



## DAKOTA GASIFICATION COMPANY

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# SAFETY DATA SHEET



RESPONSIBLE CARE<sup>®</sup>  
OUR COMMITMENT TO SUSTAINABILITY

## Section 1: Identification

### Product identifier

**Product Name** • TAR OIL (Fuel Grade)

**Relevant identified uses of the substance or mixture and uses advised against**

**Recommended use** • Consult manufacturer for the recommended product use

### Details of the supplier of the safety data sheet

**Manufacturer** • Dakota Gasification  
420 County Road 26  
Beulah, ND 58523-9400  
United States  
www.dakotagas.com

**Telephone (General)** • 701-873-2100

### Emergency telephone number

**Manufacturer** • (701) 873-6600

**Manufacturer** • 800-424-9300 - CHEMTREC

## Section 2: Hazard Identification

### United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

### Classification of the substance or mixture

**OSHA HCS 2012** • Acute Toxicity Oral 4  
Acute Toxicity Dermal 3  
Skin Corrosion 1B  
Skin Sensitization 1  
Serious Eye Damage 1  
Acute Toxicity Inhalation 2  
Germ Cell Mutagenicity 1B  
Carcinogenicity 1A  
Reproductive Toxicity 2  
Specific Target Organ Toxicity Repeated Exposure 1

### Label elements

**OSHA HCS 2012**

## DANGER



- Hazard statements**
- Harmful if swallowed
  - Toxic in contact with skin
  - Causes severe skin burns and eye damage.
  - May cause an allergic skin reaction
  - Causes serious eye damage
  - Fatal if inhaled
  - May cause genetic defects.
  - May cause cancer.
  - Suspected of damaging fertility or the unborn child.
  - Causes damage to organs through prolonged or repeated exposure.

### Precautionary statements

- Prevention**
- Obtain special instructions before use.
  - Do not handle until all safety precautions have been read and understood.
  - Do not breathe mist, vapours and/or spray.
  - Wash thoroughly after handling.
  - Do not eat, drink or smoke when using this product.
  - Use only outdoors or in a well-ventilated area.
  - Contaminated work clothing should not be allowed out of the workplace.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - Wear respiratory protection.
  - In case of inadequate ventilation wear respiratory protection.
- Response**
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
  - Immediately call a POISON CENTER or doctor/physician.
  - If on skin: Wash with plenty of water .
  - Call a POISON CENTER or doctor/physician if you feel unwell.
  - Specific treatment, see supplemental first aid information.
  - Take off immediately all contaminated clothing and wash it before reuse.
  - If skin irritation or rash occurs: Get medical advice/attention.
  - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician if you feel unwell.
  - Rinse mouth.
  - Do NOT induce vomiting.
  - IF exposed or concerned: Get medical advice/attention.
  - Get medical advice/attention if you feel unwell.

- Storage/Disposal**
- Store in a well-ventilated place. Keep container tightly closed.
  - Store locked up.
  - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

- Supplemental information**
- This product consists of an ingredient of unknown toxicity at 5-73% via the oral route, 5-85% via the dermal route and 0-94% via the inhalation route

### Other hazards

**OSHA HCS 2012**

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

**Canada**

According to: WHMIS

**Classification of the substance or mixture**

- WHMIS** • Very Toxic - D1A  
 Other Toxic Effects - D2A  
 Other Toxic Effects - D2B  
 Corrosive - E

**Label elements****WHMIS**

- Very Toxic - D1A
- Other Toxic Effects - D2A
- Other Toxic Effects - D2B
- Corrosive - E

**Other hazards**

- WHMIS** • In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

**Section 3 - Composition/Information on Ingredients****Substances**

- Material does not meet the criteria of a substance.

**Mixtures**

Composition					
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive	Comments
Tar brown-coal	CAS:101316-83-0	100%	NDA	<b>OSHA HCS 2012:</b> Carc. 1A; Skin Corr. 1B; Eye Dam. 1; Muta. 1B; STOT RE 1 (Liver, Kidney, CNS, PNS, Blood, Eyes, Orl, Inhl); Skin Sens. 1; Repr. 2; Acute Tox. 4 (Orl); Acute Tox. 3 (Derm); Acute Tox. 2 (Inhl)	NDA
Coal-tar pitch	CAS:65996-93-2	0% TO 10%	NDA	<b>OSHA HCS 2012:</b> Carc. 1A	NDA

..... C-9 to C-28 alkanes/alkenes	NDA	5% TO 10%	NDA	<b>OSHA HCS 2012:</b> Not Classified	NDA
..... Triethylene glycol	<b>CAS:</b> 112-27-6	0% TO 5%	NDA	<b>OSHA HCS 2012:</b> Eye Irrit. 2	NDA
..... Pyrocatechol, 3-methyl-	<b>CAS:</b> 488-17-5	0% TO 5%	NDA	<b>OSHA HCS 2012:</b> Not Classified	NDA
..... Pyrocatechol	<b>CAS:</b> 120-80-9	0% TO 5%	Ingestion/Oral-Rat LD50 • 260 mg/kg Skin-Rabbit LD50 • 800 mg/kg	<b>OSHA HCS 2012:</b> Carc. 2; Skin Irrit. 2; Eye Dam. 1; Acute Tox. 3 (Skn, Orl)	NDA
..... Phenol	<b>CAS:</b> 108-95-2	0% TO 5%	Ingestion/Oral-Rat LD50 • 317 mg/kg Skin-Rabbit LD50 • 630 mg/kg Inhalation-Rat LC50 • 316 mg/m <sup>3</sup> 4 Hour(s)	<b>OSHA HCS 2012:</b> Flam. Liq. 4; Skin Corr. 1B; Eye Dam. 1; Acute Tox. 4 (Orl); Acute Tox. 3 (Skn); Acute Tox. 1 (Inhl); Muta. 2; STOT SE 3: Resp. Irrit.; STOT RE 1 (Liver, Kidney); STOT SE 3: Narc.;	NDA
..... Naphthalene	<b>CAS:</b> 91-20-3	0% TO 5%	Skin-Rabbit LD50 • >20 g/kg Ingestion/Oral-Rat LD50 • 490 mg/kg	<b>OSHA HCS 2012:</b> Flam. Sol. 2; Acute Tox. 4 (Orl); Skin Irrit. 2; Muta. 2; Carc. 2; Repr. 2; STOT RE 1 (Blood, Eyes, Orl, Inhl)	NDA
..... Fluorene	<b>CAS:</b> 86-73-7	0% TO 5%	NDA	<b>OSHA HCS 2012:</b> Not Classified	NDA
..... Cresol	<b>CAS:</b> 1319-77-3	0% TO 5%	Ingestion/Oral-Rat LD50 • 1454 mg/kg Skin-Rabbit LD50 • 200 mg/kg	<b>OSHA HCS 2012:</b> Acute Tox. 4 (Orl); Acute Tox. 2 (Derm); Eye Dam. 1; Skin Corr. 1B; Skin Sens. 1	NDA
..... 1,1'-Biphenyl	<b>CAS:</b> 92-52-4	0% TO 5%	Ingestion/Oral-Rat LD50 • 2140 mg/kg Skin-Rabbit LD50 • >5010 mg/kg	<b>OSHA HCS 2012:</b> Skin Irrit. 2; Eye Irrit. 2; STOT RE 1 (PNS, CNS, Liver)	NDA
..... Xylene	<b>CAS:</b> 1330-20-7	0% TO 1%	Ingestion/Oral-Rat LD50 • 4300 mg/kg Inhalation-Rat LC50 • 5000 ppm 4 Hour(s) Skin-Rabbit LD50 • >1700 mg/kg	<b>OSHA HCS 2012:</b> Flam. Liq. 3; STOT SE 3: Narc.; STOT SE 3: Resp. Irrit.; Eye Irrit. 2; Skin Irrit. 2; Repr. 2, Acute Tox. 4 (Inhl)	NDA
..... Toluene	<b>CAS:</b> 108-88-3	0% TO 1%	Ingestion/Oral-Rat LD50 • 636 mg/kg Inhalation-Rat LC50 • 49 g/m <sup>3</sup> 4 Hour(s) Skin-Rabbit LD50 • 14100 µL/kg	<b>OSHA HCS 2012:</b> Flam. Liq. 2; Acute Tox. 4 (Orl); Skin Irrit. 2; Eye Irrit. 2; Muta. 2; Repr. 2; STOT SE 3: Narc.; STOT RE 1 (CNS); Asp. Tox. 1	NDA
..... Indan	<b>CAS:</b> 496-11-7	0% TO 1%	NDA	<b>OSHA HCS 2012:</b> Not Classified	NDA
..... Pyridine	<b>CAS:</b> 110-86-1	0% TO 0.1%	NDA	<b>OSHA HCS 2012:</b> Flam. Liq. 2; STOT SE 3: Narc.; Acute Tox. 4 (Orl, Inhl); Acute Tox. 3 (Derm); STOT RE 1 (Liver); Skin Irrit. 2;	NDA
..... Ethylbenzene	<b>CAS:</b> 100-41-4	0% TO 0.1%	Ingestion/Oral-Rat LD50 • 3500 mg/kg Inhalation-Rat LC50 • 55000 mg/m <sup>3</sup> 2 Hour(s) Skin-Rabbit LD50 • >5000 mg/kg	<b>OSHA HCS 2012:</b> Flam. Liq. 2; Eye Irrit. 2; Repr. 2; Carc. 2; STOT SE 3: Narc.; STOT SE 3: Resp. Irrit.;	NDA

