

3000 eh1

Material Safety Data Sheet

1. Product and company identification

Common name : 3000 eh1
Product type : Liquid.
Internal code : IFS0232
Supplier : Innospec Fuel Specialties LLC
 North American Headquarters
 8375 South Willow Street
 Littleton
 Colorado 80124
 USA

Information contact : 1-800-441-9547

Emergency telephone number

In USA, Canada and North America, 24 hour / 7 day emergency response for Innospec products is provided by the CHEMTREC (R) Emergency Call Center based in the USA
 toll-free telephone numbers USA : 800 424 9300 Canada, Puerto Rico, Virgin Islands : +1 800 424 9300
 In case of difficulty using the toll-free number, or for ships at sea, please call +1 703 527 3887

In Europe, Middle East, Africa, Asia Pacific and South America 24 hour / 7 day emergency response for Innospec products is provided by the NCEC CARECHEM 24 global network



The main regional centres are listed here in Section 1.

Other local contact numbers for specific language support in Asia Pacific are listed in Section 16

Country information	: Emergency telephone number	Location
Europe (all countries, all languages)	: +44 (0) 1235 239 670	London, UK
Middle East, Africa (Arabic, French, English)	: +44 (0) 1235 239 671	Lebanon
Middle East, Africa (French, Portuguese, English)	: +44 (0) 1235 239 670	London UK
Asia Pacific (all countries except China)	: +65 3158 1074	Singapore
China	: +86 10 5100 3039	Beijing China
South America (all countries)	: +1 215 207 0061	Philadelphia USA

2. Hazards identification

Physical state : Liquid.
Odor : Aromatic.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview : DANGER!
 FLAMMABLE LIQUID AND VAPOR. COMBUSTIBLE. CAUSES SKIN BURNS. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES EYE IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. MAY CAUSE RESPIRATORY TRACT IRRITATION. HARMFUL OR FATAL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. SUSPECT CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER.

2. Hazards identification

Flammable liquid. Harmful by inhalation, in contact with skin and if swallowed. Corrosive to the skin. Causes burns. Severely irritating to eyes. Moderately irritating to the respiratory system. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause sensitization by skin contact. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Contains material that can cause target organ damage. Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

- Inhalation** : Toxic by inhalation. Moderately irritating to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Ingestion** : Toxic if swallowed. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause burns to mouth, throat and stomach.
- Skin** : Corrosive to the skin. Causes burns. Toxic in contact with skin. May cause sensitization by skin contact.
- Eyes** : Severely irritating to eyes. Risk of serious damage to eyes.

Potential chronic health effects

- Chronic effects** : Contains material that can cause target organ damage. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.
- Target organs** : Contains material which causes damage to the following organs: blood, kidneys, liver, lymphatic system, gastrointestinal tract, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Over-exposure signs/symptoms

- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Ingestion** : Adverse symptoms may include the following:
stomach pains
nausea or vomiting
- Skin** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Eyes** : Adverse symptoms may include the following:
pain
watering
redness

Medical conditions aggravated by over-exposure : Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

Name	CAS number	%
Benzene, ethylenated, residues, distn. lights	178535-25-6	15 - 30
Solvent naphtha (petroleum), heavy arom.	64742-94-5	9.99 - 14.99
2-butoxyethanol	111-76-2	9.99 - 14.99
Aliphatic amine.	-	-
o-Xylene	95-47-6	4.99 - 9.99
triethylbenzene	102-25-0	4.99 - 9.99
Kerosene	8008-20-6	0.99 - 4.99
phenol, 2,2'-[(1-methyl-1,2-ethanediyl)bis(nitrilomethylidyne)]bis-	94-91-7	0.99 - 4.99
xylene	1330-20-7	0.99 - 4.99
naphthalene	91-20-3	0.99 - 4.99
ethylbenzene	100-41-4	0.09 - 0.99

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

- Flammability of the product** : Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.
- Extinguishing media**
- Suitable** : Use dry chemical, CO₂, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

This Material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

Date of issue : May 19, 2011

5. Fire-fighting measures

6. Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Ingredient	Exposure limits
2-butoxyethanol	<p>OSHA PEL 1989 (United States, 3/1989). Absorbed through skin. TWA: 25 ppm, 0 times per shift, 8 hour(s). TWA: 120 mg/m³, 0 times per shift, 8 hour(s).</p> <p>NIOSH REL (United States, 6/2009). Absorbed through skin. TWA: 5 ppm, 0 times per shift, 10 hour(s). TWA: 24 mg/m³, 0 times per shift, 10 hour(s).</p> <p>ACGIH TLV (United States, 2/2010). TWA: 20 ppm, 0 times per shift, 8 hour(s).</p> <p>OSHA PEL (United States, 6/2010). Absorbed through skin. TWA: 50 ppm, 0 times per shift, 8 hour(s). TWA: 240 mg/m³, 0 times per shift, 8 hour(s).</p>
o-Xylene	<p>ACGIH TLV (United States, 2/2010). TWA: 100 ppm, 0 times per shift, 8 hour(s). TWA: 434 mg/m³, 0 times per shift, 8 hour(s). STEL: 150 ppm, 0 times per shift, 15 minute(s). STEL: 651 mg/m³, 0 times per shift, 15 minute(s).</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 100 ppm, 0 times per shift, 8 hour(s). TWA: 435 mg/m³, 0 times per shift, 8 hour(s). STEL: 150 ppm, 0 times per shift, 15 minute(s). STEL: 655 mg/m³, 0 times per shift, 15 minute(s).</p> <p>NIOSH REL (United States, 6/2009). TWA: 100 ppm, 0 times per shift, 10 hour(s). TWA: 435 mg/m³, 0 times per shift, 10 hour(s). STEL: 150 ppm, 0 times per shift, 15 minute(s). STEL: 655 mg/m³, 0 times per shift, 15 minute(s).</p> <p>OSHA PEL (United States, 6/2010). TWA: 100 ppm, 0 times per shift, 8 hour(s). TWA: 435 mg/m³, 0 times per shift, 8 hour(s).</p>
Kerosene	<p>NIOSH REL (United States, 6/2009). TWA: 100 mg/m³, 0 times per shift, 10 hour(s).</p> <p>ACGIH TLV (United States, 2/2010). Absorbed through skin. TWA: 200 mg/m³, (as total hydrocarbon vapor), 0 times per shift, 8 hour(s).</p>
xylene	<p>ACGIH TLV (United States, 2/2010). TWA: 100 ppm, 0 times per shift, 8 hour(s). TWA: 434 mg/m³, 0 times per shift, 8 hour(s). STEL: 150 ppm, 0 times per shift, 15 minute(s). STEL: 651 mg/m³, 0 times per shift, 15 minute(s).</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 100 ppm, 0 times per shift, 8 hour(s). TWA: 435 mg/m³, 0 times per shift, 8 hour(s). STEL: 150 ppm, 0 times per shift, 15 minute(s). STEL: 655 mg/m³, 0 times per shift, 15 minute(s).</p> <p>OSHA PEL (United States, 6/2010). TWA: 100 ppm, 0 times per shift, 8 hour(s). TWA: 435 mg/m³, 0 times per shift, 8 hour(s).</p>
naphthalene	<p>ACGIH TLV (United States, 2/2010). TWA: 10 ppm, 0 times per shift, 8 hour(s). TWA: 52 mg/m³, 0 times per shift, 8 hour(s). STEL: 15 ppm, 0 times per shift, 15 minute(s). STEL: 79 mg/m³, 0 times per shift, 15 minute(s).</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 10 ppm, 0 times per shift, 8 hour(s). TWA: 50 mg/m³, 0 times per shift, 8 hour(s). STEL: 15 ppm, 0 times per shift, 15 minute(s). STEL: 75 mg/m³, 0 times per shift, 15 minute(s).</p> <p>NIOSH REL (United States, 6/2009).</p>

8. Exposure controls/personal protection

ethylbenzene	<p>TWA: 10 ppm, 0 times per shift, 10 hour(s). TWA: 50 mg/m³, 0 times per shift, 10 hour(s). STEL: 15 ppm, 0 times per shift, 15 minute(s). STEL: 75 mg/m³, 0 times per shift, 15 minute(s).</p> <p>OSHA PEL (United States, 6/2010). TWA: 10 ppm, 0 times per shift, 8 hour(s). TWA: 50 mg/m³, 0 times per shift, 8 hour(s).</p> <p>ACGIH TLV (United States, 2/2010). TWA: 100 ppm, 0 times per shift, 8 hour(s). STEL: 125 ppm, 0 times per shift, 15 minute(s).</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 100 ppm, 0 times per shift, 8 hour(s). TWA: 435 mg/m³, 0 times per shift, 8 hour(s). STEL: 125 ppm, 0 times per shift, 15 minute(s). STEL: 545 mg/m³, 0 times per shift, 15 minute(s).</p> <p>NIOSH REL (United States, 6/2009). TWA: 100 ppm, 0 times per shift, 10 hour(s). TWA: 435 mg/m³, 0 times per shift, 10 hour(s). STEL: 125 ppm, 0 times per shift, 15 minute(s). STEL: 545 mg/m³, 0 times per shift, 15 minute(s).</p> <p>OSHA PEL (United States, 6/2010). TWA: 100 ppm, 0 times per shift, 8 hour(s). TWA: 435 mg/m³, 0 times per shift, 8 hour(s).</p>
--------------	--

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Physical state	: Liquid.
Flash point	: Closed cup: 55.556°C (132°F)
Color	: Clear. Amber.
Odor	: Aromatic.
Specific gravity	: 0.918 [ASTM D 4052]
Dispersibility properties	: Not dispersible in the following materials: cold water.

