

Pyroil™ 0 ENGINE FLUSH
PYEF30

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Ashland P.O. Box 2219 Columbus, OH 43216	Regulatory Information Number Telephone Emergency telephone number	1-800-325-3751 614-790-3333 1-800-ASHLAND (1-800-274-5263)
Product name	Pyroil™ 0 ENGINE FLUSH	
Product code	PYEF30	

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, clear

CAUTION! COMBUSTIBLE LIQUID AND VAPOR. MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. MAY CAUSE EYE IRRITATION. MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE DERMATITIS AND BURNS. MAY BE HARMFUL IF SWALLOWED.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact

Can cause skin irritation. Symptoms may include redness and burning of skin, and other skin damage. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, skin burns, and other skin damage. Passage of this material into the body through the skin is possible, and may add to toxic effects from breathing or swallowing.

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Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

It is possible to breathe this material under certain conditions of handling and use (for example, during heating, spraying, or stirring). Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: Skin, Upper respiratory tract, lung (for example, asthma-like conditions), Liver, Kidney, urinary system, Exposure to this material may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemias., Individuals with erythrocyte glucose-6-phosphate dehydrogenase deficiency are particularly susceptible to hemolytic agents and rapidly develop hemolytic anemia from ingestion or inhalation of this material (or a component).

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: sweating, Fever, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), Lung irritation, central nervous system excitation (giddiness, liveliness, light-headed feeling) followed by central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, Lowered blood pressure, Abdominal pain, Lack of coordination, confusion, Difficulty in breathing, Bloody urine, blood abnormalities (breakage of red blood cells), kidney damage, liver damage, lung damage, coma

Target Organs

Acute lethal exposure to ethylene glycol monobutyl ether in animal studies has resulted in congestion of organs including kidney, spleen, and lung., Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: mild, reversible spleen effects, blood abnormalities, cataracts, anemia, nasal damage, eye damage, kidney damage, liver damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: cataracts, eye damage

Carcinogenicity

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Ethylene glycol monobutyl ether has been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. In a National Toxicology Program (NTP) study, lifetime inhalation exposure to naphthalene resulted in increases in tumors of the nose in rats. In a previous NTP study, lifetime exposure to naphthalene caused lung tumors in female mice. Male mice with the same exposure did not develop tumors. The relevance of this finding to humans is uncertain. Naphthalene is listed as carcinogenic by IARC (International Agency for Research on Cancer) and the National Toxicology Program (NTP).

Reproductive hazard

This material (or a component) causes harm to the fetus.

Other information

Infants are more sensitive than adults to the toxic effects of naphthalene. Diapers or cloths stored with mothballs and used directly on infants have caused skin rashes and illness. Naphthalene vapors from clothing or blankets that had been stored in or near the infant's room have caused illness and death.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No. / Trade Secret No.	Concentration
HYDROTREATED HEAVY NAPHTHA	64742-48-9	>=80-<90%
AROMATIC HYDROCARBONS	64742-94-5	>=1.5-<5%
ETHYLENE GLYCOL MONOBUTYL ETHER	111-76-2	>=1.5-<5%
DIACETONE ALCOHOL	123-42-2	>=1.5-<5%
NAPHTHALENE	91-20-3	>=0.1-<0.5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

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Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: Inhalation or ingestion of high levels of this material (or a component) may cause a hemolytic reaction. Complications of acute intravascular hemolysis include anemia, leukocytosis, fever, hemoglobinuria, jaundice, renal insufficiency, and sometimes disturbances in liver function. Fats, for example, baby oil on the skin or ingested oil, facilitate absorption of naphthalene. This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting.

Treatment: No information available.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Foam, Carbon dioxide (CO₂), Dry chemical, Carbon dioxide (CO₂), Water spray

Hazardous combustion products

acid smoke and fumes, Aldehydes, carbon, carbon dioxide and carbon monoxide, Hydrocarbons, Ketones, Organic acids, Acetone

Precautions for fire-fighting

If product is heated above its flash point it will produce vapors sufficient to support combustion. Vapors are heavier than air and may travel along the ground and be ignited by heat, pilot lights, other flames and ignition sources at locations near the point of release. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA).