..... Benzene	CAS:71-43-2	0% TO 0.1%	Skin-Rabbit LD50 • >9400 µg/kg Ingestion/Oral-Rat LD50 • 930 mg/kg Inhalation-Rat LC50 • 10000 ppm 7 Hour(s)	OSHA HCS 2012: Flam. Liq. 2; Eye Irrit. 2; Skin Irrit. 2; Muta. 1B; Carc. 1A; Asp. Tox. 1; STOT RE 1 (Blood, Bone Marrow); Repr. 2; STOT SE 3: Narc.; Acute Tox. 4(Orl);	NDA
..... Acetone	CAS:67-64-1	0% TO 0.1%	Ingestion/Oral-Rat LD50 • 5800 mg/kg Inhalation-Rat LC50 • 50100 mg/m <sup>3</sup>	OSHA HCS 2012: Flam. Liq. 2; Eye Irrit. 2; STOT SE 3: Narc.	NDA
..... 2-Picoline	CAS:109-06-8	0% TO 0.1%	Ingestion/Oral-Rat LD50 • 790 mg/kg Skin-Rabbit LD50 • 410 µL/kg	OSHA HCS 2012: Flam. Liq. 3; Skin Irrit. 2; Acute Tox. 4 (Orl); Acute Tox. 3 (Derm); STOT SE 3: Narc.; STOT RE 2 (Blood, Orl);	NDA
..... 2-Butanone	CAS:78-93-3	0% TO 0.1%	Ingestion/Oral-Rat LD50 • 2737 mg/kg Inhalation-Rat LC50 • 23500 mg/m <sup>3</sup> Skin-Rabbit LD50 • 6480 mg/kg	OSHA HCS 2012: Flam. Liq. 2; Repr. 2; STOT SE 3: Narc.; Skin Irrit. 2; Eye Irrit. 2	NDA

## Section 4: First-Aid Measures

### Description of first aid measures

- Inhalation** • Move victim to fresh air. Administer oxygen if breathing is difficult. Do not use mouth-to-mouth method if victim inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Give artificial respiration if victim is not breathing. Get medical attention immediately.
- Skin** • For minor skin contact, avoid spreading material on unaffected skin. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Remove and isolate contaminated clothing. Get medical attention immediately.
- Eye** • In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. Get medical attention immediately.
- Ingestion** • If swallowed, rinse mouth with water (only if the person is conscious) Do NOT induce vomiting. Do not use mouth-to-mouth method if victim ingested the substance. Obtain medical attention immediately if ingested.

### Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

### Indication of any immediate medical attention and special treatment needed

- Notes to Physician** • All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

## Section 5: Fire-Fighting Measures

### Extinguishing media

**Suitable Extinguishing Media** • SMALL FIRES: Dry chemical, CO2, water spray or regular foam.  
LARGE FIRE: Water spray, fog or regular foam.

**Unsuitable Extinguishing Media** • No data available

### **Special hazards arising from the substance or mixture**

**Unusual Fire and Explosion Hazards** • Containers may explode when heated.  
Yields combustible vapors when heated.

**Hazardous Combustion Products** • Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive fumes.

### **Advice for firefighters**

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.  
Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.  
Wear positive pressure self-contained breathing apparatus (SCBA).  
SMALL FIRES: Move containers from fire area if you can do it without risk.

## **Section 6 - Accidental Release Measures**

### **Personal precautions, protective equipment and emergency procedures**

**Personal Precautions** • Ventilate enclosed areas. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not get in eyes, on skin, or on clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

**Emergency Procedures** • ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Do not get water inside container.

### **Environmental precautions**

- Avoid run off to waterways and sewers.

### **Methods and material for containment and cleaning up**

**Containment/Clean-up Measures** • Dike to collect large liquid spills.  
Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in suitable container.  
Wash spill site after material pickup is complete.

## **Section 7 - Handling and Storage**

### **Precautions for safe handling**

**Handling** • Handle and open container with care. Use only with adequate ventilation. Use caution when combining with water; DO NOT add water to corrosive liquid, ALWAYS add corrosive liquid to water while stirring to prevent release of heat, steam and fumes. May dissolve plastics, rubber gaskets etc. When heated or agitated, Hydrogen Sulfide can accumulate in enclosed spaces such as the head space of a tank or tank car. Care should be used with initial opening of these types of spaces. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe mist, vapours, spray. Do not get in eyes, on

skin, or on clothing. Take off contaminated clothing and wash before reuse. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

### Conditions for safe storage, including any incompatibilities

**Storage** • Keep container tightly closed. Store in a cool, dry, well-ventilated place. Storage below 100° F will minimize vapor pressure.

