












(Material) Safety Data Sheet

Transport Symbol	WHMIS	NFPA	Personal Protective Equipment
	 		    

Original Preparation Date: 13-Sep-2010

Revision Date: 29-Jan-2014

Revision Number: 1

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

Product Name:
SDA 40-2 190 proof Ethanol

Product Code:
017651

Contact Manufacturer:
Archer Daniels Midland Company
4666 Faries Parkway
Decatur, IL 62526, USA
Telephone Number: (+1) 217-424-5200
Emergency response telephone number:
Chemtrec 1-800-424-9300 (CCN 1635)

Use of the Substance / Preparation :
Industrial use

2. HAZARDS IDENTIFICATION

Emergency Overview

Danger. Highly flammable liquid and vapour. Vapors may be irritating to eyes, nose, throat, and lungs. May be harmful if swallowed. Not for human consumption.

Appearance
Clear Bright

Physical State
Liquid

Odor
Characteristic

Classification according to 29 CFR 1910, amended to conform to the United Nations' Globally Harmonized System of Classification and Labelling of Chemicals (GHS):

Serious Eye Damage / Eye Irritation	Category 2
Flammable Liquids	Category 2

OSHA / GHS Label Elements

Signal Word: Danger

GHS Hazard Pictogram(s):



Hazard Statement(s):
H225 Highly flammable liquid and vapour
H319 Causes serious eye irritation

Prevention Precautionary Statements:

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static charges. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands and exposed skin thoroughly after handling.

Response Precautionary Statements:

If on skin (or hair): Take off immediately, all contaminated clothing. Rinse skin with water. In case of fire: Use Alcohol-resistant foam / dry chemical / carbon dioxide (CO2) to extinguish. Do not use a solid water stream as it may scatter and spread fire. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice.

Storage Precautionary Statements:

Store in a well-ventilated place. Keep cool.

Disposal Precautionary Statements:
Dispose of contents/container in accordance with all applicable national and local regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family Alcohols

The following component(s) in this product are considered hazardous under applicable OSHA (USA), WHMIS (Canada), and/or NOM-002-SCT-2003 (Mexico) regulations

Chemical Name	CAS-No	Volume %	North American Hazard Indicator
Ethyl alcohol	64-17-5	92.3	OSHA / GHS: Flam. Liq. 2. Eye Irrit. 2. WHMIS: B2. D2B.
tert-Butyl alcohol	75-65-0	0.12	OSHA / GHS: Flam. Liq. 2. Eye Irrit. 2. Acute Tox. 4. (inhalation) STOT SE 3. WHMIS: B2. D2B.

Non-hazardous Components

Chemical Name	CAS-No	Volume %	North American Hazard Indicator
Water	7732-18-5	7.6	None known
Strychnidin-10-one, 2,3-dimethoxy-, sulfate (2:1)	4845-99-2	0.014	None known

Contains less than 0.1% of the following: Methanol. Acetaldehyde. Acetone.

4. FIRST AID MEASURES

Description of first aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eyes wide open while rinsing. If symptoms persist, call a physician.

Skin Contact If skin irritation persists, call a physician. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation Move to fresh air in case of accidental inhalation of vapors. If symptoms persist, call a physician. Artificial respiration and/or oxygen may be necessary.

Ingestion Clean mouth with water and afterwards drink plenty of water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

Protection of First-aiders Use personal protective equipment. Remove all sources of ignition.

Most important symptoms and affects, both acute and delayed

Eyes Irritating to eyes. Contact with eyes may cause tearing or redness. Stinging. Burning sensation.

Skin May cause skin irritation. Repeated exposure may cause skin dryness or cracking. Dermal uptake of ethanol is very low.

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. In humans, ethanol is readily absorbed by the oral and inhalation routes, is distributed throughout all tissues and organs and is readily, metabolized and excreted. At exposures relevant to occupational inhalation exposure, the alcohol dehydrogenase metabolic route in the liver dominates and does not become saturated. Ethanol is not accumulated in the body.