10. Stability and reactivity

Chemical stability	: The product is stable.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Materials to avoid	: Reactive or incompatible with the following materials: oxidizing materials
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions of reactivity	: Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

11. Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
naphthalene	LC50 Inhalation Vapor	Rat	>340 mg/m ³	1 hours
	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	490 mg/kg	-
2-butoxyethanol	LC50 Inhalation Vapor	Rat	450 ppm	4 hours
	LD50 Dermal	Rabbit	220 mg/kg	-
	LD50 Oral	Rat	250 mg/kg	-
Kerosene	LC50 Inhalation Vapor	Rat	>5000 mg/m ³	4 hours
	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
Aliphatic amine.	LD50 Dermal	Rabbit - Male	1578 mg/kg	-
	LD50 Oral	Rat - Male	365 mg/kg	-
o-Xylene	LD50 Oral	Rat	3567 mg/kg	-
phenol, 2,2'-[(1-methyl-1,2-ethanediyl)bis(nitrilomethylidene)]bis-	LC50 Inhalation Vapor	Rat	16000 ppm	4 hours
	LD50 Dermal	Rabbit	12900 mg/kg	-
	LD50 Oral	Rat	4560 mg/kg	-
xylene	LC50 Inhalation Gas.	Rat	6670 ppm	4 hours
	LD50 Dermal	Rabbit	4320 mg/kg	-
	LD50 Oral	Rat	4300 mg/kg	-
Solvent naphtha (petroleum), heavy arom.	LC50 Inhalation Vapor	Rat	>590 mg/m ³	4 hours
	LD50 Dermal	Rabbit	>2 mL/kg	-
ethylbenzene	LDLo Oral	Rat	5 mL/kg	-
	LC50 Inhalation Vapor	Mouse	35500 mg/m ³	2 hours
	LC50 Inhalation Vapor	Rabbit	4000 ppm	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-

Conclusion/Summary : Not available.

11. Toxicological information

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
naphthalene	Skin - Mild irritant	Rabbit	-	-	-
	Skin - Severe irritant	Rabbit	-	-	-
2-butoxyethanol	Eyes - Moderate irritant	Rabbit	-	-	-
	Eyes - Severe irritant	Rabbit	-	-	-
	Skin - Mild irritant	Rabbit	-	-	-
Kerosene	Skin - Moderate irritant	Rabbit	-	-	-
	Skin - Severe irritant	Rabbit	-	-	-
Aliphatic amine.	Skin - Visible necrosis	Rabbit	-	24 hours	24 hours
	Skin - Visible necrosis	Rabbit	-	48 hours	48 hours
xylene	Eyes - Mild irritant	Rabbit	-	-	-
	Eyes - Severe irritant	Rabbit	-	-	-
	Skin - Mild irritant	Rat	-	-	-
	Skin - Moderate irritant	Rabbit	-	-	-
Solvent naphtha (petroleum), heavy arom.	Skin - Mild irritant	Rabbit	-	-	-
ethylbenzene	Eyes - Severe irritant	Rabbit	-	-	-
	Skin - Mild irritant	Rabbit	-	-	-

Conclusion/Summary : Not available.

Sensitizer

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
2-butoxyethanol	A3	3	-	-	-	-
o-Xylene	A4	3	-	-	-	-
Kerosene	A3	2A	-	-	-	-
xylene	A4	3	-	-	-	-
naphthalene	A4	2B	-	-	Possible	-
ethylbenzene	A3	2B	-	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure

12. Ecological information

naphthalene	Acute EC50 1.96 mg/L Fresh water	Daphnia - Daphnia magna - <24 hours	48 hours
	Acute LC50 2350 ug/L Marine water	Crustaceans - Palaemonetes pugio	48 hours
2-butoxyethanol	Acute LC50 1.6 mg/L Acute EC50 >1000 mg/L Fresh water	Fish Daphnia - Daphnia magna - <24 hours	96 hours 48 hours
	Acute LC50 1490 mg/L Chronic NOEC 1000 mg/L Fresh water	Fish Daphnia - Daphnia magna - <24 hours	96 hours 48 hours
Aliphatic amine.	EC50 2.9 mg/l EC50 10 mg/l LC50 780 mg/l	Algae Daphnia Fish	96 hours 48 hours 96 hours
o-Xylene	Acute EC50 4700 ug/L Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 1.39 mg/L Acute LC50 7.6 mg/L Acute LC50 7.8 mg/L	Daphnia Fish Fish	48 hours 96 hours 96 hours
phenol, 2,2'-[(1-methyl-1,2-ethanediyl)bis(nitrilomethylidene)]bis-xylene	Acute LC50 3.3 mg/L Acute EC50 1 to 3 mg/l	Fish Algae	96 hours 72 hours
Solvent naphtha (petroleum), heavy arom.			
	Acute EC50 3 to 10 mg/l Acute LC50 2 to 5 mg/l Acute EC50 4600 ug/L Fresh water	Daphnia Fish Algae - Pseudokirchneriella subcapitata	48 hours 96 hours 72 hours
ethylbenzene	Acute EC50 3600 ug/L Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 7.2 mg/L Acute EC50 2.93 mg/L Acute LC50 4.2 mg/L Chronic NOEC 6800 ug/L Fresh water	Algae Daphnia Fish Daphnia - Daphnia magna - <=24 hours	48 hours 48 hours 96 hours 48 hours

Conclusion/Summary : Not available.

Persistence/degradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.




13. Disposal considerations

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.




14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	NA1993	Combustible liquid, n.o.s. (xylene, naphthalene)	3	III		<p>Limited quantity Yes.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: 60 L</p> <p>Cargo aircraft Quantity limitation: 220 L</p> <p>Special provisions IB3,T1, T4, TP1</p> <p>Remarks This material is not regulated under 49 CFR in a container of 119 gallon capacity or less when transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.</p>
TDG Classification	UN1993	FLAMMABLE LIQUID, N.O.S. (xylene, naphthalene). Marine pollutant (Solvent naphtha (petroleum), heavy arom.)	3	III	 	<p>Explosive Limit and Limited Quantity Index 5</p> <p>Passenger Carrying Road or Rail Index 60</p> <p>Special provisions 16</p>

This Material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

Date of issue : May 19, 2011

14. Transport information

Mexico Classification	UN1993	LIQUIDO INFLAMABLE, N.E.P. (xylene, naphthalene). Marine pollutant (Solvent naphtha (petroleum), heavy arom.)	3	III		Special provisions 223, 274
IMDG Class	UN1993	FLAMMABLE LIQUID, N.O.S. (xylene, naphthalene). Marine pollutant (Solvent naphtha (petroleum), heavy arom.)	3	III		Emergency schedules (EmS) F-E, _S-E_
IATA-DGR Class	UN1993	Flammable liquid, n.o.s. (xylene, naphthalene)	3	III		Passenger and Cargo Aircraft Quantity limitation: 60 L Packaging instructions: 355 Cargo Aircraft Only Quantity limitation: 220 L Packaging instructions: 366 Limited Quantities - Passenger Aircraft Quantity limitation: 10 L Packaging instructions: Y344

PG* : Packing group

Reportable quantity
Flash point

- : CERCLA: Hazardous substances.: naphthalene: 100 lbs. (45.4 kg); xylene: 100 lbs. (45.4 kg); ethylbenzene: 1000 lbs. (454 kg); maleic anhydride: 5000 lbs. (2270 kg); cresol: 100 lbs. (45.4 kg); o-Xylene: 1000 lbs. (454 kg); 2-butoxyethanol: 5000 lbs. (2270 kg); toluene: 1000 lbs. (454 kg); cumene: 5000 lbs. (2270 kg);
- : Closed cup: 55.556°C (132°F)

15. Regulatory information

HCS Classification

- : Combustible liquid
- : Toxic material
- : Corrosive material
- : Sensitizing material
- : Carcinogen
- : Target organ effects

U.S. Federal regulations

- : **TSCA 4(a) final test rules:** naphthalene
- : **TSCA 5(e) substance consent order:** Aliphatic amine.
- : **TSCA 8(a) PAIR:** naphthalene
- : **TSCA 8(a) IUR Exempt/Partial exemption:** Not determined
- : **United States inventory (TSCA 8b):** All components are listed or exempted.
- : **TSCA 12(b) annual export notification:** naphthalene

15. Regulatory information

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: naphthalene; xylene; o-Xylene; Kerosene; 2-butoxyethanol; triethylbenzene
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
 naphthalene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; xylene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; o-Xylene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; Kerosene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; 2-butoxyethanol: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; triethylbenzene: Fire hazard, Immediate (acute) health hazard
Clean Water Act (CWA) 307: naphthalene; toluene; ethylbenzene; phenol
Clean Water Act (CWA) 311: naphthalene; toluene; ethylbenzene; o-Xylene; xylene; cresol; maleic anhydride