## Section 8 - Exposure Controls/Personal Protection

### Control parameters

Exposure Limits/Guidelines				
	Result	ACGIH	NIOSH	OSHA
Toluene (108-88-3)	Ceilings	Not established	Not established	300 ppm Ceiling
	TWAs	20 ppm TWA	100 ppm TWA; 375 mg/m <sup>3</sup> TWA	200 ppm TWA
	STELs	Not established	150 ppm STEL; 560 mg/m <sup>3</sup> STEL	Not established
Benzene (71-43-2)	Ceilings	Not established	Not established	25 ppm Ceiling
	STELs	2.5 ppm STEL	1 ppm STEL	5 ppm STEL (see 29 CFR 1910.1028)
	TWAs	0.5 ppm TWA	0.1 ppm TWA	10 ppm TWA (applies to industry segments exempt from the benzene standard at 29 CFR 1910.1028); 1 ppm TWA
Pyridine (110-86-1)	TWAs	1 ppm TWA	5 ppm TWA; 15 mg/m <sup>3</sup> TWA	5 ppm TWA; 15 mg/m <sup>3</sup> TWA
1,1'-Biphenyl (92-52-4)	TWAs	0.2 ppm TWA	0.2 ppm TWA; 1 mg/m <sup>3</sup> TWA	0.2 ppm TWA; 1 mg/m <sup>3</sup> TWA
Cresol (1319-77-3)	TWAs	20 mg/m <sup>3</sup> TWA (inhalable fraction and vapor)	Not established	5 ppm TWA; 22 mg/m <sup>3</sup> TWA
Coal-tar pitch (65996-93-2)	TWAs	0.2 mg/m <sup>3</sup> TWA (as benzene soluble aerosol)	0.1 mg/m <sup>3</sup> TWA (Cyclohexane-extractable fraction)	0.2 mg/m <sup>3</sup> TWA (benzene soluble fraction)
Naphthalene (91-20-3)	TWAs	10 ppm TWA	10 ppm TWA; 50 mg/m <sup>3</sup> TWA	10 ppm TWA; 50 mg/m <sup>3</sup> TWA
	STELs	Not established	15 ppm STEL; 75 mg/m <sup>3</sup> STEL	Not established
Acetone (67-64-1)	TWAs	250 ppm TWA	250 ppm TWA; 590 mg/m <sup>3</sup> TWA	1000 ppm TWA; 2400 mg/m <sup>3</sup> TWA
	STELs	500 ppm STEL	Not established	Not established
Phenol (108-95-2)	TWAs	5 ppm TWA	5 ppm TWA; 19 mg/m <sup>3</sup> TWA	5 ppm TWA; 19 mg/m <sup>3</sup> TWA
	Ceilings	Not established	15.6 ppm Ceiling (15 min); 60 mg/m <sup>3</sup> Ceiling (15 min)	Not established
Ethylbenzene (100-41-4)	TWAs	20 ppm TWA	100 ppm TWA; 435 mg/m <sup>3</sup> TWA	100 ppm TWA; 435 mg/m <sup>3</sup> TWA
	STELs	Not established	125 ppm STEL; 545 mg/m <sup>3</sup> STEL	Not established
Xylene (1330-20-7)	TWAs	100 ppm TWA	Not established	100 ppm TWA; 435 mg/m <sup>3</sup> TWA
	STELs	150 ppm STEL	Not established	Not established
2-Butanone (78-93-3)	TWAs	200 ppm TWA	200 ppm TWA; 590 mg/m <sup>3</sup> TWA	200 ppm TWA; 590 mg/m <sup>3</sup> TWA
	STELs	300 ppm STEL	300 ppm STEL; 885 mg/m <sup>3</sup> STEL	Not established
Pyrocatechol (120-80-9)	TWAs	5 ppm TWA	5 ppm TWA; 20 mg/m <sup>3</sup> TWA	Not established

### Exposure controls

**Engineering Measures/Controls** • Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls

to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

### Personal Protective Equipment

- Respiratory**
- Follow the OSHA respirator regulations found in 29 CFR 1910.134 Use a NIOSH/MSHA approved respirator if exposure limits are exceeded or symptoms are experienced.
- Eye/Face**
- Use goggles and/or face shield as appropriate for the exposure potential.
- Skin/Body**
- Wear appropriate gloves. Wear long sleeves and/or protective coveralls.
- Environmental Exposure Controls**
- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

#### Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

STEL = Short Term Exposure Limits are based on 15-minute exposures

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

## Section 9 - Physical and Chemical Properties

### Information on Physical and Chemical Properties

Material Description			
Physical Form	Liquid	Appearance/Description	Dark brown liquid with an aromatic, musty odor.
Color	Dark brown.	Odor	Aromatic, musty.
Odor Threshold	No data available		
General Properties			
Boiling Point	> 400 °F(> 204.4444 °C)	Melting Point/Freezing Point	40 to 65 °F(4.4444 to 18.3333 °C)
Decomposition Temperature	No data available	pH	No data available
Specific Gravity/Relative Density	1.01 to 1.05 @ 60 °F(15.5556 °C) Water=1	Water Solubility	Insoluble
Viscosity	No data available		
Volatility			
Vapor Pressure	< 1 psi	Vapor Density	No data available
Evaporation Rate	< 0.8 n-Butyl Acetate = 1	Volatiles (Wt.)	< 1 %
Volatiles (Vol.)	< 1 %		
Flammability			
Flash Point	>= 200 °F(>= 93.3333 °C)	UEL	No data available
LEL	No data available	Autoignition	No data available
Flammability (solid, gas)	No data available		
Environmental			
Octanol/Water Partition coefficient	No data available		

## Section 10: Stability and Reactivity

### Reactivity

- No dangerous reaction known under conditions of normal use.



## Chemical stability

- Stable under normal temperatures and pressures.

## Possibility of hazardous reactions

- Hazardous polymerization not indicated.

## Conditions to avoid

- Excess heat.

## Incompatible materials

- Strong reducing agents and strong acids.

## Hazardous decomposition products

- Will form carbon monoxide, carbon dioxide and other toxic fumes.