Ingestion Ingestion may cause irritation to mucous membranes. May cause drowsiness and dizziness. Lack of coordination. Nausea. Vomiting. Abdominal pain. Unconsciousness. Very severe cases of overexposure may result in coma.

Main Symptoms Dizziness. Vomiting. Nausea. Coma.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flammable Properties

Flammable liquid. Vapors may cause flash fire or explosion. Vapors may form explosive mixtures with air. Material may pose fire hazard because it is dispersed (or spread) by water.

Extinguishing media

Suitable Extinguishing Media Alcohol-resistant foam. Dry chemical. Carbon dioxide (CO₂). Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Evacuate area and fight fire from a safe distance. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media Do not use a solid water stream as it may scatter and spread fire.

Special hazards arising from the substance or mixture

Hazardous Combustion Products Thermal decomposition can lead to release of irritating gases and vapors, Carbon monoxide (CO), Carbon dioxide (CO₂).

Specific Hazards Arising from the Chemical Keep product and empty container away from heat and sources of ignition. Risk of ignition.

Sensitivity to mechanical impact No information available.

Sensitivity to static discharge Yes.

Advice for fire-fighters

Protective Equipment and Precautions for Firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health 2

Flammability 3

Stability and Reactivity 0

Physical hazard None known



6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges. Pay attention to flashback. Use personal protective equipment.

Environmental Precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods for Clean-up

Small spills: Allow to evaporate if it is safe to do so or contain and absorb using earth, sand or other inert material then transfer into suitable containers for recovery or disposal. Ventilate contaminated area thoroughly. Use non-sparking tools. Do not use electrical equipment unless it is intrinsically safe.

Large spills: Dike or dam to contain for later disposal. Cover drains. Contact emergency authorities.

7. HANDLING AND STORAGE

Handling

Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from open flames, hot surfaces and sources of ignition. Wear personal protective equipment. Do not breathe vapors or spray mist. Use only in area provided with appropriate exhaust ventilation. Use product only in closed system.

Storage

Keep in properly labelled containers. Keep away from heat and sources of ignition. Keep containers tightly closed in a cool, well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits

Chemical Name	ACGIH TLV	OSHA PEL	MEXICO	NIOSH
Ethyl alcohol	STEL: 1000 ppm	TWA: 1000 ppm TWA: 1900 mg/m ³	TWA: 1000 ppm TWA: 1900 mg/m ³	IDLH: 3300 ppm 10% LEL TWA: 1000 ppm TWA: 1900 mg/m ³

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Apply technical measures to comply with the occupational exposure limits. Ensure that eyewash stations and safety showers are close to the workstation location.

General Hygiene Considerations

When using, do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing. Handle in accordance with good industrial hygiene and safety practice.

Personal Protective Equipment**Eye/face Protection.**

Tightly fitting safety goggles. Face-shield.

Skin and Body Protection

Long sleeved clothing. Chemical resistant apron. Antistatic boots. Appropriate body protection should be selected based on activity and possible exposure. Neoprene gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Wear a positive-pressure supplied-air respirator with full facepiece.



9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear Bright
Physical State	Liquid
Odor	Characteristic
Odor Threshold	No information available
pH	No information available
Flash Point	17 °C / 62 °F (Tag closed cup)
Autoignition Temperature	No information available
Boiling point	80 °C / 176 °F
Melting/Freezing Point	-59 °C / -74 °F
Decomposition temperature	No information available
Oxidizing Properties	No information available
Flammability Limits in Air	Upper: 19% Lower: 3.3%
Water Solubility	Miscible
Evaporation Rate	2.8 [Butyl acetate = 1.0]
Vapor Pressure	40 mmHg
Vapor Density	1.4 at 172°F (Air = 1.0)
Specific Gravity / Relative Density	0.813 at 20/20°C (Water = 1.0)
Partition Coefficient (n-octanol/water)	No information available

10. STABILITY AND REACTIVITY

Reactivity May react violently with very strong oxidising agents.