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Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class II

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Ensure adequate ventilation. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Pay attention to the spreading of gases especially at ground level (heavier than air) and to the direction of the wind.

Environmental precautions

Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system. Local authorities should be advised if significant spillages cannot be contained.

Methods for cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Other information

Comply with all applicable federal, state, and local regulations. Suppress (knock down) gases/vapours/mists with a water spray jet.

7. HANDLING AND STORAGE**Handling**

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.

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Storage

Store in a cool, dry, ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

HYDROTREATED HEAVY NAPHTHA		64742-48-9
	time weighted average	100 ppm
ETHYLENE GLYCOL MONOBUTYL ETHER		111-76-2
ACGIH	time weighted average	20 ppm
NIOSH	Recommended exposure limit (REL):	5 ppm
NIOSH	Recommended exposure limit (REL):	24 mg/m ³
OSHA Z1	Permissible exposure limit	50 ppm
OSHA Z1	Permissible exposure limit	240 mg/m ³
DIACETONE ALCOHOL		123-42-2
ACGIH	time weighted average	50 ppm
NIOSH	Recommended exposure limit (REL):	50 ppm
NIOSH	Recommended exposure limit (REL):	240 mg/m ³
OSHA Z1	Permissible exposure limit	50 ppm
OSHA Z1	Permissible exposure limit	240 mg/m ³

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

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Skin and body protection

Wear resistant gloves such as:

Neoprene

Nitrile rubber

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.

Discard gloves that show tears, pinholes, or signs of wear.

Respiratory protection

A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Colour	clear, colourless
Boiling point/boiling range	322 °F / 161 °C Calculated Phase Transition Liquid/Gas
Flash point	108.0 °F / 42.2 °C Calculated Flash Point
Evaporation rate	0.04 n-Butyl Acetate
Lower explosion limit/Upper explosion limit	0.9 %(V) / 10.6 %(V) Calculated Explosive Limit
Vapour pressure	1.293 hPa @ 68 °F / 20 °C Calculated Vapor Pressure
Relative vapour density	(>)1
Density	0.812 g/cm ³ @ 60.1 °F / 15.6 °C 6.93 lb/gal @ 60.1 °F / 15.6 °C

10. STABILITY AND REACTIVITY**Stability**

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Stable.

Conditions to avoid

excessive heat, Do not allow evaporation to dryness., Heat, flames and sparks.

Incompatible products

Acids, Amines, Ammonia, Bases, chlorates, Chlorine, Lead, peroxides, salts of strong bases, strong alkalis, Strong oxidizing agents

Hazardous decomposition products

acid smoke and fumes, Aldehydes, carbon dioxide and carbon monoxide, Hydrocarbons, Organic acids, ketones

Hazardous reactions

Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation
Skin absorption
Skin contact
Eye Contact
Ingestion

Product

Acute oral toxicity : no data available

Acute inhalation toxicity : no data available

Acute dermal toxicity : no data available

Skin corrosion/irritation : no data available

Serious eye damage/eye irritation : no data available

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- Respiratory or skin sensitisation : no data available
- Target Organ Systemic Toxicant - Repeated exposure : Target Organs: Acute lethal exposure to ethylene glycol monobutyl ether in animal studies has resulted in congestion of organs including kidney, spleen, and lung., Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:., mild, reversible spleen effects, blood abnormalities, cataracts, anemia, nasal damage, eye damage, kidney damage, liver damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans:., cataracts, eye damage
- Aspiration toxicity : The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Components:

AROMATIC HYDROCARBONS:

- Acute oral toxicity : LD 50 Rat: 3,000 mg/kg
- Acute inhalation toxicity : LC 50 Rat: > 3,800 mg/m³
Exposure time: 4 h
- Acute dermal toxicity : LD 50 Rabbit: > 3,000 mg/kg

ETHYLENE GLYCOL MONOBUTYL ETHER:

- Acute oral toxicity : LD 50 Guinea pig: 1.2 g/kg
- Acute inhalation toxicity : LC 50 Guinea pig: > 633 ppm
Exposure time: 1 h
Slightly toxic by inhalation
- Acute dermal toxicity : LD 50 Rabbit: 400 - 500 mg/kg