The manufacture and use of a substance contained in this product is controlled under a TSCA Section 5(e) Consent Order. Users should minimize exposure and release to water. See MSDS and applicable paragraph 5(e) Significant New Use Rule (SNUR) for details.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	2-butoxyethanol	111-76-2	9.99 - 14.99
	o-Xylene	95-47-6	4.99 - 9.99
	xylene	1330-20-7	0.99 - 4.99
	naphthalene	91-20-3	0.99 - 4.99
	ethylbenzene	100-41-4	0.09 - 0.99
Supplier notification	2-butoxyethanol	111-76-2	9.99 - 14.99
	o-Xylene	95-47-6	4.99 - 9.99
	xylene	1330-20-7	0.99 - 4.99
	naphthalene	91-20-3	0.99 - 4.99
	ethylbenzene	100-41-4	0.09 - 0.99

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: NAPHTHALENE; 2-BUTOXYETHANOL; KEROSINE; O-XYLENE; XYLENE

New York : The following components are listed: Naphthalene; Ethylbenzene; o-Xylene; Xylene (mixed)

15. Regulatory information

- New Jersey** : The following components are listed: NAPHTHALENE; MOTH FLAKES; ETHYL BENZENE; BENZENE, ETHYL-; 2-BUTOXY ETHANOL; BUTYL CELLOSOLVE; KEROSENE; FUEL OIL #1; o-XYLENE; BENZENE, 1,2-DIMETHYL-; XYLENES; BENZENE, DIMETHYL-
- Pennsylvania** : The following components are listed: NAPHTHALENE; BENZENE, ETHYL-; ETHANOL, 2-BUTOXY-; KEROSENE (PETROLEUM); BENZENE, 1,2-DIMETHYL-; BENZENE, DIMETHYL-

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
naphthalene	Yes.	No.	Yes.	No.
ethylbenzene	Yes.	No.	41 µg/day (ingestion) 54 µg/day (inhalation)	No.
toluene	No.	Yes.	No.	7000 µg/day (ingestion) 13000 µg/day (inhalation)
cumene	Yes.	No.	No.	No.

EU regulations

Hazard symbol or symbols :



Risk phrases

- : R40- Limited evidence of a carcinogenic effect.
R21- Harmful in contact with skin.
R36/38- Irritating to eyes and skin.
R43- May cause sensitization by skin contact.
R67- Vapors may cause drowsiness and dizziness.
R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases

- : S36/37- Wear suitable protective clothing and gloves.
S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

United States inventory (TSCA 8b)

- : All components are listed or exempted.

Canada inventory

- : At least one component is not listed in DSL but all such components are listed in NDSL.

Australia inventory (AICS)

- : At least one component is not listed.

China inventory (IECSC)

- : At least one component is not listed.

EU Inventory

- : At least one component is not listed.

Japan inventory (ENCS)

- : At least one component is not listed.

Korea inventory (KECI)

- : At least one component is not listed.

New Zealand Inventory of Chemicals (NZIoC)

- : Not determined.

Philippines inventory (PICCS)

- : At least one component is not listed.

Chemical Weapons

- : Not listed

Convention List Schedule I Chemicals

15. Regulatory information

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

16. Other information

Label requirements : FLAMMABLE LIQUID AND VAPOR. COMBUSTIBLE. CAUSES SKIN BURNS. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES EYE IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. MAY CAUSE RESPIRATORY TRACT IRRITATION. HARMFUL OR FATAL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. SUSPECT CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER.

Hazardous Material Information System (U.S.A.) :

Health	*	3
Flammability		2
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Date of printing : 19/05/2011.
Date of issue : 19/05/2011.
Date of previous issue : 18/05/2011.
Version : 1.01

Indicates information that has changed from previously issued version.

Emergency contact numbers for local language support in Asia Pacific region

Country information	Languages supported	Telephone no.:	Location
Australia	English	+61 2 8014 4558	Australia

This Material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

Date of issue : May 19, 2011

16. Other information

Bangladesh	Bengali, English	+65 3158 1200	Singapore
China	Mandarin, English	+86 10 5100 3039	Beijing China
India	Hindi, English	+65 3158 1198	Singapore
Indonesia (local toll free number)	Bahasa Indonesian, English	00780 3011 0293	Indonesia
Japan	Japanese, English	+81 3 4578 9341	Japan
Korea	Korean, English	+65 3158 1285	Singapore
Malaysia	Bahasa Malaysian, English	+60 3 6207 4347	Malaysia
New Zealand	English	+61 9929 1483	Australia
Pakistan	Urdu, English	+65 3158 1329	Singapore
Philippines	Tagalog, English	+65 3158 1203	Singapore
Sri Lanka	Sinhalese, English	+65 3158 1195	Singapore
Thailand (local toll free number)	Thai, English	001800 1 2066 6751	Thailand
Vietnam	Vietnamese, English	+65 3158 1255	Singapore

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Avalux 4000 ci1

Material Safety Data Sheet

1. Product and company identification

Common name : Avalux 4000 ci1
Product type : Liquid.
Internal code : IFS0384
Supplier : Innospec Fuel Specialties LLC
 North American Headquarters
 8375 South Willow Street
 Littleton
 Colorado 80124
 USA

Information contact : 1-800-441-9547

Emergency telephone number

In USA, Canada and North America, 24 hour / 7 day emergency response for Innospec products is provided by the CHEMTREC (R) Emergency Call Center based in the USA
 toll-free telephone numbers USA : 800 424 9300 Canada, Puerto Rico, Virgin Islands : +1 800 424 9300
 In case of difficulty using the toll-free number, or for ships at sea, please call +1 703 527 3887

In Europe, Middle East, Africa, Asia Pacific and South America 24 hour / 7 day emergency response for Innospec products is provided by the NCEC CARECHEM 24 global network



The main regional centres are listed here in Section 1.

Other local contact numbers for specific language support in Asia Pacific are listed in Section 16

Country information	Emergency telephone number	Location
Europe (all countries, all languages)	+44 (0) 1235 239 670	London, UK
Middle East, Africa (Arabic, French, English)	+44 (0) 1235 239 671	Lebanon
Middle East, Africa (French, Portuguese, English)	+44 (0) 1235 239 670	London UK
Asia Pacific (all countries except China)	+65 3158 1074	Singapore
China	+86 10 5100 3039	Beijing China
South America (all countries)	+1 215 207 0061	Philadelphia USA

2. Hazards identification

Physical state : Liquid.
Odor : Aromatic.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview : DANGER!
 COMBUSTIBLE LIQUID AND VAPOR. CAUSES EYE AND SKIN BURNS. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES RESPIRATORY TRACT IRRITATION. HARMFUL OR FATAL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER, BASED ON ANIMAL DATA.

2. Hazards identification

Combustible liquid. Harmful by inhalation, in contact with skin and if swallowed. Corrosive to eyes and skin. Causes burns. Irritating to respiratory system. Aspiration hazard if swallowed. Can enter lungs and cause damage. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Contains material that can cause target organ damage. Contains material which may cause cancer, based on animal data. Risk of cancer depends on duration and level of exposure. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Potential acute health effects

- Inhalation** : Toxic by inhalation. Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Ingestion** : Toxic if swallowed. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause burns to mouth, throat and stomach.
- Skin** : Corrosive to the skin. Causes burns. Toxic in contact with skin.
- Eyes** : Corrosive to eyes. Causes burns.

Potential chronic health effects

- Chronic effects** : Contains material that can cause target organ damage.
- Carcinogenicity** : Contains material which may cause cancer, based on animal data. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.
- Target organs** : Contains material which causes damage to the following organs: blood, kidneys, liver, skin, central nervous system (CNS), eye, lens or cornea.
Contains material which may cause damage to the following organs: upper respiratory tract.

Over-exposure signs/symptoms

- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Ingestion** : Adverse symptoms may include the following:
stomach pains
nausea or vomiting
- Skin** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Eyes** : Adverse symptoms may include the following:
pain
watering
redness

- Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

Name	CAS number	%
Benzene, ethylenated, residues, distn. lights	178535-25-6	60 - 100
triethylbenzene	102-25-0	15 - 30
Solvent naphtha (petroleum), heavy arom.	64742-94-5	0.99 - 4.99
Cyclohexyldimethylamine	98-94-2	0.99 - 4.99
naphthalene	91-20-3	0.99 - 4.99
ethylbenzene	100-41-4	0.09 - 0.99

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

- Flammability of the product** : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
- Extinguishing media**
- Suitable** : Use dry chemical, CO₂, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
- Methods for cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Ingredient	Exposure limits