Stability Stable under normal conditions.

Possibility of Hazardous Reactions Hazardous polymerization does not occur.

Conditions to Avoid Heat, flames and sparks. Incompatible products.

Incompatible Materials Strong oxidizing agents. Strong mineral acids. Aluminium at higher temperatures.

Hazardous Decomposition Products Thermal decomposition can lead to release of irritating gases and vapors, Carbon monoxide (CO), Carbon dioxide (CO₂).

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity	Based on available data, the classification criteria are not met.				
Chemical Name	Volume %	LD50 Oral	LD50 Dermal	LC50 Inhalation	
Ethyl alcohol	92.3	7060 mg/kg Rat			
Skin corrosion/irritation	Based on available data, the classification criteria are not met. All available acute 4 hour exposure studies for ethanol show not irritating in animals (OECD404 or equivalent) and humans. In humans, repeated dose studies for ethanol show no irritation with repeated application over a whole day under occlusive conditions for up to 12 days. Further exposures cause irritation to occur.				
Serious eye damage/eye irritation	Eye Irritating, Cat2 (H319). For ethanol, studies according to OECD guideline 405 generally cause moderate eye irritation. All effects disappear within 8-14 days. The level of conjunctival response is sufficient to require classification as a category 2 irritant.				
Respiratory or skin sensitisation	Based on available data, the classification criteria are not met. Mouse swelling study: negative (ethanol) Local Lymph Node Assay (OECD429): Negative (ethanol) Guinea Pig maximisation study: (OECD406) Negative (ethanol) Respiration sensitisation: no data available. (ethanol).				
Germ cell mutagenicity	Based on available data, the classification criteria are not met. Bacterial reverse mutation studies (OECD471) for ethanol: all negative In vitro cytogenicity studies (eg OECD473) for ethanol: negative without metabolic activation. No studies available with metabolic activation. In vitro mammalian cell gene mutation studies (OECD476) for ethanol: negative with and without metabolic activation. In vivo micronucleus test (OECD474) for ethanol: no convincing evidence that ethanol causes micronuclei in the bone marrow. In vivo chromosome aberration test (OECD475) for ethanol: negative. Dominant Lethal assay (OECD478): Ethanol is unlikely to produce an effect up to the maximum tolerated dose. There is some evidence from in vitro studies that ethanol can cause genotoxic or clastogenic effects. However, the effects seen are weak and only occur at very high doses. The balance of evidence is that ethanol is not genotoxic.				
Carcinogenicity	Based on available data, no evidence of carcinogenicity. Rats: NOAEL>3000mg/kg (ethanol) Mice: Females NOAEL>4400mg/kg, Males NOAEL>4250mg/kg based on historic control data, BMDL10=1400mg/kg based on concurrent control data. (ethanol) In humans, the consumption of alcoholic beverages is associated with an increased incidence of certain tumours. There is no evidence that the exposure of humans to ethanol other than by repeated consumption of alcoholic beverages may result in an increase in cancer incidence. The table below indicates whether each agency has listed any ingredient as a carcinogen.				
Chemical Name	Volume %	OSHA	NTP	ACGIH	IARC
Ethyl alcohol	92.3	Present	Known	A3 - Confirmed Animal Carcinogen	Group 1 - Carcinogenic to Humans