## Section 11 - Toxicological Information

### Information on toxicological effects

Components		
Phenol (0% TO 5%)	108-95-2	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 317 mg/kg; <i>Behavioral:Convulsions or effect on seizure threshold</i> ; Inhalation-Rat LC50 • 316 mg/m <sup>3</sup> 4 Hour(s); Inhalation-Rat TClO • 110 mg/m <sup>3</sup> 4 Hour(s); <i>Behavioral:Somnolence (general depressed activity)</i> ; <i>Blood:Changes in serum composition (e.g., TP, bilirubin cholesterol)</i> ; <i>Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels:Proteases</i> ; Skin-Rabbit LD50 • 630 mg/kg; <b>Irritation:</b> Eye-Rabbit • 5 mg • Severe irritation; Skin-Rabbit • 535 mg-Open • Severe irritation; <b>Mutagen:</b> Micronucleus test • Ingestion/Oral-Mouse • 265 mg/kg; <b>Reproductive:</b> Ingestion/Oral-Rat TDLo • 300 mg/kg (6-15D preg); <i>Reproductive Effects:Effects on Fertility:Post-implantation mortality</i> ; <i>Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus)</i> ; <b>Tumorigen / Carcinogen:</b> Skin-Mouse TDLo • 16 g/kg 40 Week(s)-Intermittent; <i>Tumorigenic:Carcinogenic by RTECS criteria</i> ; <i>Skin and Appendages:Other:Tumors</i>
Cresol (0% TO 5%)	1319-77-3	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 1454 mg/kg; Ingestion/Oral-Man TDLo • 177 mg/kg; <i>Blood:Other hemolysis with or without anemia</i> ; <i>Blood:Other changes</i> ; Skin-Rabbit LD50 • 200 mg/kg; <i>Behavioral:Somnolence (general depressed activity)</i> ; <i>Behavioral:Tetany</i> ; <b>Reproductive:</b> Ingestion/Oral-Mouse TDLo • 39 g/kg (7D male/7D pre/1-21D preg); <i>Reproductive Effects:Specific Developmental Abnormalities:Urogenital system</i> ; <i>Reproductive Effects:Specific Developmental Abnormalities:Hepatobiliary system</i> ; <i>Reproductive Effects:Effects on Newborn:Growth statistics (e.g., reduced weight gain)</i>
Toluene (0% TO 1%)	108-88-3	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 636 mg/kg; Inhalation-Rat LC50 • 49 g/m <sup>3</sup> 4 Hour(s); Inhalation-Rat TClO • 1000 mg/m <sup>3</sup> 4 Hour(s); <i>Behavioral:Somnolence (general depressed activity)</i> ; <i>Biochemical:Metabolism (intermediary):Histamines (including liberation not immunochemical in origin)</i> ; Skin-Rabbit LD50 • 14100 µL/kg; <b>Irritation:</b> Eye-Rabbit • 2 mg 24 Hour(s) • Severe irritation; Skin-Rabbit • 500 mg • Moderate irritation; <b>Mutagen:</b> Micronucleus test • Ingestion/Oral-Mouse • 200 mg/kg; Sister chromatid exchange • Inhalation-Human • 252 µg/L 19 Year(s); Cytogenetic analysis • Inhalation-Rat • 5400 µg/m <sup>3</sup> 16 Week(s)-Intermittent; <b>Reproductive:</b> Inhalation-Rat TClO • 1500 mg/m <sup>3</sup> 24 Hour(s)(1-8D preg); <i>Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus)</i> ; <i>Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system</i>
Xylene (0% TO 1%)	1330-20-7	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 4300 mg/kg; <i>Liver:Other changes</i> ; <i>Kidney, Ureter, and Bladder:Other changes</i> ; Inhalation-Rat LC50 • 5000 ppm 4 Hour(s); <b>Irritation:</b> Eye-Rabbit • 5 mg 24 Hour(s) • Severe irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Moderate irritation; <b>Reproductive:</b> Inhalation-Rat TClO • 50 mg/m <sup>3</sup> 6 Hour(s)(1-21D preg); <i>Reproductive Effects:Effects on Fertility:Post-implantation mortality</i> ; <i>Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus)</i> ; <i>Reproductive Effects:Specific Developmental Abnormalities:Craniofacial (including nose and tongue)</i>
Naphthalene (0% TO 5%)	91-20-3	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 490 mg/kg; Ingestion/Oral-Mouse TDLo • 158 mg/kg; <i>Brain and Coverings:Other degenerative changes</i> ; <i>Liver:Other changes</i> ; <i>Biochemical:Metabolism (intermediary):Lipids,</i>