8. Exposure controls/personal protection

naphthalene	<p>ACGIH TLV (United States, 2/2010). TWA: 10 ppm, 0 times per shift, 8 hour(s). TWA: 52 mg/m³, 0 times per shift, 8 hour(s). STEL: 15 ppm, 0 times per shift, 15 minute(s). STEL: 79 mg/m³, 0 times per shift, 15 minute(s).</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 10 ppm, 0 times per shift, 8 hour(s). TWA: 50 mg/m³, 0 times per shift, 8 hour(s). STEL: 15 ppm, 0 times per shift, 15 minute(s). STEL: 75 mg/m³, 0 times per shift, 15 minute(s).</p> <p>NIOSH REL (United States, 6/2009). TWA: 10 ppm, 0 times per shift, 10 hour(s). TWA: 50 mg/m³, 0 times per shift, 10 hour(s). STEL: 15 ppm, 0 times per shift, 15 minute(s). STEL: 75 mg/m³, 0 times per shift, 15 minute(s).</p> <p>OSHA PEL (United States, 6/2010). TWA: 10 ppm, 0 times per shift, 8 hour(s). TWA: 50 mg/m³, 0 times per shift, 8 hour(s).</p>
ethylbenzene	<p>ACGIH TLV (United States, 2/2010). TWA: 100 ppm, 0 times per shift, 8 hour(s). STEL: 125 ppm, 0 times per shift, 15 minute(s).</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 100 ppm, 0 times per shift, 8 hour(s). TWA: 435 mg/m³, 0 times per shift, 8 hour(s). STEL: 125 ppm, 0 times per shift, 15 minute(s). STEL: 545 mg/m³, 0 times per shift, 15 minute(s).</p> <p>NIOSH REL (United States, 6/2009). TWA: 100 ppm, 0 times per shift, 10 hour(s). TWA: 435 mg/m³, 0 times per shift, 10 hour(s). STEL: 125 ppm, 0 times per shift, 15 minute(s). STEL: 545 mg/m³, 0 times per shift, 15 minute(s).</p> <p>OSHA PEL (United States, 6/2010). TWA: 100 ppm, 0 times per shift, 8 hour(s). TWA: 435 mg/m³, 0 times per shift, 8 hour(s).</p>

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

8. Exposure controls/personal protection

- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

- Physical state** : Liquid.
- Flash point** : Closed cup: 68.889°C (156°F) [Pensky-Martens.]
- Color** : Amber.
- Odor** : Aromatic.
- Specific gravity** : 0.9 [ASTM D 4052]
- Density** : 7.5 lbs/gal
- Dispersibility properties** : Not dispersible in the following materials: cold water.

10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions of reactivity** : Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

11. Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
naphthalene	LC50 Inhalation Vapor	Rat	>340 mg/m ³	1 hours
	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	490 mg/kg	-
Solvent naphtha (petroleum), heavy arom.	LC50 Inhalation Vapor	Rat	>590 mg/m ³	4 hours
	LD50 Dermal	Rabbit	>2 mL/kg	-
Cyclohexyldimethylamine	LDLo Oral	Rat	5 mL/kg	-
	LD50 Dermal	Rat	370 mg/kg	-
	LD50 Oral	Rat	348 mg/kg	-
ethylbenzene	LC50 Inhalation Vapor	Mouse	35500 mg/m ³	2 hours
	LC50 Inhalation Vapor	Rabbit	4000 ppm	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation

11. Toxicological information

naphthalene	Skin - Mild irritant	Rabbit	-	-	-
	Skin - Severe irritant	Rabbit	-	-	-
Solvent naphtha (petroleum), heavy arom.	Skin - Mild irritant	Rabbit	-	-	-
ethylbenzene	Eyes - Severe irritant	Rabbit	-	-	-
	Skin - Mild irritant	Rabbit	-	-	-

Conclusion/Summary : Not available.

Sensitizer

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
naphthalene	A4	2B	-	-	Possible	-
ethylbenzene	A3	2B	-	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12. Ecological information

Ecotoxicity : Water polluting material. May be harmful to the environment if released in large quantities.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
naphthalene	Acute EC50 1.96 mg/L Fresh water	Daphnia - Daphnia magna - <24 hours	48 hours
	Acute LC50 2350 ug/L Marine water	Crustaceans - Palaemonetes pugio	48 hours
Solvent naphtha (petroleum), heavy arom.	Acute LC50 1.6 mg/L	Fish	96 hours
	Acute EC50 1 to 3 mg/l	Algae	72 hours
ethylbenzene	Acute EC50 3 to 10 mg/l	Daphnia	48 hours
	Acute LC50 2 to 5 mg/l	Fish	96 hours
	Acute EC50 4600 ug/L Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 3600 ug/L Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 7.2 mg/L	Algae	48 hours
	Acute EC50 2.93 mg/L	Daphnia	48 hours
	Acute LC50 4.2 mg/L	Fish	96 hours
	Chronic NOEC 6800 ug/L Fresh water	Daphnia - Daphnia magna - <=24 hours	48 hours

Conclusion/Summary : Not available.

Persistence/degradability

Conclusion/Summary : Not available.

13. Disposal considerations

Waste disposal


- The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.



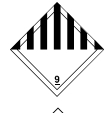





The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	NA1993	Combustible liquid, n.o.s. (Benzene, ethylenated, residues, distn. lights, triethylbenzene). Marine pollutant (triethylbenzene)	Combustible liquid.	III		<p>Limited quantity Yes.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: 60 L</p> <p>Cargo aircraft Quantity limitation: 220 L</p> <p>Special provisions IB3,T1, T4, TP1</p> <p>Remarks This material is not regulated under 49 CFR in a container of 119 gallon capacity or less when transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.</p>

14. Transport information

TDG Classification	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (triethylbenzene). Marine pollutant (triethylbenzene, naphthalene)	9	III	 	Explosive Limit and Limited Quantity Index 5 Special provisions 16
Mexico Classification	UN3082	SUSTANCIA LIQUIDA POTENCIALMENTE PELIGROSAS PARA EL MEDIO AMBIENTE, N.E.P. (triethylbenzene). Marine pollutant (triethylbenzene)	9	III	 	Special provisions 179, 274
IMDG Class	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (triethylbenzene). Marine pollutant (triethylbenzene)	9	III	 	Emergency schedules (EmS) F-A, S-F
IATA-DGR Class	UN3082	Environmentally hazardous substance, liquid, n.o.s. (triethylbenzene)	9	III	 	Passenger and Cargo Aircraft Quantity limitation: 450 L Packaging instructions: 964 Cargo Aircraft Only Quantity limitation: 450 L Packaging instructions: 964 Limited Quantities - Passenger Aircraft Quantity limitation: 30 kg Packaging instructions: Y964

PG* : Packing group

Reportable quantity
Flash point

- : CERCLA: Hazardous substances.: ethylbenzene: 1000 lbs. (454 kg); naphthalene: 100 lbs. (45.4 kg); toluene: 1000 lbs. (454 kg); cumene: 5000 lbs. (2270 kg); xylene: 100 lbs. (45.4 kg); maleic anhydride: 5000 lbs. (2270 kg); 1,4-Benzenediol: 100 lbs. (45.4 kg); o-Xylene: 1000 lbs. (454 kg); butan-1-ol: 5000 lbs. (2270 kg); o-Xylene: 1000 lbs. (454 kg); cresol: 100 lbs. (45.4 kg);
- : Closed cup: 68.889°C (156°F) [Pensky-Martens.]

15. Regulatory information

- HCS Classification** : Combustible liquid
Toxic material
Corrosive material
Carcinogen
Target organ effects
- U.S. Federal regulations** : **TSCA 4(a) final test rules:** naphthalene; Cyclohexanol
TSCA 8(a) PAIR: naphthalene; Cyclohexanol
TSCA 8(a) IUR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): All components are listed or exempted.
TSCA 12(b) annual export notification: naphthalene
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: naphthalene; triethylbenzene; Proprietary Amine
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
naphthalene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; triethylbenzene: Fire hazard, Immediate (acute) health hazard; Proprietary Amine: Fire hazard, Immediate (acute) health hazard
Clean Water Act (CWA) 307: naphthalene; ethylbenzene; toluene; phenol
Clean Water Act (CWA) 311: naphthalene; ethylbenzene; toluene; xylene; cresol; o-Xylene; o-Xylene; maleic anhydride
- Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)** : Listed
- Clean Air Act Section 602 Class I Substances** : Not listed
- Clean Air Act Section 602 Class II Substances** : Not listed
- DEA List I Chemicals (Precursor Chemicals)** : Not listed
- DEA List II Chemicals (Essential Chemicals)** : Not listed

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	naphthalene ethylbenzene	91-20-3 100-41-4	0.99 - 4.99 0.09 - 0.99
Supplier notification	naphthalene ethylbenzene	91-20-3 100-41-4	0.99 - 4.99 0.09 - 0.99

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

- Massachusetts** : The following components are listed: NAPHTHALENE
- New York** : The following components are listed: Naphthalene; Ethylbenzene
- New Jersey** : The following components are listed: NAPHTHALENE; MOTH FLAKES; ETHYL BENZENE; BENZENE, ETHYL-; Proprietary Amine
- Pennsylvania** : The following components are listed: NAPHTHALENE; BENZENE, ETHYL-
- California Prop. 65**

WARNING: This product contains a chemical known to the State of California to cause cancer.

WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

15. Regulatory information

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
naphthalene ethylbenzene	Yes. Yes.	No. No.	Yes. 41 µg/day (ingestion) 54 µg/day (inhalation)	No. No.
toluene	No.	Yes.	No.	7000 µg/day (ingestion) 13000 µg/day (inhalation)
cumene	Yes.	No.	No.	No.

EU regulations

Hazard symbol or symbols :



Risk phrases

- : R40- Limited evidence of a carcinogenic effect.
- : R36/38- Irritating to eyes and skin.
- : R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases

- : S36/37- Wear suitable protective clothing and gloves.
- : S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

United States inventory (TSCA 8b)

- : All components are listed or exempted.

Canada inventory

- : All components are listed or exempted.

Australia inventory (AICS)

- : Not determined.

China inventory (IECSC)

- : Not determined.