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LD 50 Guinea pig: > 2,000 mg/kg

DIACETONE ALCOHOL:

Acute oral toxicity : LD 50 Rat: 4,000 mg/kg

Acute dermal toxicity : LD 50 Rabbit: 13,500 mg/kg

NAPHTHALENE:

Acute oral toxicity : LD50 Oral Rat: 2,200 mg/kg

Acute dermal toxicity : LD50 Dermal Rabbit: > 2.0 g/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

no data available

Components:

ETHYLENE GLYCOL MONOBUTYL ETHER:

Toxicity to fish : LC 50 (Oncorhynchus mykiss (rainbow trout)): 1,474 mg/l
Exposure time: 96 h
Test Method: static test
Method: OECD Test Guideline 203

LC 50 (Lepomis macrochirus (Bluegill sunfish)): 1,490 mg/l
Exposure time: 96 h
Test Method: static test
Method: OECD Test Guideline 203

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- Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (*Daphnia magna*)): 1,550 mg/l
Exposure time: 48 h
Test Method: static test
Method: OECD Test Guideline 202
- Toxicity to algae : EC 50 (*Pseudokirchneriella subcapitata* (green algae)): 911 mg/l
Exposure time: 72 h
Test Method: static test
Method: OECD Test Guideline 201
- Toxicity to fish (Chronic toxicity) : NOEC: > 100 mg/l
Exposure time: 21 d
Species: *Danio rerio* (zebra fish)
Test Method: semi-static test
Method: OECD Test Guideline 204

NAPHTHALENE:

- Toxicity to fish : LC 50 (Rainbow trout, donaldson trout (*Oncorhynchus mykiss*)): 0.91 - 2.82 mg/l
Exposure time: 96 h
Test Method: static test
- Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (*Daphnia magna*)): 1.09 - 3.4 mg/l
Exposure time: 48 h
Test Method: static test

Persistence and degradability

Product:

no data available

Components:

HYDROTREATED HEAVY NAPHTHA:

Biodegradability : Not readily biodegradable.

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Bioaccumulative potential

Product:

no data available

Components:

ETHYLENE GLYCOL MONOBUTYL ETHER:

Partition coefficient: n- : log Pow: 0.83
octanol/water

DIACETONE ALCOHOL:

Partition coefficient: n- : log Pow: -0.098
octanol/water

NAPHTHALENE:

Bioaccumulation : Species: Rainbow trout,donaldson trout (Oncorhynchus
mykiss)
Exposure time: 16 d
Concentration: 0.023 mg/l
Bioconcentration factor (BCF): 25
Method: Flow through

Partition coefficient: n- : log Pow: 3.30
octanol/water

Mobility in soil

Product:

no data available

Components:

ETHYLENE GLYCOL MONOBUTYL ETHER:

Surface tension : 27.4 mN/m

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NAPHTHALENE:

Surface tension : 31.8 mN/m

13. DISPOSAL CONSIDERATIONS**Waste disposal methods**

Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION**REGULATION**

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
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U.S. DOT - ROAD

	ORM-D, CONSUMER COMMODITY	ORM			
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U.S. DOT - RAIL

	ORM-D, CONSUMER COMMODITY	ORM			
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U.S. DOT - INLAND WATERWAYS

	ORM-D, CONSUMER COMMODITY	ORM			
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TRANSPORT CANADA - ROAD

UN	1993	FLAMMABLE LIQUID, N.O.S. (HYDROTREATED HEAVY NAPHTHA)	3		III
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TRANSPORT CANADA - RAIL

UN	1993	FLAMMABLE LIQUID, N.O.S. (HYDROTREATED HEAVY NAPHTHA)	3		III
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TRANSPORT CANADA - INLAND WATERWAYS

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UN	1993	FLAMMABLE LIQUID, N.O.S. (HYDROTREATED HEAVY NAPHTHA)	3	III
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INTERNATIONAL MARITIME DANGEROUS GOODS