		<p><b>including transport</b>; Inhalation-Human TClO • 250 mg/m<sup>3</sup>; <i>Sense Organs and Special Senses:Eye: Lacrimation</i>; <i>Behavioral:Headache</i>; Skin-Rabbit LD50 • &gt;20 g/kg; Unreported-Guinea Pig LD50 • 1200 mg/kg; <i>Behavioral:Somnolence (general depressed activity)</i>;</p> <p><b>Irritation</b>: Skin-Rabbit • 0.05 mL 24 Hour(s) • Severe irritation;</p> <p><b>Multi-dose Toxicity</b>: Ingestion/Oral-Rat TDLo • 4500 mg/kg 10 Day(s)-Intermittent; <i>Brain and Coverings:Other degenerative changes</i>; Ingestion/Oral-Rat TDLo • 500 mg/kg 10 Day(s)-Intermittent; <i>Behavioral:Sleep</i>; <i>Lungs, Thorax, or Respiration:Dyspnea</i>;</p> <p><b>Mutagen</b>: Specific locus test • Inhalation-Rat • 30 ppm 13 Week(s)-Intermittent; Micronucleus test • Unreported Route-Human • Lymphocyte (Somatic cell) • 30 mg/L;</p> <p><b>Reproductive</b>: Ingestion/Oral-Mouse TDLo • 2400 mg/kg (7-14D preg); <i>Reproductive Effects:Effects on Newborn:Live birth index</i>; <i>Reproductive Effects:Effects on Newborn:Viability index (e.g., # alive at day 4 per # born alive)</i>; Ingestion/Oral-Rat TDLo • 4500 mg/kg (6-15D preg); <i>Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus)</i>; <i>Reproductive Effects:Specific Developmental Abnormalities:Other developmental abnormalities</i>;</p> <p><b>Tumorigen / Carcinogen</b>: Inhalation-Mouse TClO • 30 ppm 6 Hour(s) 2 Year(s)-Intermittent; <i>Tumorigenic:Neoplastic by RTECS criteria</i>; <i>Lungs, Thorax, or Respiration:Tumors</i>; Inhalation-Rat TClO • 1575 mg/kg 105 Week(s)-Intermittent; <i>Tumorigenic:Carcinogenic by RTECS criteria</i>; <i>Sense Organs and Special Senses:Olfaction:Tumors</i>; Inhalation-Rat TClO • 60 ppm 6 Hour(s) 105 Week(s)-Intermittent; <i>Tumorigenic:Carcinogenic by RTECS criteria</i>; <i>Sense Organs and Special Senses:Olfaction:Tumors</i></p>
1,1'-Biphenyl (0% TO 5%)	92-52-4	<p><b>Acute Toxicity</b>: Ingestion/Oral-Rat LD50 • 2140 mg/kg; <i>Behavioral:Somnolence (general depressed activity)</i>; <i>Behavioral:Muscle weakness</i>; <i>Gastrointestinal:Alteration in gastric secretion</i>; Skin-Rabbit LD50 • &gt;5010 mg/kg;</p> <p><b>Irritation</b>: Eye-Rabbit • 100 mg • Mild irritation; Skin-Rabbit • 500 µL 24 Hour(s) • Severe irritation;</p> <p><b>Multi-dose Toxicity</b>: Inhalation-Mouse TClO • 5 mg/m<sup>3</sup> 7 Hour(s) 92 Day(s)-Intermittent; <i>Lungs, Thorax, or Respiration:Emphysema</i>; <i>Lungs, Thorax, or Respiration:Chronic pulmonary edema</i>; <i>Related to Chronic Data:Death in the Other Multiple Dose data type field</i>;</p> <p><b>Mutagen</b>: DNA damage • Ingestion/Oral-Mouse • 100 mg/kg; Unscheduled DNA synthesis • Ingestion/Oral-Rat • 8400 mg/kg 4 Week(s)-Continuous;</p> <p><b>Tumorigen / Carcinogen</b>: Ingestion/Oral-Mouse TDLo • 56 g/kg; <i>Tumorigenic:Equivocal tumorigenic agent by RTECS criteria</i>; <i>Lungs, Thorax, or Respiration:Tumors</i>; <i>Blood:Tumors</i></p>
Acetone (0% TO 0.1%)	67-64-1	<p><b>Acute Toxicity</b>: Ingestion/Oral-Rabbit LD50 • 5340 mg/kg; Inhalation-Rat LC50 • 50100 mg/m<sup>3</sup> 8 Hour(s);</p> <p><b>Irritation</b>: Eye-Rabbit • 20 mg • Severe irritation; Skin-Rabbit • 395 mg-Open • Mild irritation;</p> <p><b>Multi-dose Toxicity</b>: Inhalation-Human TClO • 100 mg/m<sup>3</sup> 6 Hour(s) 5 Day(s)-Intermittent; <i>Cardiac:EKG changes not diagnostic of above</i>; <i>Cardiac:Pulse rate increase without fall in BP</i>; <i>Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels:True cholinesterase</i>;</p> <p><b>Mutagen</b>: Cytogenetic analysis • Unreported Route-Hamster • Fibroblast (Somatic cell) • 40 g/L;</p> <p><b>Reproductive</b>: Inhalation-Rat TClO • 30 mg/m<sup>3</sup> (1-13D preg); <i>Reproductive Effects:Effects on Fertility:Pre-implantation mortality</i>; <i>Reproductive Effects:Effects on Fertility:Post-implantation mortality</i>; <i>Reproductive Effects:Effects on Embryo or Fetus:Fetal death</i></p>
Benzene (0% TO 0.1%)	71-43-2	<p><b>Acute Toxicity</b>: Ingestion/Oral-Rat LD50 • 1800 mg/kg; Inhalation-Rat TClO • 1 ppm 6 Hour(s); <i>Kidney, Ureter, and Bladder:Other changes in urine composition</i>;</p> <p><b>Irritation</b>: Eye-Rabbit • 2 mg 24 Hour(s) • Severe irritation; Skin-Rabbit • 20 mg 24 Hour(s) • Moderate irritation;</p> <p><b>Mutagen</b>: Dominant lethal test • Ingestion/Oral-Mouse • 1 mg/kg; Sister chromatid exchange • Inhalation-Mouse • 10 ppm 6 Hour(s);</p> <p><b>Reproductive</b>: Inhalation-Rat TClO • 50 ppm 24 Hour(s)(7-14D preg); <i>Reproductive Effects:Effects on Embryo or Fetus:Extra embryonic structures</i>; <i>Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus)</i>;</p> <p><b>Tumorigen / Carcinogen</b>: Ingestion/Oral-Rat TDLo • 52 g/kg 52 Week(s)-Intermittent; <i>Tumorigenic:Carcinogenic by RTECS criteria</i>; <i>Endocrine:Tumors</i>; <i>Blood:Leukemia</i></p>
Ethylbenzene (0% TO 0.1%)	100-41-4	<p><b>Acute Toxicity</b>: Ingestion/Oral-Rat LD50 • 3500 mg/kg; Inhalation-Rat LC50 • 55000 mg/m<sup>3</sup> 2 Hour(s); Skin-Rabbit LD50 • 17800 µL/kg;</p> <p><b>Irritation</b>: Eye-Rabbit • 500 mg • Severe irritation; Skin-Rabbit • 15 mg 24 Hour(s)-Open • Mild irritation;</p> <p><b>Reproductive</b>: Inhalation-Rat TClO • 1000 ppm (6H/6-20D preg); <i>Reproductive Effects:Specific Developmental Abnormalities:Other developmental abnormalities</i>; <i>Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system</i>;</p> <p><b>Tumorigen / Carcinogen</b>: Inhalation-Rat TClO • 750 ppm 1 Week(s)-Intermittent; <i>Tumorigenic:Equivocal tumorigenic agent by RTECS criteria</i>; <i>Kidney, Ureter, and Bladder:Kidney tumors</i>; <i>Tumorigenic:Increased incidence of tumors in susceptible strains</i></p>
Pyridine (0% TO 0.1%)	110-86-1	<p><b>Acute Toxicity</b>: Ingestion/Oral-Mouse LD50 • 1500 mg/kg; <i>Behavioral:Sleep</i>; <i>Behavioral:Somnolence (general depressed activity)</i>; <i>Lungs, Thorax, or Respiration:Dyspnea</i>; Inhalation-Rat LC50 • 9010 ppm 1 Hour(s); Skin-Guinea Pig LD50 • 1 g/kg; Skin-Rabbit LDLo • 2000 mg/kg; <i>Skin and Appendages:After topical exposure:Primary irritation</i>;</p> <p><b>Irritation</b>: Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation;</p>