EU Inventory

- : At least one component is not listed in EINECS but all such components are listed in ELINCS.
Please contact your supplier for information on the inventory status of this material.

Japan inventory (ENCS)

- : Not determined.

Korea inventory (KECI)

- : Not determined.

New Zealand Inventory of Chemicals (NZIoC)

- : Not determined.

Philippines inventory (PICCS)

- : Not determined.

Chemical Weapons

- : Not listed

Convention List Schedule I Chemicals

Chemical Weapons

- : Not listed

Convention List Schedule II Chemicals

Chemical Weapons

- : Not listed

Convention List Schedule III Chemicals

16. Other information

Label requirements : COMBUSTIBLE LIQUID AND VAPOR. CAUSES EYE AND SKIN BURNS. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES RESPIRATORY TRACT IRRITATION. HARMFUL OR FATAL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) :

Health	*	2
Flammability		2
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Date of printing : 14/07/2011.

Date of issue : 14/07/2011.

Date of previous issue : 12/07/2011.

Version : 1.06

Indicates information that has changed from previously issued version.

Emergency contact numbers for local language support in Asia Pacific region

Country information	Languages supported	Telephone no.:	Location
Australia	English	+61 2 8014 4558	Australia
Bangladesh	Bengali, English	+65 3158 1200	Singapore
China	Mandarin, English	+86 10 5100 3039	Beijing China
India	Hindi, English	+65 3158 1198	Singapore
Indonesia (local toll free number)	Bahasa Indonesian, English	00780 3011 0293	Indonesia
Japan	Japanese, English	+81 3 4578 9341	Japan
Korea	Korean, English	+65 3158 1285	Singapore

This Material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

Date of issue : July 14, 2011

16. Other information

Malaysia	Bahasa Malaysian, English	+60 3 6207 4347	Malaysia
New Zealand	English	+61 9929 1483	Australia
Pakistan	Urdu, English	+65 3158 1329	Singapore
Philippines	Tagalog, English	+65 3158 1203	Singapore
Sri Lanka	Sinhalese, English	+65 3158 1195	Singapore
Thailand (local toll free number)	Thai, English	001800 1 2066 6751	Thailand
Vietnam	Vietnamese, English	+65 3158 1255	Singapore

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Avalux 9000 ci2

Material Safety Data Sheet

1. Product and company identification

Common name : Avalux 9000 ci2
Product type : Liquid.
Internal code : IFS0237
Supplier : Innospec Fuel Specialties LLC
 North American Headquarters
 8375 South Willow Street
 Littleton
 Colorado 80124
 USA

Information contact : 1-800-441-9547

Emergency telephone number

In USA, Canada and North America, 24 hour / 7 day emergency response for Innospec products is provided by the CHEMTREC (R) Emergency Call Center based in the USA
 toll-free telephone numbers USA : 800 424 9300 Canada, Puerto Rico, Virgin Islands : +1 800 424 9300
 In case of difficulty using the toll-free number, or for ships at sea, please call +1 703 527 3887

In Europe, Middle East, Africa, Asia Pacific and South America 24 hour / 7 day emergency response for Innospec products is provided by the NCEC CARECHEM 24 global network



The main regional centres are listed here in Section 1.

Other local contact numbers for specific language support in Asia Pacific are listed in Section 16

Country information	Emergency telephone number	Location
Europe (all countries, all languages)	+44 (0) 1235 239 670	London, UK
Middle East, Africa (Arabic, French, English)	+44 (0) 1235 239 671	Lebanon
Middle East, Africa (French, Portuguese, English)	+44 (0) 1235 239 670	London UK
Asia Pacific (all countries except China)	+65 3158 1074	Singapore
China	+86 10 5100 3039	Beijing China
South America (all countries)	+1 215 207 0061	Philadelphia USA

2. Hazards identification

Physical state : Liquid.
Odor : Aromatic.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview : DANGER!
 COMBUSTIBLE LIQUID AND VAPOR. MAY BE FATAL IF SWALLOWED. CAUSES SEVERE EYE AND SKIN BURNS. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER, BASED ON ANIMAL DATA.

2. Hazards identification

Combustible liquid. Very toxic if swallowed. Harmful by inhalation and in contact with skin. Severely corrosive to the eyes and skin. Causes severe burns. Irritating to respiratory system. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause sensitization by skin contact. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Contains material that can cause target organ damage. Contains material which may cause cancer, based on animal data. Risk of cancer depends on duration and level of exposure. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Potential acute health effects

- Inhalation** : Toxic by inhalation. Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Ingestion** : Very toxic if swallowed. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause burns to mouth, throat and stomach.
- Skin** : Severely corrosive to the skin. Causes severe burns. Toxic in contact with skin. May cause sensitization by skin contact.
- Eyes** : Severely corrosive to the eyes. Causes severe burns.

Potential chronic health effects

- Chronic effects** : Contains material that can cause target organ damage. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : Contains material which may cause cancer, based on animal data. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.
- Target organs** : Contains material which causes damage to the following organs: blood, kidneys, liver, gastrointestinal tract, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Over-exposure signs/symptoms

- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Ingestion** : Adverse symptoms may include the following:
stomach pains
nausea or vomiting
- Skin** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Eyes** : Adverse symptoms may include the following:
pain
watering
redness

- Medical conditions aggravated by over-exposure** : Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3. Composition/information on ingredients

Name	CAS number	%
Benzene, ethylenated, residues, distn. lights	178535-25-6	30 - 60
triethylbenzene	102-25-0	10 - 14.99
solvent naphtha (petroleum), heavy arom.	64742-94-5	5 - 9.99
dimethylcyclohexylamine	98-94-2	5 - 9.99
naphthalene	91-20-3	1 - 4.99
N,N'-Disalicylidene-1,2-propanediamine	94-91-7	1 - 4.99
xylene	1330-20-7	1 - 4.99
o-Xylene	95-47-6	1 - 4.99
ethylbenzene	100-41-4	0.1 - <1

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Call medical doctor or poison control center immediately. Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

- Flammability of the product** : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
- Extinguishing media**
- Suitable** : Use dry chemical, CO₂, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Ingredient	Exposure limits

8. Exposure controls/personal protection

naphthalene

ACGIH TLV (United States, 1/2009).

TWA: 10 ppm, 0 times per shift, 8 hour(s).
 TWA: 52 mg/m³, 0 times per shift, 8 hour(s).
 STEL: 15 ppm, 0 times per shift, 15 minute(s).
 STEL: 79 mg/m³, 0 times per shift, 15 minute(s).

OSHA PEL 1989 (United States, 3/1989).

TWA: 10 ppm, 0 times per shift, 8 hour(s).
 TWA: 50 mg/m³, 0 times per shift, 8 hour(s).
 STEL: 15 ppm, 0 times per shift, 15 minute(s).
 STEL: 75 mg/m³, 0 times per shift, 15 minute(s).

NIOSH REL (United States, 6/2009).

TWA: 10 ppm, 0 times per shift, 10 hour(s).
 TWA: 50 mg/m³, 0 times per shift, 10 hour(s).
 STEL: 15 ppm, 0 times per shift, 15 minute(s).
 STEL: 75 mg/m³, 0 times per shift, 15 minute(s).

OSHA PEL (United States, 11/2006).

TWA: 10 ppm, 0 times per shift, 8 hour(s).
 TWA: 50 mg/m³, 0 times per shift, 8 hour(s).

xylene

ACGIH TLV (United States, 1/2009).

TWA: 100 ppm, 0 times per shift, 8 hour(s).
 TWA: 434 mg/m³, 0 times per shift, 8 hour(s).
 STEL: 150 ppm, 0 times per shift, 15 minute(s).
 STEL: 651 mg/m³, 0 times per shift, 15 minute(s).

OSHA PEL 1989 (United States, 3/1989).

TWA: 100 ppm, 0 times per shift, 8 hour(s).
 TWA: 435 mg/m³, 0 times per shift, 8 hour(s).
 STEL: 150 ppm, 0 times per shift, 15 minute(s).
 STEL: 655 mg/m³, 0 times per shift, 15 minute(s).

OSHA PEL (United States, 11/2006).

TWA: 100 ppm, 0 times per shift, 8 hour(s).
 TWA: 435 mg/m³, 0 times per shift, 8 hour(s).

o-Xylene

ACGIH TLV (United States, 1/2009).

TWA: 100 ppm, 0 times per shift, 8 hour(s).
 TWA: 434 mg/m³, 0 times per shift, 8 hour(s).
 STEL: 150 ppm, 0 times per shift, 15 minute(s).
 STEL: 651 mg/m³, 0 times per shift, 15 minute(s).

OSHA PEL 1989 (United States, 3/1989).

TWA: 100 ppm, 0 times per shift, 8 hour(s).
 TWA: 435 mg/m³, 0 times per shift, 8 hour(s).
 STEL: 150 ppm, 0 times per shift, 15 minute(s).
 STEL: 655 mg/m³, 0 times per shift, 15 minute(s).

NIOSH REL (United States, 6/2009).

TWA: 100 ppm, 0 times per shift, 10 hour(s).
 TWA: 435 mg/m³, 0 times per shift, 10 hour(s).
 STEL: 150 ppm, 0 times per shift, 15 minute(s).
 STEL: 655 mg/m³, 0 times per shift, 15 minute(s).

