH: cyj

Enclosures

c: St. Louis Regional Office
PAMS File: 2016-09-037

Permit Number: 022017-011