		<p><b>Multi-dose Toxicity:</b> Ingestion/Oral-Rat TDLo • 4000 mg/kg 8 Week(s)-Continuous; <i>Liver:Hepatitis (hepatocellular necrosis), diffuse; Nutritional and Gross Metabolic:Gross Metabolite Changes:Weight loss or decreased weight gain; Related to Chronic Data:Death in the Other Multiple Dose data type field;</i></p> <p><b>Mutagen:</b> Unscheduled DNA synthesis • Ingestion/Oral-Mouse • 700 mg/kg;</p> <p><b>Tumorigen / Carcinogen:</b> Ingestion/Oral-Rat TDLo • 7350 mg/kg 105 Week(s)-Continuous;</p> <p><i>Tumorigenic:Carcinogenic by RTECS criteria; Blood:Leukemia</i></p>
2-Picoline (0% TO 0.1%)	109-06-8	<p><b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 790 mg/kg; <i>Behavioral:Somnolence (general depressed activity); Behavioral:Convulsions or effect on seizure threshold; Behavioral:Excitement;</i> Inhalation-Mouse LC50 • 9 g/m<sup>3</sup>; Inhalation-Rat LCLo • 13200 mg/m<sup>3</sup> 4 Hour(s); <i>Behavioral:Somnolence (general depressed activity); Lungs, Thorax, or Respiration:Respiratory depression; Liver:Other changes;</i> Skin-Rabbit LD50 • 0.41 mL/kg; Skin-Rabbit LDLo • 0.5 g/kg; <i>Skin and Appendages:After topical exposure:Primary irritation;</i></p> <p><b>Irritation:</b> Skin-Rabbit • 470 mg-Open • Mild irritation;</p> <p><b>Multi-dose Toxicity:</b> Ingestion/Oral-Rat TDLo • 1072 mg/kg 9 Week(s)-Intermittent; <i>Blood:Change in clotting factors; Blood:Thrombocytopenia; Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels:True cholinesterase;</i></p> <p><b>Mutagen:</b> Sex chromosome loss &amp; nondisjunction • Unreported Route-Saccharomyces cerevisiae • 7400 ppm</p>
Pyrocatechol (0% TO 5%)	120-80-9	<p><b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 260 mg/kg; Ingestion/Oral-Rat TDLo • 48 mg/kg; <i>Peripheral Nerve and Sensation:Recording from peripheral motor nerve;</i> Skin-Rabbit LD50 • 800 mg/kg; <i>Behavioral:Ataxia; Behavioral:Tetany; Lungs, Thorax, or Respiration:Dyspnea;</i></p> <p><b>Mutagen:</b> Micronucleus test • Ingestion/Oral-Mouse • 40 mg/kg; Unscheduled DNA synthesis • Ingestion/Oral-Rat • 1 g/kg;</p> <p><b>Reproductive:</b> Ingestion/Oral-Rat TDLo • 1 g/kg (11D preg); <i>Reproductive Effects:Effects on Fertility:Litter size (e.g., # fetuses per litter; measured before birth);</i></p> <p><b>Tumorigen / Carcinogen:</b> Ingestion/Oral-Rat TDLo • 7854 mg/kg 34 Week(s)-Intermittent;</p> <p><i>Tumorigenic:Neoplastic by RTECS criteria; Gastrointestinal:Tumors</i></p>
Triethylene glycol (0% TO 5%)	112-27-6	<p><b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 15000 mg/kg; <i>Liver:Other changes; Kidney, Ureter, and Bladder:Other changes;</i> Inhalation-Rat LC50 • &gt;4400 mg/m<sup>3</sup> 4 Hour(s); Inhalation-Mouse TDLo • 4545 mg/m<sup>3</sup> 30 Minute(s); <i>Lungs, Thorax, or Respiration:Respiratory depression;</i> Inhalation-Rat TDLo • 5020 mg/m<sup>3</sup> 4 Hour(s); <i>Peripheral Nerve and Sensation:Sensory change involving peripheral nerve; Sense Organs and Special Senses:Eye:Conjunctive irritation; Sense Organs and Special Senses:Eye:Other;</i> Skin-Rabbit LD50 • &gt;20 mL/kg;</p> <p><b>Irritation:</b> Eye-Rabbit • 500 mg • Mild irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation;</p> <p><b>Multi-dose Toxicity:</b> Ingestion/Oral-Mouse TDLo • 33780 mg/kg 3 Day(s)-Intermittent; <i>Behavioral:Somnolence (general depressed activity); Behavioral:Fluid intake; Lungs, Thorax, or Respiration:Dyspnea;</i></p> <p><b>Mutagen:</b> Heritable Translocation Test • Skin-Drosophila melanogaster • 1.32 mmol/L;</p> <p><b>Reproductive:</b> Ingestion/Oral-Rat TDLo • 103 g/kg (6-15D preg); <i>Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus); Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system</i></p>
2-Butanone (0% TO 0.1%)	78-93-3	<p><b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 2737 mg/kg; Inhalation-Rat LC50 • 23500 mg/m<sup>3</sup> 8 Hour(s); Inhalation-Human TCLo • 100 ppm 5 Minute(s); <i>Sense Organs and Special Senses:Olfaction:Other changes; Sense Organs and Special Senses:Eye:Conjunctive irritation; Lungs, Thorax, or Respiration:Other changes;</i> Inhalation-Mouse TCLo • 25000 mg/m<sup>3</sup> 2 Hour(s); <i>Behavioral:General anesthetic; Lungs, Thorax, or Respiration:Emphysema; Liver:Other changes;</i> Skin-Rabbit LD50 • 6480 mg/kg;</p> <p><b>Irritation:</b> Eye-Rabbit • 80 mg; Skin-Rabbit • 500 mg 24 Hour(s) • Moderate irritation;</p> <p><b>Mutagen:</b> Sex chromosome loss &amp; nondisjunction • Unreported Route-Saccharomyces cerevisiae • 33800 ppm;</p> <p><b>Reproductive:</b> Inhalation-Rat TCLo • 1000 ppm 7 Hour(s)(6-15D preg); <i>Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus); Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system</i></p>
Coal-tar pitch (0% TO 10%)	65996-93-2	<p><b>Multi-dose Toxicity:</b> Inhalation-Rat TCLo • 10 mg/m<sup>3</sup> 4 Hour(s) 8 Week(s)-Intermittent; <i>Blood:Changes in erythrocyte (RBC) count; Biochemical:Metabolism (intermediary):Plasma proteins not involving coagulation;</i> Inhalation-Rat TCLo • 10 mg/m<sup>3</sup> 4 Hour(s) 17 Week(s)-Intermittent; <i>Peripheral Nerve and Sensation:Recording from peripheral motor nerve; Blood:Normocytic anemia; Biochemical:Metabolism (intermediary):Amino acids (including renal excretion);</i></p> <p><b>Tumorigen / Carcinogen:</b> Skin-Mouse TDLo • 36 g/kg 18 Week(s)-Intermittent; <i>Tumorigenic:Carcinogenic by RTECS criteria; Skin and Appendages:Other:Tumors; Tumorigenic:Tumors at site of application</i></p>

GHS Properties	Classification
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Acute toxicity	OSHA HCS 2012•Acute Toxicity - Dermal 3 - ATEmix (Derm) = 383 mg/kg; Acute Toxicity - Inhalation 2 - ATEmix (Inhl) = 0.36 mg/L 4H; Acute Toxicity - Oral 4 - ATEmix (Orl) = 511 mg/kg
Skin corrosion/Irritation	OSHA HCS 2012•Skin Corrosion 1B
Serious eye damage/Irritation	OSHA HCS 2012•Serious Eye Damage 1
Skin sensitization	OSHA HCS 2012•Skin Sensitizer 1
Respiratory sensitization	OSHA HCS 2012•No data available
Aspiration Hazard	OSHA HCS 2012•No data available
Carcinogenicity	OSHA HCS 2012•Carcinogenicity 1A
Germ Cell Mutagenicity	OSHA HCS 2012•Germ Cell Mutagenicity 1B
Toxicity for Reproduction	OSHA HCS 2012•Toxic to Reproduction 2
STOT-SE	OSHA HCS 2012•No data available
STOT-RE	OSHA HCS 2012•Specific Target Organ Toxicity Repeated Exposure 1

## Potential Health Effects

### Inhalation

**Acute (Immediate)** • Fatal if inhaled. May cause corrosive burns - irreversible damage.

**Chronic (Delayed)** • Repeated or prolonged exposure to corrosive fumes may cause bronchial irritation with chronic cough.

### Skin

**Acute (Immediate)** • Toxic in contact with skin. Causes severe skin burns and eye damage. May cause skin sensitization. Symptoms include redness, and skin rash.

**Chronic (Delayed)** • Repeated or prolonged exposure to corrosive materials will cause dermatitis.

### Eye

**Acute (Immediate)** • Causes serious eye damage.

**Chronic (Delayed)** • Repeated or prolonged exposure to corrosive materials or fumes may cause conjunctivitis.

### Ingestion

**Acute (Immediate)** • Harmful if swallowed. May cause irreversible damage to mucous membranes.

**Chronic (Delayed)** • Repeated or prolonged exposure to corrosive materials or fumes may cause gastrointestinal disturbances.