OSHA PEL (United States, 11/2006).

TWA: 100 ppm, 0 times per shift, 8 hour(s).
 TWA: 435 mg/m³, 0 times per shift, 8 hour(s).

ethylbenzene

ACGIH TLV (United States, 1/2009).

TWA: 100 ppm, 0 times per shift, 8 hour(s).
 STEL: 125 ppm, 0 times per shift, 15 minute(s).

OSHA PEL 1989 (United States, 3/1989).

TWA: 100 ppm, 0 times per shift, 8 hour(s).
 TWA: 435 mg/m³, 0 times per shift, 8 hour(s).
 STEL: 125 ppm, 0 times per shift, 15 minute(s).
 STEL: 545 mg/m³, 0 times per shift, 15 minute(s).

NIOSH REL (United States, 6/2009).

TWA: 100 ppm, 0 times per shift, 10 hour(s).
 TWA: 435 mg/m³, 0 times per shift, 10 hour(s).

8. Exposure controls/personal protection

STEL: 125 ppm, 0 times per shift, 15 minute(s).
 STEL: 545 mg/m³, 0 times per shift, 15 minute(s).
OSHA PEL (United States, 11/2006).
 TWA: 100 ppm, 0 times per shift, 8 hour(s).
 TWA: 435 mg/m³, 0 times per shift, 8 hour(s).

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

- Physical state** : Liquid.
- Flash point** : Closed cup: 60.556°C (141°F) [Pensky-Martens.]
- Color** : Clear. Amber.
- Odor** : Aromatic.
- Specific gravity** : 0.91 [ASTM D 4052]
- Dispersibility properties** : Not dispersible in the following materials: cold water.

10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not swallow.
- Materials to avoid** : Reactive or incompatible with the following materials:
oxidizing materials

10. Stability and reactivity

- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions of reactivity** : Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.
- Effect on metal** : **N,N'-Disalicylidene-1,2-propanediamine**: Chelating agent. Do not store in contact with iron, zinc, copper or their alloys

11. Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
solvent naphtha (petroleum), heavy arom.	LC50 Inhalation Vapor	Rat	>590 mg/m ³	4 hours
	LD50 Dermal	Rabbit	>2 mL/kg	-
naphthalene	LDLo Oral	Rat	5 mL/kg	-
	LC50 Inhalation Vapor	Rat	>340 mg/m ³	1 hours
o-Xylene	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	490 mg/kg	-
dimethylcyclohexylamine	LD50 Oral	Rat	3567 mg/kg	-
	LC50 Inhalation Vapor	Rat	9000 mg/m ³	4 hours
N,N'-Disalicylidene-1,2-propanediamine	LD50 Dermal	Rabbit	210 mg/kg	-
	LD50 Oral	Rat	280 mg/kg	-
xylene	LD50 Oral	Rat	4560 mg/kg	-
	LD50 Dermal	Rabbit	4320 mg/kg	-
ethylbenzene	LD50 Oral	Rat	4300 mg/kg	-
	LC50 Inhalation Vapor	Mouse	35500 mg/m ³	2 hours
	LC50 Inhalation Vapor	Rabbit	4000 ppm	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitizer

Product/ingredient name	Route of exposure	Species	Result
N,N'-Disalicylidene-1,2-propanediamine	skin	Guinea pig	Sensitizing

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
naphthalene	A4	2B	-	-	Possible	-
xylene	A4	3	-	-	-	-
o-Xylene	A4	3	-	-	-	-
ethylbenzene	A3	2B	-	-	-	-

Mutagenicity

11. Toxicological information

Product/ingredient name	Test	Experiment	Result
dimethylcyclohexylamine	-	Bacteria	Negative

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
solvent naphtha (petroleum), heavy arom.	Acute EC50 1 to 3 mg/l	Algae	72 hours
naphthalene	Acute EC50 3 to 10 mg/l	Daphnia	48 hours
	Acute LC50 2 to 5 mg/l	Fish	96 hours
	Acute EC50 1.96 mg/L Fresh water	Daphnia - Daphnia magna - <24 hours	48 hours
	Acute LC50 2350 ug/L Marine water	Crustaceans - Palaemonetes pugio	48 hours
o-Xylene	Acute LC50 1.6 mg/L	Fish	96 hours
	Acute EC50 1.39 mg/L	Daphnia	48 hours
dimethylcyclohexylamine	Acute LC50 7.6 mg/L	Fish	96 hours
	EC50 75 mg/l	Daphnia	48 hours
xylene	LC50 31.58 mg/l	Fish	96 hours
	Acute LC50 3.3 mg/L	Fish	96 hours
ethylbenzene	Acute EC50 7.2 mg/L	Algae	48 hours
	Acute EC50 2.93 mg/L	Daphnia	48 hours
	Acute LC50 4.2 mg/L	Fish	96 hours
	Chronic NOEC 6800 ug/L Fresh water	Daphnia - Daphnia magna - <=24 hours	48 hours

Conclusion/Summary : Not available.

Persistence/degradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.





Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

13. Disposal considerations

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	NA1993	Combustible liquid, n.o.s. (solvent naphtha (petroleum), heavy arom., triethylbenzene). Marine pollutant (triethylbenzene)	Combustible liquid.	III	 	Marine pollutant Limited quantity Yes. Packaging instruction Passenger aircraft Quantity limitation: 60 to 60 L Cargo aircraft Quantity limitation: 220 to 220 L Special provisions IB3,T1, T4, TP1 Remarks This material is not regulated under 49 CFR in a container of 119 gallon capacity or less when transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.
TDG Classification	UN1993	FLAMMABLE LIQUID, N.O.S. (solvent naphtha (petroleum), heavy arom., triethylbenzene). Marine pollutant (triethylbenzene, naphthalene)	3	III	 	Marine pollutant Explosive Limit and Limited Quantity Index 5 Passenger Carrying Road or Rail Index 60 Special provisions 16

14. Transport information

Mexico Classification	UN1993	LIQUIDO INFLAMABLE, N.E.P. (solvent naphtha (petroleum), heavy arom., triethylbenzene). Marine pollutant (triethylbenzene, naphthalene)	3	III		Marine pollutant Special provisions 223, 274
ADR/RID Class	UN1993	FLAMMABLE LIQUID, N.O.S. (solvent naphtha (petroleum), heavy arom., triethylbenzene)	3	III		Hazard identification number 30 Limited quantity LQ7
IMDG Class	UN1993	FLAMMABLE LIQUID, N.O.S. (solvent naphtha (petroleum), heavy arom., triethylbenzene). Marine pollutant (triethylbenzene, naphthalene)	3	III		Emergency schedules (EmS) F-E, _S-E_ Marine pollutant
IATA-DGR Class	UN1993	Flammable liquid, n.o.s. (solvent naphtha (petroleum), heavy arom., triethylbenzene)	3	III		Passenger and Cargo Aircraft Quantity limitation: 60 L Packaging instructions: 309 Cargo Aircraft Only Quantity limitation: 220 L Packaging instructions: 310 Limited Quantities - Passenger Aircraft Quantity limitation: 10 L Packaging instructions: Y309

PG* : Packing group

Reportable quantity : CERCLA: Hazardous substances.: naphthalene: 100 lbs. (45.4 kg); xylene: 100 lbs. (45.4 kg); ethylbenzene: 1000 lbs. (454 kg); cumene: 5000 lbs. (2270 kg); maleic anhydride: 5000 lbs. (2270 kg); cresol: 100 lbs. (45.4 kg); o-Xylene: 1000 lbs. (454 kg); toluene: 1000 lbs. (454 kg);

Flash point : Closed cup: 60.556°C (141°F) [Pensky-Martens.]

15. Regulatory information

HCS Classification : Combustible liquid
Highly toxic material
Corrosive material
Sensitizing material
Carcinogen
Target organ effects

U.S. Federal regulations :

15. Regulatory information

TSCA 4(a) final test rules: naphthalene
TSCA 8(a) PAIR: naphthalene; 4-nonylphenol, branched
TSCA 8(a) IUR: Solvent naphtha (petroleum), light arom.; solvent naphtha (petroleum), heavy arom.
United States inventory (TSCA 8b): All components are listed or exempted.
TSCA 12(b) one-time export: naphthalene

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: naphthalene; xylene; dimethylcyclohexylamine; o-Xylene; triethylbenzene

SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
 naphthalene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;
 xylene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;
 dimethylcyclohexylamine: Fire hazard, Immediate (acute) health hazard;
 o-Xylene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;
 triethylbenzene: Fire hazard, Immediate (acute) health hazard

Clean Water Act (CWA) 307: naphthalene; ethylbenzene; phenol; toluene

Clean Water Act (CWA) 311: naphthalene; xylene; ethylbenzene; maleic anhydride; cresol; o-Xylene; toluene

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	naphthalene	91-20-3	0.99 - 4.99
	xylene	1330-20-7	0.99 - 4.99
	o-Xylene	95-47-6	0.99 - 4.99
	ethylbenzene	100-41-4	0.09 - 0.99
Supplier notification	naphthalene	91-20-3	0.99 - 4.99
	xylene	1330-20-7	0.99 - 4.99
	o-Xylene	95-47-6	0.99 - 4.99
	ethylbenzene	100-41-4	0.09 - 0.99

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: NAPHTHALENE; O-XYLENE; XYLENE