Reproductive toxicity	Based on available data, the classification criteria are not met FERTILITY (for ethanol): NOAEL (oral, mouse) = 13.8g/kg (OECD416 equiv.) NOAEC (inhalation, rat) >16,000ppm DEVELOPMENTAL TOXICITY (OECD414 equiv): NOAEL (oral) = 5.2g/kgbw/day NOAEC (inhalation) = 39mg/l. Source IUCLID chapter 7.8 summary In humans excessive consumption of alcoholic beverages during pregnancy is associated with the induction of Fetal Alcohol Syndrome in the offspring causing reduced birth weight and physical and mental defect to occur. There is no evidence that such effects might be caused by exposures other than direct ingestion of alcoholic drinks. Blood ethanol concentrations resulting from ethanol exposure by any route other than deliberate and repeated oral consumption are unlikely to reach levels associated with reproductive or developmental effects. From the available data, it can be concluded that it is impossible to reach the doses of ethanol required to produce any sort of adverse reproductive response other than by repeated oral consumption of large amounts of ethanol, doses normally only associated with problem drinking, and therefore classification for reproductive or developmental toxicity in the context of a chemical substance is not appropriate or warranted.
STOT - single exposure	Based on available data, the classification criteria are not met. No specific target organ effects observed following single exposure.
STOT - repeated exposure	Based on available data, the classification criteria are not met. In sub-chronic feeding or drinking water studies in rats, NOAELs for ethanol ranged from 1.73g/kg to 3.9g/kg. The most sensitive affect above these doses appeared to be to the kidney in males. Effects are only seen at doses well above the levels that would require classification.
Aspiration hazard	Based on available data, no known aspiration hazard.

Potential health effects**Eyes**

Irritating to eyes. Contact with eyes may cause tearing or redness. Stinging. Burning sensation.

Skin

May cause skin irritation. Repeated exposure may cause skin dryness or cracking. Dermal uptake of ethanol is very low.

Inhalation

Inhalation of vapors in high concentration may cause irritation of respiratory system. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. In humans, ethanol is readily absorbed by the oral and inhalation routes, is distributed throughout all tissues and organs and is readily, metabolized and excreted. At exposures relevant to occupational inhalation exposure, the alcohol dehydrogenase metabolic route in the liver dominates and does not become saturated. Ethanol is not accumulated in the body.

Ingestion

Ingestion may cause irritation to mucous membranes. May cause drowsiness and dizziness. Lack of coordination. Nausea. Vomiting. Abdominal pain. Unconsciousness. Very severe cases of overexposure may result in coma.

Main Symptoms

Dizziness. Vomiting. Nausea. Coma.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Undetermined on the product level. Component-level values are listed below.

Chemical Name	Fresh Water Algae	Acute Fish Toxicity	Daphnia (Water flea)	Effects on micro-organisms	Other
Ethyl alcohol	Chlorella vulgaris, 72hr: EC50 275mg/l, EC10 11.5mg/l; Selenastrum capricornutum, 72hr, EC50: 12.9g/l, EC10=0.44g/l; Chlamydomonas eugametos, 48hr, EC50: 18g/l, NOEC=7.9g/l	LC50 (96hr) Salmo gairdneri: 13g/l; Pimephales promelas: 13.5, 14.2 and 15.3g/l.	(48hr) Daphnia Magna: 12.34g/l; NOEC (reproduction, 21 days): >10mg/l. Ceriodaphnia dubia: EC50 (48hrs): 5.012g/l; NOEC (reproduction, 10 days): 9.6mg/l. Palaemonetes pugio NOEC (developmental, 10 days): 79mg/l.		

Bioaccumulative Potential Based on the partition coefficient, ethanol has a low bioaccumulation potential.

Chemical Name	log Kow	BCF
Ethyl alcohol	-0.32	

Persistence/Degradability

Ethanol is readily biodegradable. BOD20=84%. Ethanol is expected to degrade readily in sewage treatment plants.

Mobility

If released to air or water ethanol will disperse rapidly. If released to soil it will evaporate at a rapid rate. Ethanol is volatile and water soluble. If released to the environment it will partition to air and water. Ethanol is poorly absorbed on to soil or sediments.

PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).

13. DISPOSAL CONSIDERATIONS

Whenever possible, as rules and regulations allow, please recycle or manage materials to minimize waste.