### Other

**Chronic (Delayed)** • Repeated or prolonged exposure may cause damage to liver, kidney, PNS, CNS, blood, bone marrow, and eyes.

**Mutagenic Effects** • Repeated and prolonged exposure may cause mutagenic effects.

**Carcinogenic Effects** • Repeated and prolonged exposure may cause cancer.

Carcinogenic Effects				
	CAS	OSHA	IARC	NTP
Benzene	71-43-2	Specifically Regulated Carcinogen	Group 1-Carcinogenic	Known Human Carcinogen
Coal-tar pitch	65996-93-2	Not Listed	Group 1-Carcinogenic	Known Human Carcinogen
Ethylbenzene	100-41-4	Not Listed	Group 2B-Possible Carcinogen	Not Listed

Naphthalene	91-20-3	Not Listed	Group 2B-Possible Carcinogen	Reasonably Anticipated to be Human Carcinogen
Pyrocatechol	120-80-9	Not Listed	Group 2B-Possible Carcinogen	Not Listed

**Reproductive Effects** • Repeated and prolonged exposure may cause reproductive effects.

**Key to abbreviations**

- LC = Lethal Concentration
- LD = Lethal Dose
- TC = Toxic Concentration
- TD = Toxic Dose

**Section 12 - Ecological Information**

**Toxicity**

- Non-mandatory section - information about this substance not compiled for this reason.

**Persistence and degradability**

- Non-mandatory section - information about this substance not compiled for this reason.

**Bioaccumulative potential**

- Non-mandatory section - information about this substance not compiled for this reason.

**Mobility in Soil**

- Non-mandatory section - information about this substance not compiled for this reason.

**Other adverse effects**

- Non-mandatory section - information about this substance not compiled for this reason.

**Section 13 - Disposal Considerations**

**Waste treatment methods**

**Product waste** • Recycling/reuse of all tar oil residuals is recommended. Discarded or spill cleanup materials may be considered hazardous waste as defined under RCRA 40 CFR 261.24 (Benzene D018). Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

**Packaging waste** • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

**Section 14 - Transport Information**

	UN number	UN proper shipping name	Transport hazard class(es)	Packing group	Environmental hazards
DOT	UN3082	Environmentally hazardous substance, liquid, n.o.s. (contains benzopyrene)	9	III	NDA

<b>TDG</b>	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains benzopyrene)	9	III	NDA
<b>IATA/ICAO</b>	UN3082	Environmentally hazardous substance, liquid, n.o.s. (contains benzopyrene)	9	III	NDA

**Special precautions for user**

• None specified.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** • No data available

**Section 15 - Regulatory Information**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**SARA Hazard Classifications**

• Acute, Chronic

Inventory						
Component	CAS	Canada DSL	Canada NDSL	EU EINECS	EU ELNICS	Korea KECL
1,1'-Biphenyl	92-52-4	Yes	No	Yes	No	Yes
2-Butanone	78-93-3	Yes	No	Yes	No	Yes
2-Picoline	109-06-8	Yes	No	Yes	No	Yes
Acetone	67-64-1	Yes	No	Yes	No	Yes
Benzene	71-43-2	Yes	No	Yes	No	Yes
Coal-tar pitch	65996-93-2	Yes	No	Yes	No	Yes
Cresol	1319-77-3	Yes	No	Yes	No	Yes
Ethylbenzene	100-41-4	Yes	No	Yes	No	Yes
Fluorene	86-73-7	Yes	No	Yes	No	No
Indan	496-11-7	No	Yes	Yes	No	No
Naphthalene	91-20-3	Yes	No	Yes	No	Yes
Phenol	108-95-2	Yes	No	Yes	No	Yes
Pyridine	110-86-1	Yes	No	Yes	No	Yes
Pyrocatechol	120-80-9	Yes	No	Yes	No	Yes
Pyrocatechol, 3-methyl-	488-17-5	No	Yes	Yes	No	Yes
Tar brown-coal	101316-83-0	No	No	Yes	No	Yes
Toluene	108-88-3	Yes	No	Yes	No	Yes
Triethylene glycol	112-27-6	Yes	No	Yes	No	Yes
Water	7732-18-5	Yes	No	Yes	No	Yes
Xylene	1330-20-7	Yes	No	Yes	No	Yes

**Canada**

**Labor**

**Canada - WHMIS - Classifications of Substances**

- Tar brown-coal
- Pyridine
- 1,1'-Biphenyl
- Pyrocatechol

101316-83-0 Not Listed  
110-86-1 B2, D2B  
92-52-4 D2B  
120-80-9 Not Listed

•Triethylene glycol	112-27-6	Uncontrolled product according to WHMIS classification criteria
•Cresol	1319-77-3	B3, D1A, E
•Coal-tar pitch	65996-93-2	D2A
•Naphthalene	91-20-3	B4, D2A
•Acetone	67-64-1	B2, D2B
•Phenol	108-95-2	D1A, E
•Ethylbenzene	100-41-4	B2, D2A, D2B
•Toluene	108-88-3	B2, D2A, D2B
•Xylene	1330-20-7	B2, D2A, D2B
•Benzene	71-43-2	B2, D2A, D2B
•2-Butanone	78-93-3	B2, D2B
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Uncontrolled product according to WHMIS classification criteria
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Uncontrolled product according to WHMIS classification criteria
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed

**Canada - WHMIS - Ingredient Disclosure List**

•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	1 %
•1,1'-Biphenyl	92-52-4	1 %
•Pyrocatechol	120-80-9	1 %
•Triethylene glycol	112-27-6	1 %
•Cresol	1319-77-3	1 %
•Coal-tar pitch	65996-93-2	0.1 %
•Naphthalene	91-20-3	1 %
•Acetone	67-64-1	1 %
•Phenol	108-95-2	1 %
•Ethylbenzene	100-41-4	0.1 %
•Toluene	108-88-3	1 %
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	0.1 %
•2-Butanone	78-93-3	1 %
•2-Picoline	109-06-8	1 %
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	1 %
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed

**Environment**

**Canada - CEPA - Priority Substances List**

•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	Not Listed
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	Priority Substance List 2 (substance not considered toxic)

•Ethylbenzene	100-41-4	Not Listed
•Toluene	108-88-3	Priority Substance List 1 (substance not considered toxic)
•Xylene	1330-20-7	Priority Substance List 1 (substance not considered toxic)
•Benzene	71-43-2	Priority Substance List 1 (substance considered toxic)
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed

## United States

### Labor

#### U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	Not Listed
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	Not Listed
•Ethylbenzene	100-41-4	Not Listed
•Toluene	108-88-3	Not Listed
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	Not Listed
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed

#### U.S. - OSHA - Specifically Regulated Chemicals

•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	Not Listed
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	Not Listed
•Ethylbenzene	100-41-4	Not Listed
•Toluene	108-88-3	Not Listed
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	5 ppm STEL (See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA
•2-Butanone	78-93-3	Not Listed