New York : The following components are listed: Naphthalene; Ethylbenzene; o-Xylene; Xylene (mixed)

15. Regulatory information

- New Jersey** : The following components are listed: NAPHTHALENE; MOTH FLAKES; ETHYL BENZENE; BENZENE, ETHYL-; o-XYLENE; BENZENE, 1,2-DIMETHYL-; DIMETHYLCYCLOHEXYLAMINE; CYCLOHEXANAMINE, N,N-DIMETHYL; XYLENES; BENZENE, DIMETHYL-
- Pennsylvania** : The following components are listed: NAPHTHALENE; BENZENE, ETHYL-; BENZENE, 1,2-DIMETHYL-; BENZENE, DIMETHYL-

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
naphthalene	Yes.	No.	Yes.	No.
ethylbenzene	Yes.	No.	No.	No.
toluene	No.	Yes.	No.	7000 µg/day (ingestion) 13000 µg/day (inhalation)

EU regulations

Hazard symbol or symbols :



- Risk phrases** :
- R40- Limited evidence of a carcinogenic effect.
 - R21- Harmful in contact with skin.
 - R36/38- Irritating to eyes and skin.
 - R43- May cause sensitization by skin contact.
 - R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

- Safety phrases** :
- S36/37- Wear suitable protective clothing and gloves.
 - S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

- United States inventory (TSCA 8b)** : All components are listed or exempted.
- Canada inventory** : All components are listed or exempted.
- Australia inventory (AICS)** : Not determined.
- China inventory (IECSC)** : Not determined.
- EU Inventory** : At least one component is not listed in EINECS but all such components are listed in ELINCS.
Please contact your supplier for information on the inventory status of this material.
- Japan inventory (ENCS)** : Not determined.
- Korea inventory (KECI)** : Not determined.
- New Zealand Inventory of Chemicals (NZIoC)** : Not determined.
- Philippines inventory (PICCS)** : Not determined.
- Chemical Weapons Convention List Schedule I Chemicals** : Not listed
- Chemical Weapons Convention List Schedule II Chemicals** : Not listed

15. Regulatory information

Chemical Weapons Convention List Schedule III Chemicals : Not listed

16. Other information

Label requirements : COMBUSTIBLE LIQUID AND VAPOR. MAY BE FATAL IF SWALLOWED. CAUSES SEVERE EYE AND SKIN BURNS. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) :

Health	*	2
Flammability		2
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Date of printing : 20/10/2010.
Date of issue : 20/10/2010.
Date of previous issue : No previous validation.
Version : 0.1

Indicates information that has changed from previously issued version.

Emergency contact numbers for local language support in Asia Pacific region

Country information	Languages supported	Telephone no.:	Location
Australia	English	+61 2 8014 4558	Australia
Bangladesh	Bengali, English	+65 3158 1200	Singapore
China	Mandarin, English	+86 10 5100 3039	Beijing China

This Material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

Date of issue : October 20, 2010

16. Other information

India	Hindi, English	+65 3158 1198	Singapore
Indonesia (local toll free number)	Bahasa Indonesian, English	00780 3011 0293	Indonesia
Japan	Japanese, English	+81 3 4578 9341	Japan
Korea	Korean, English	+65 3158 1285	Singapore
Malaysia	Bahasa Malaysian, English	+60 3 6207 4347	Malaysia
New Zealand	English	+61 9929 1483	Australia
Pakistan	Urdu, English	+65 3158 1329	Singapore
Philippines	Tagalog, English	+65 3158 1203	Singapore
Sri Lanka	Sinhalese, English	+65 3158 1195	Singapore
Thailand (local toll free number)	Thai, English	001800 1 2066 6751	Thailand
Vietnam	Vietnamese, English	+65 3158 1255	Singapore

[Notice to reader](#)

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Winter Flow gf1

Material Safety Data Sheet

1 Company Identification

Innospec Fuel Specialties
 8375 S. Willow Street
 Littleton, CO 80124

Product information 1-800-441-9547
 In Case of Emergency
 Call Chemtrec 1-800-424-9300

2 Composition / Ingredient Information

<u>Material</u>	<u>CAS Number</u>	<u>%</u>
Proprietary Polymers		5-15
*Vinyl Acetate Monomer	108-05-4	<0.2
*Xylene.....	1330-20-7	<3
*(Ethylbenzene).....	100-41-4	(<0.5)
Heavy Aromatic Naphtha	64742-94-5	<3
*Ethylene Glycol N-Butyl Ether	111-76-2	<10
Alkyl Alcohol.....		<3
Light Ends of Polyethylbenzene Residue	178535-25-6	70-90
*(Naphthalene).....	91-20-3	(<4)

*Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

3 Hazardous Identification

Potential Health Effects

Inhalation of fumes or vapors from heated product may cause skin, eye and respiratory tract irritation. Skin contact may cause skin irritation with discomfort or rash. Xylene can penetrate the skin in amounts capable of causing systemic toxicity. Eye contact may cause eye irritation with discomfort, tearing or blurring of vision. Inhalation of Ethylbenzene may cause irritation of the upper respiratory passages with coughing and discomfort.

Inhalation or ingestion of Xylene or Ethylbenzene may cause nonspecific discomfort, such as nausea, headache, or weakness; or temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness.

Inhalation or ingestion of Ethylbenzene may cause abnormal liver or kidney function. Aspiration of Ethylbenzene into the lungs during ingestion or vomiting may lead to chemical pneumonitis.

Ingestion of Xylene or Ethylbenzene may cause gastrointestinal tract irritation. Higher exposure to Xylene may lead to cardiac stress; anemia and other blood changes; respiratory effects; possible liver and kidney damage; or fatality from gross overexposure.

Eye contact with the product ingredients may cause eye irritation with discomfort, tearing, or blurring of vision. Direct exposure may cause skin irritation (redness, swelling). A single prolonged exposure may result in the material being absorbed through the skin in harmful amounts.

In general, overexposure to high atmospheric concentrations of alkyl-substituted aromatics may produce central nervous system depression, headache, dizziness, incoordination, nausea and loss of appetite. Aspiration (liquid enters the lung), may cause lung damage due to chemical pneumonia, a condition caused by petroleum-like solvents.

Minute amounts of petroleum hydrocarbons aspirated into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possible death.

Individuals with preexisting diseases of the kidneys or liver may have increased susceptibility to the toxicity of excessive exposures.

Inhalation or ingestion of Heavy Aromatic Naphtha may cause central nervous system depression with anesthetic effects, such as dizziness, headache, confusion, incoordination and loss of consciousness. Higher exposures may result in fatality from gross overexposure. Ingestion may cause gastrointestinal irritation. Aspiration hazard! Small amounts aspirated into the lungs during ingestion or vomiting may cause lung injury, possibly leading to death. Symptoms of aspiration into the lungs include coughing, gasping, choking, shortness of breath, bluish discolored skin, rapid breathing and heart rate. Chemical pneumonitis from aspiration may result in fever. Pulmonary edema or bleeding, drowsiness, confusion, coma and seizures may occur in more serious cases. Symptoms may develop immediately or as late as 24 hours after the exposure, depending on how much chemical entered the lungs.

Prolonged or repeated exposure to Ethylene Glycol N-Butyl Ether may cause skin irritation which may be slow to heal. A single prolonged exposure may result in the material being absorbed in harmful amounts. Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. Repeated minor exposure may result in absorption of harmful amounts. May cause moderate eye irritation which may be slow to heal. May cause moderate corneal injury. Effects may be slow to heal. Vapors of Ethylene Glycol N-Butyl Ether may irritate eyes. A single prolonged excessive inhalation exposure may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract. Observations in animals include blood and kidney effects. Single dose oral toxicity of Ethylene Glycol N-Butyl Ether is considered to be moderate. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury. One case of Massive Ingestion (i.e. attempted suicide) reported blood (hemolysis) and kidney effects.

Carcinogenicity Information

Vinyl Acetate Monomer, Naphthalene and Ethylbenzene have been classified by the International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans (Group 2B). This IARC classification was based upon limited evidence of carcinogenicity to animals and inadequate evidence of carcinogenicity to humans.

4 First Aid Measures

Inhalation

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Skin Contact

Flush skin with water after contact. Wash contaminated clothing before reuse.

Eye Contact

In case of contact immediately, flush eyes with plenty of water for at least 15 minutes. Call a physician.

Ingestion

If swallowed, do not induce vomiting. Allow victim to rinse his mouth and then to drink 2-4 cupfuls of water. Never give anything by mouth to an unconscious person. Call a physician.

Notes to Physicians

Activated charcoal mixture may be administered. To prepare activated charcoal mixture, suspend 50 grams activated charcoal in 400-ml water and mix thoroughly. Administer 5 ml/kg or 350 ml for an average adult.

Because of the danger of aspiration, emesis or gastric lavage should not be employed unless the risk is justified by the presence of additional toxic substances. Activated charcoal may induce vomiting, but may be given after emesis or lavage to absorb toxic additives. Steroid therapy in mild to moderate cases does not improve outcome. Bacterial pneumonia often occurs after exposure, but prophylactic antibiotics are not indicated and should be reserved for documented bacterial pneumonia.

5 Fire Fighting Measures

Flammable Properties

Flash Point..... 160°F (71.1°C)

Method..... PMCC

Extinguishing Media

Water Spray, Foam, Dry Chemical, CO₂.