Waste Disposal Methods

Dispose of in compliance with the laws and regulations pertaining to this product in your jurisdiction. The classification and disposal method of waste material resulting from this product should be determined by the user at the time of disposal. Seek guidance from a qualified person or service within your local jurisdiction. Can be incinerated, when in compliance with local regulations.

Contaminated Packaging

Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers.

14. TRANSPORT INFORMATION

Domestic transport regulations (USA)

DOT

DOT Shipping Description	UN1170, Ethanol solution, 3, II
UN-No	UN1170
Proper Shipping Name	Ethanol solution
Hazard Class	3
Packing Group	II
Transport Symbol	



Domestic transport regulations (Canada)**TDG**

UN-No	UN1170
Proper Shipping Name	ETHANOL more than 24 per cent ethanol, by volume
Hazard Class	3
Packing Group	II

Domestic transport regulations (Mexico)**MEX**

UN-No	UN1170
Proper Shipping Name	Etanol
Hazard Class	3
Packing Group	II

International transport regulations**ICAO**

UN-No	UN1170
Proper Shipping Name	Ethanol solution
Hazard Class	3
Packing Group	II

IATA

UN-No	UN1170
Proper Shipping Name	Ethanol solution
Hazard Class	3
Packing Group	II
ERG Code	3L

IMDG/IMO

UN-No	UN1170
Proper Shipping Name	Ethanol (Ethyl alcohol)
Hazard Class	3
Packing Group	II
EmS No.	F-E, S-D

15. REGULATORY INFORMATION**International Inventories**

The components of this product are reported in the following inventories:

Chemical Name	TSCA	DSL	NDSL	EINECS	ELINCS	AICS	ENCS ISHL	CHINA	PICCS	KECL	NZIoC
Ethyl alcohol	Yes	Yes	No	Yes 200-578-6	No	Yes	Yes 2-202	Yes	Yes	Yes KE-13217	Yes
tert-Butyl alcohol	Yes	Yes	No	Yes 200-889-7	No	Yes	Yes (2)-3049 2-(8)-303 2-(8)-395	Yes	Yes	Yes KE-24895	Yes
Strychnidin-10-one, 2,3-dimethoxy-, sulfate (2:1)	Yes	Yes	No	Yes 225-432-9	No	Yes	No	Yes	Yes	No	Yes

USA**Federal Regulations****Ozone Depleting Substances:**

No Class I or Class II material is known to be used in the manufacture of, or contained in, this product.

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product is not known to contain chemicals at levels which are subject to the reporting requirements of the Act or regulations contained in 40 CFR 372.

CERCLA/SARA 103-302

Sections 103-302 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (CERCLA/SARA). This product is not known to contain chemicals at levels which are expected to be subject to the reporting requirements of the Act or regulations contained in 40 CFR 103-302

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 63)

May contain trace HAPs.

State Regulations**California Proposition 65**

Chemical Name	CAS-No	Volume %	Category
Ethyl alcohol	64-17-5	92.3	Developmental
Methyl alcohol	67-56-1	TRACE (0.015)	Developmental
Acetaldehyde	75-07-0	TRACE (0.002)	Carcinogen

• Ethanol is only considered a Prop 65 chemical as "ethyl alcohol IN alcoholic beverages" and not as used in fuel or industrial applications

State Right-to-Know

Component Information.

Chemical Name	Volume %	Massachusetts	Minnesota	New Jersey	Pennsylvania
Ethyl alcohol	92.3	Yes	Yes	Yes 0844	Yes
Water	7.6	No	No	No	No
tert-Butyl alcohol	0.12	Yes	Yes	Yes 1787	Yes Environmental hazard
Methyl alcohol	TRACE (0.015)	Yes	Yes	Yes 1222	Yes Environmental hazard
Strychnidin-10-one, 2,3-dimethoxy-, sulfate (2:1)	0.014	No	No	No	No
Acetaldehyde	TRACE (0.002)	Yes	Yes	Yes 0001	Yes
Acetone	TRACE (0.0004)	Yes	Yes	Yes 0006	Yes Environmental hazard

Canada**WHMIS Product Classification**

B2 - Flammable liquid. D2B - Materials causing other toxic effects, toxic material.