•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed

## Environment

### U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	
•Pyrocatechol	120-80-9	
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	(isomers and mixture, listed under Cresols/Cresylic acid)
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	
•Ethylbenzene	100-41-4	(listed under Ethyl benzene)
•Toluene	108-88-3	
•Xylene	1330-20-7	(isomers and mixtures)
•Benzene	71-43-2	(including Benzene from gasoline)
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed

### U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	1000 lb final RQ; 454 kg final RQ
•1,1'-Biphenyl	92-52-4	100 lb final RQ; 45.4 kg final RQ
•Pyrocatechol	120-80-9	100 lb final RQ; 45.4 kg final RQ
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	100 lb final RQ; 45.4 kg final RQ
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	100 lb final RQ; 45.4 kg final RQ
•Acetone	67-64-1	5000 lb final RQ; 2270 kg final RQ
•Phenol	108-95-2	1000 lb final RQ; 454 kg final RQ
•Ethylbenzene	100-41-4	1000 lb final RQ; 454 kg final RQ
•Toluene	108-88-3	1000 lb final RQ; 454 kg final RQ
•Xylene	1330-20-7	100 lb final RQ; 45.4 kg final RQ
•Benzene	71-43-2	10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule); 4.54 kg final RQ

(received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule)

•2-Butanone	78-93-3	5000 lb final RQ; 2270 kg final RQ
•2-Picoline	109-06-8	5000 lb final RQ; 2270 kg final RQ
•Fluorene	86-73-7	5000 lb final RQ; 2270 kg final RQ
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed
<b>U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities</b>		
•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	Not Listed
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	Not Listed
•Ethylbenzene	100-41-4	Not Listed
•Toluene	108-88-3	Not Listed
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	Not Listed
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed
<b>U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs</b>		
•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	Not Listed
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	1000 lb EPCRA RQ
•Ethylbenzene	100-41-4	Not Listed
•Toluene	108-88-3	Not Listed
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	Not Listed
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed
<b>U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs</b>		
•Tar brown-coal	101316-83-0	Not Listed

•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	Not Listed
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	500 lb lower TPQ; 10000 lb upper TPQ
•Ethylbenzene	100-41-4	Not Listed
•Toluene	108-88-3	Not Listed
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	Not Listed
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed
<b>U.S. - CERCLA/SARA - Section 313 - Emission Reporting</b>		
•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	1.0 % de minimis concentration
•1,1'-Biphenyl	92-52-4	1.0 % de minimis concentration
•Pyrocatechol	120-80-9	0.1 % de minimis concentration
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	1.0 % de minimis concentration
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	0.1 % de minimis concentration
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	1.0 % de minimis concentration
•Ethylbenzene	100-41-4	0.1 % de minimis concentration
•Toluene	108-88-3	1.0 % de minimis concentration
•Xylene	1330-20-7	1.0 % de minimis concentration
•Benzene	71-43-2	0.1 % de minimis concentration
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	1.0 % de minimis concentration
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed
<b>U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing</b>		
•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed

•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	Not Listed
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	Not Listed
•Ethylbenzene	100-41-4	Not Listed
•Toluene	108-88-3	Not Listed
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	Not Listed
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed

**Inventory - United States - Section 8(b) Inventory (TSCA) - PMN Number to EPA Accession Number Link**

•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	Not Listed
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	Not Listed
•Ethylbenzene	100-41-4	Not Listed
•Toluene	108-88-3	Not Listed
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	Not Listed
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed

**United States - California**

**Environment**

**U.S. - California - Proposition 65 - Carcinogens List**

•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	carcinogen, 5/17/2002
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	carcinogen, 7/15/2003
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	carcinogen, 4/19/2002
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	Not Listed
•Ethylbenzene	100-41-4	carcinogen, 6/11/2004
•Toluene	108-88-3	Not Listed
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	carcinogen, 2/27/1987
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed

•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed
<b>U.S. - California - Proposition 65 - Developmental Toxicity</b>		
•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	Not Listed
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	Not Listed
•Ethylbenzene	100-41-4	Not Listed
•Toluene	108-88-3	developmental toxicity, 1/1/1991
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	developmental toxicity, 12/26/1997
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed
<b>U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)</b>		
•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	Not Listed
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	Not Listed
•Ethylbenzene	100-41-4	Not Listed
•Toluene	108-88-3	7000 µg/day MADL (level represents absorbed dose)
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	24 µg/day MADL (oral); 49 µg/day MADL (inhalation)
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed
<b>U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)</b>		
•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed

•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	5.8 µg/day NSRL
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	Not Listed
•Ethylbenzene	100-41-4	54 µg/day NSRL (inhalation); 41 µg/day NSRL (oral)
•Toluene	108-88-3	Not Listed
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	6.4 µg/day NSRL (oral); 13 µg/day NSRL (inhalation)
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed
<b>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</b>		
•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	Not Listed
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	Not Listed
•Ethylbenzene	100-41-4	Not Listed
•Toluene	108-88-3	Not Listed
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	Not Listed
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed
•Water	7732-18-5	Not Listed
•Pyrocatechol, 3-methyl-	488-17-5	Not Listed
<b>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</b>		
•Tar brown-coal	101316-83-0	Not Listed
•Pyridine	110-86-1	Not Listed
•1,1'-Biphenyl	92-52-4	Not Listed
•Pyrocatechol	120-80-9	Not Listed
•Triethylene glycol	112-27-6	Not Listed
•Cresol	1319-77-3	Not Listed
•Coal-tar pitch	65996-93-2	Not Listed
•Naphthalene	91-20-3	Not Listed
•Acetone	67-64-1	Not Listed
•Phenol	108-95-2	Not Listed
•Ethylbenzene	100-41-4	Not Listed
•Toluene	108-88-3	Not Listed
•Xylene	1330-20-7	Not Listed
•Benzene	71-43-2	male reproductive toxicity, 12/26/97
•2-Butanone	78-93-3	Not Listed
•2-Picoline	109-06-8	Not Listed
•Fluorene	86-73-7	Not Listed
•Indan	496-11-7	Not Listed

- Water
- Pyrocatechol, 3-methyl-

7732-18-5 Not Listed  
488-17-5 Not Listed

## Other Information

- WARNING: This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

### Section 16 - Other Information

#### Revision Date

- 23/November/2015

#### Preparation Date

- 10/September/2013

#### Disclaimer/Statement of Liability

- The information contained in this Safety Data Sheet (SDS) is believed to be correct since it was obtained from sources we believe are reliable. However no representation, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications, hazards connected with the use of the material, or the results to be obtained from the use thereof. User assumes all risks and liability of any use, processing or handling of any material, variations in methods, conditions and equipment used to store, handle, or process the material and hazards connected with the use of the material are solely the responsibility of the user and remain at his sole discretion. Compliance with all applicable federal, state, and local laws and regulations remains the responsibility of the user, and the user has the responsibility to provide a safe work place to examine all aspects of its operation and to determine if or where precautions, in addition to those described herein, are required.

#### Key to abbreviations

NDA = No data available