Fire Fighting Instructions

Wear self-contained breathing apparatus. Wear full protective equipment.

6 Accidental Release Measures

Note: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) SECTIONS before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Soak up with sawdust, sand, oil dry or other absorbent material. Remove source of heat, sparks, flame, impact, friction, or electricity. Dike spill. Prevent material from entering sewers, waterways, or low areas.

Spill Clean-Up

Soak up with sawdust, sand, oil dry or other absorbent material.

Accidental Release Measures

Spills are very slippery and should be cleaned up promptly.

7 Handling and Storage

Handling (Personnel)

Avoid breathing vapors or mist. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling.

Handling (Physical Aspects)

Keep away from heat, sparks and flames.

Storage

Store in a well-ventilated place. Keep container tightly closed. Store in accordance with National Fire Protection Association recommendations.

8 Exposure Controls

Engineering Controls

Use only with adequate ventilation. Keep container tightly closed.

Personal Protective Equipment

Eye/Face Protection

Wear coverall chemical splash goggles or safety glasses.

Respirators

Where there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

Protective Clothing

Where there is potential for skin contact have available and wear as appropriate Impervious gloves, apron, pants, hood and jacket.

Exposure Limits

Xylene:

PEL (OSHA)	100 ppm, 435 mg/m ³ , 8 hr TWA
TLV (ACGIH)	100 ppm, 434 mg/m ³ , 8 hr TWA
	STEL 150 ppm, 651 mg/m ³ , A4; BEI
AEL* (Innospec Fuel Specialties)	100 ppm, 8 & 12 hr, TWA, skin
	150 ppm, 15 minute TWA

Ethylbenzene:

PEL (OSHA)	100 ppm, 435 mg/m ³ , 8 hr, TWA
TLV (ACGIH)	100 ppm, 434 mg/m ³ , 8 hr, TWA, A3, BEI
	STEL 125 ppm, 543 mg/m ³
AEL* (Innospec Fuel Specialties)	None established

Vinyl Acetate Monomer:

PEL (OSHA)	None established
TLV (ACGIH)	10 ppm, 35 mg/m ³ , 8 hr, TWA, A3
	STEL 15 ppm, 53 mg/m ³ , A3
AEL* (Innospec Fuel Specialties)	10 ppm, 8 & 12 hr, TWA

Heavy Aromatic Naphtha:

PEL (OSHA)	None established
TLV (ACGIH)	None established
AEL* (Innospec Fuel Specialties)	50 ppm, 300 mg/m ³ , 8 hr, TWA

Naphthalene:

PEL (OSHA).....	10 ppm, 50 mg/m ³ , 8 hr. TWA
TLV (ACGIH).....	10 ppm, 52 mg/m ³ , 8 hr TWA, Skin; A4
	STEL 15 ppm, 79 mg/m ³ , A4
AEL* (Innospec Fuel Specialties)	None established

Alkyl Alcohol:

PEL (OSHA)	None established
TLV (ACGIH)	None established
AEL* (Innospec Fuel Specialties)	20 ppm, 8 hr, TWA

Ethylene Glycol N-Butyl Ether:

PEL (OSHA)	25 ppm, skin
TLV (ACGIH)	20 ppm, 8 hr TWA, A3
AEL* (Innospec Fuel Specialties)	None established

The "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposure should be considered.

* AEL is Innospec Fuel Specialties' acceptable exposure limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

9 Physical and Chemical Properties

Physical Data

Appearance.....	Amber
Form.....	Liquid
Odor	Aromatic
Specific Gravity	0.900 @ 60/60°F (15.6/15.6°C)
Density	7.49 @ 60°F (15.6°C)
Solubility in water	<10 wt%

10 Stability and Reactivity

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility

None reasonably foreseeable.

Decomposition

Decomposes with heat. Hazardous decomposition products include oxides of carbon and nitrogen.

Polymerization

Will not occur.

11 Toxicological Information

Animal Data

Heavy Aromatic Naphtha:

Inhalation 6 hour LC50.....	>11.67 mg/L in rats
Skin Absorption LD50	>3,160 mg/kg in rabbits
Oral LD50.....	>5,000 mg/kg in rats

Naphthalene:

Inhalation 15 minute LC50:.....	>0.34 mg/L in rats
Skin Absorption LD50:	10,000 mg/kg in rabbits
Oral LD50:.....	1,780 mg/kg in rats

Xylene (mixed isomers):

Inhalation 4 hour LC50.....	6,700 ppm in rats
Skin absorption LD50.....	4,320 mg/kg in rabbits
Oral ALD	4,500 mg/kg in rats

Ethylbenzene:

Inhalation 4 hour LC50.....	>4,000 ppm in rats
Skin absorption LD50.....	~15,000 mg/kg in mice
Oral LD50.....	>3,500 mg/kg in rats

Vinyl Acetate Monomer:

Inhalation 4 hour LC50.....	4,000 ppm in rats
Skin Absorption LD50	2,335 mg/kg in rabbits
Oral LD50.....	2,920 mg/kg in rats

Alkyl Alcohol:

Inhalation 6 hour LC50.....	>2,000 ppm in rats
Skin absorption LD50.....	1,970 mg/kg in rabbits
Oral LD50.....	3,730 mg/kg in rats

Ethylene Glycol N-Butyl Ether:

Inhalation LC50.....	700 ppm in rats, 7 hours
Skin Absorption LD50	220 mg/kg in rabbits
Oral LD50.....	470 mg/kg in rats

Dermal absorption of Xylene in animals causes narcosis. Toxic effects described in animals by inhalation include upper respiratory irritation; central nervous system effects; behavioral effects; decreased weight gain; hearing loss; and effects on the blood, liver, kidneys, heart, spleen, lungs and bone marrow. By ingestion, xylene caused central nervous system effects; decreased body weight and liver effects. Tests of xylene in animals demonstrate no carcinogenic activity. Xylene does not produce heritable genetic damage in animals or genetic damage in bacterial or mammalian cell cultures. Although abnormal sperm were observed after an interperitoneal injection in rats, xylene did not produce reproductive effects. Developmental toxicity was observed in animals exposed to xylene but only at concentrations that were maternally toxic.

Vinyl Acetate is a slight skin and a severe eye irritant, but is untested for animal sensitization. No effects from repeated exposure to Vinyl Acetate by inhalation were observed at 100 ppm in rats. Exposure to higher concentrations of Vinyl Acetate by inhalation caused eye irritation and lacrimation, reduced weight gain, and irritation of the respiratory tract with breathing difficulty. The effects observed in rats and mice exposed by inhalation to 200 and 600 ppm for two years include reduced body weight. Repeated exposures by administration of Vinyl Acetate in the drinking water caused decreased weight gain, and low liver weights. Reduced body weight occurred in rats administered 5000 ppm in their drinking water for two years. Vinyl acetate is weakly carcinogenic in rats, but not in mice. The compound does not have an adverse effect on the development of rats and its effect on reproduction is not considered significant. The genotoxicity of vinyl acetate is equivocal. Genetic damage was produced in some types of cell cultures and in animals, but was negative in other studies. No tests for heritable genetic damage were available.

Heavy Aromatic Naphtha is a severe skin irritant, and is an eye irritant, but is not a skin sensitizer in animals. Repeated inhalation exposures caused reduced growth rate, respiratory tract irritation, congestion in liver and spleen, changes in blood tests and equilibrium disturbances. No animal test reports are available to define carcinogenic, mutagenic, developmental or reproductive hazards.

Chronic overexposure to Alkyl Alcohol has been suggested as a cause of the following effects in laboratory animals and may aggravate pre-existing disorders of these organs in humans: liver, abnormalities, kidney damage, lung damage, cardiac abnormality, blood abnormalities and spleen damage. This component has produced liver and kidney effects in laboratory animals. It has also produced developmental effects in oral studies in laboratory animals including teratogenicity at maternally toxic doses.

12 Ecological Information

Xylene:

96 hour LC50 fathead minnow: 27-42 mg/L

Heavy Aromatic Naphtha:

96 hour LC50, fathead minnows: 4.2 – 20.8 mg/L

13 Disposal Considerations

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial and Local regulations.

14 Shipping Information

DOT

Proper Shipping Name..... Combustible Liquid
Hazard Class Combustible
I.D. No. (UN/NA) NA 1993
Packing Group III
Special Information Flash Point: 71.1°C
Not regulated in containers <119 gallons
Marine Pollutant No
DOT Label(s) Combustible Liquid

IMO

Proper Shipping Name..... Not regulated

Reportable Quantity

Xylene 100 lbs.
Naphthalene 100 lbs.
Ethylbenzene 1000 lbs.
Vinyl Acetate 5000 lbs.

Shipping Containers

Steel Drums UN1A1/Y/100

15 US Federal Regulations

TSCA Inventory Status..... Reported / Included

Title III Hazard Classifications Sections 311, 312

Acute Yes
Chronic Yes
Fire Yes
Reactivity No
Pressure No

16 Other Information

NPCA-HMIS Rating

Health..... 2* (Chronic Health Effects)
Flammability..... 2
Reactivity 0

Personal Protection rating to be supplied by user depending on use conditions.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS: **Ann Marie Savini**
 Innospec Fuel Specialties
 Newark, DE 19702
 (800) 441-9547 or
 (302) 451-1362