WHMIS Ingredient Disclosure List IDL

Component Information

Chemical Name	Volume %	WHMIS IDL	WHMIS Threshold limits
Ethyl alcohol	92.3	Listed	0.1%

(NPRI) Canadian National Pollutant Release Inventory

Component Information

Chemical Name	Volume %	NPRI
Ethyl alcohol	92.3	Part 5, Individual Substances Part 4 Substance

tert-Butyl alcohol	0.12	Part 1, Group A Substance Part 4 Substance as set out in Section 65 of the List of Toxic Substances in Schedule 1 of the Canadian Environmental Protection Act, 1999
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This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

Mexico**Mexico - Grade**

Serious risk, Grade 3

16. OTHER INFORMATION

Prepared By: ADM Fuels & Industrials
Original Preparation Date: 13-Sep-2010
Revision Date: 29-Jan-2014
Revision Number: 1
Reason for revision: New SDS format. This version replaces all previous versions.

Abbreviations and acronyms

ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Values
 AICS - Australian Inventory of Chemical Substances (Australia)
 A3 - Animal Carcinogen
 CAS - Chemical Abstract Service
 CHINA - Chinese Inventory of Existing Chemical Substances (China)
 DOT - U.S. Department of Transportation
 DSL - Domestic Substance List (Canada)
 EC50 - Half maximal effective concentration
 EINECS - European Inventory of Existing Commercial Chemical Substances (EU)
 ELINCS - European List of Notified Chemical Substances (EU)
 ENCS - Existing and New Chemical Substances (Japan) / ISHL - Industrial Health and Safety Law (Japan)
 GHS - Globally Harmonized System of Classification and Labelling of Chemicals
 Group 1 - Carcinogenic to Humans
 IATA - International Air Transport Association Dangerous Goods Regulations
 IARC - International Agency for Research on Cancer
 ICAO - International Civil Aviation Organisation
 ICL - In Commerce List (Canada)
 IMDG - International Maritime Dangerous Goods Code
 IMO - International Maritime Organization
 KECL - Korean Existing and Evaluated Chemical Substances (Korea)
 LC50 - Lethal concentration that produces fatalities in 50% of a given test population
 LD50 - Median lethal dose of a given test population
 MEX - NOM-002-SCT/2003 List of Hazardous Substances and Materials Most Commonly Transported
 MEXICO - Mexico Occupational Exposure Limits
 NDSL - Non Domestic Substances List (Canada)
 NFPA - National Fire Protection Association
 NIOSH - National Institute of Occupational Safety and Health
 NOAEL - No Observed Adverse Effect Level
 NTP - National Toxicology Program
 NZIoC - New Zealand Inventory of Chemicals (New Zealand)
 OECD - Organisation for Economic Co-operation and Development
 OSHA - Occupational Safety & Health Administration
 OSHA PEL - Occupational Safety and Health Administration Permissible Exposure Limits
 PICCS - Inventory of Chemicals and Chemical Substances (Philippines)
 PNEC - Predicted No-Effect Concentration
 Present - Carcinogen or potential carcinogen to be identified under OSHA's Hazard Communication Standard
 STOT - Specific Target Organ Toxicity
 TDG - Transportation of Dangerous Goods (Transport Canada)
 TSCA - Toxic Substances Control Act, Section 8(b) Inventory (USA)
 TWA - Time Weighted Average: Average concentration that should not be exceeded during a work day (usually 8-hours)
 vPvB - Very Persistent and Very Bioaccumulative
 WHMIS - Workplace Hazardous Materials Information System

The information provided on this (M)SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

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