UN	1993	FLAMMABLE LIQUID, N.O.S. (HYDROTREATED HEAVY NAPHTHA)	3	III	LIMITED QUANTITY
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INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

UN	1993	Flammable liquid, n.o.s. (HYDROTREATED HEAVY NAPHTHA)	3	III
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INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

UN	1993	Flammable liquid, n.o.s. (HYDROTREATED HEAVY NAPHTHA)	3	III
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MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

UN	1993	LIQUIDO INFLAMABLE, N.E.P. (HYDROTREATED HEAVY NAPHTHA)	3	III
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*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

WARNING! This product contains a chemical known to the State of California to cause cancer.	NAPHTHALENE BENZENE
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WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	BENZENE TOLUENE
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SARA Hazard Classification

SARA 311/312 Classification

Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 Component(s)

ETHYLENE GLYCOL MONOBUTYL ETHER	3.59 %
NAPHTHALENE	0.41 %

New Jersey RTK Label Information

HYDROTREATED HEAVY NAPHTHA	64742-48-9
AROMATIC HYDROCARBONS	64742-94-5
PETROLEUM DISTILLATES	
ETHYLENE GLYCOL MONOBUTYL ETHER	111-76-2
DIACETONE ALCOHOL	123-42-2
NAPHTHALENE	91-20-3

Pennsylvania RTK Label Information

HYDROTREATED HEAVY NAPHTHA	64742-48-9
AROMATIC HYDROCARBONS	64742-94-5
PETROLEUM DISTILLATES	
ETHYLENE GLYCOL MONOBUTYL ETHER	111-76-2
DIACETONE ALCOHOL	123-42-2

Notification status

US. Toxic Substances Control Act	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	y (positive listing)
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	n (Negative listing)
Japan. Kashin-Hou Law List	n (Negative listing)
Korea. Toxic Chemical Control Law (TCCL) List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	n (Negative listing)

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China. Inventory of Existing Chemical Substances	y (positive listing)
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Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302)	23992 lbs
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Reportable quantity-Components

NAPHTHALENE	91-20-3	100 lbs
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	HMIS	NFPA
Health	2*	1
Flammability	2	2
Physical hazards	0	
Instability		0
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :

ACGIH : American Conference of Industrial Hygienists

BEI : Biological Exposure Index

CAS : Chemical Abstracts Service (Division of the American Chemical Society).

CMR : Carcinogenic, Mutagenic or Toxic for Reproduction

FG : Food grade

GHS : Globally Harmonized System of Classification and Labeling of Chemicals.

H-statement : Hazard Statement

IATA : International Air Transport Association.

IATA-DGR : Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

ICAO : International Civil Aviation Organization

ICAO-TI (ICAO) : Technical Instructions by the "International Civil Aviation Organization"

IMDG : International Maritime Code for Dangerous Goods

ISO : International Organization for Standardization

logPow : octanol-water partition coefficient

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LCxx : Lethal Concentration, for xx percent of test population
LDxx : Lethal Dose, for xx percent of test population.
ICxx : Inhibitory Concentration for xx of a substance
Ecxx : Effective Concentration of xx
N.O.S.: Not Otherwise Specified
OECD : Organization for Economic Co-operation and Development
OEL : Occupational Exposure Limit
P-Statement : Precautionary Statement
PBT : Persistent , Bioaccumulative and Toxic
PPE : Personal Protective Equipment
STEL : Short-term exposure limit
STOT : Specific Target Organ Toxicity
TLV : Threshold Limit Value
TWA : Time-weighted average
vPvB : Very Persistent and Very Bioaccumulative
WEL : Workplace Exposure Level

CERCLA : Comprehensive Environmental Response, Compensation, and Liability Act
DOT : Department of Transportation
FIFRA : Federal Insecticide, Fungicide, and Rodenticide Act
HMIRC : Hazardous Materials Information Review Commission
HMIS : Hazardous Materials Identification System
NFPA : National Fire Protection Association
NIOSH : National Institute for Occupational Safety and Health
OSHA : Occupational Safety and Health Administration
PMRA : Health Canada Pest Management Regulatory Agency
RTK : Right to Know
WHMIS : Workplace Hazardous Materials Information System