

1. Product and Company Identification

Material name	REAGENT ALCOHOL
Version #	05
Revision date	02-22-2012
CAS #	Mixture
Product Codes	J.T.Baker: 9229, 9401, A478 Macron: 6183, 7019, 7021, 7284
Synonym(s)	Doubly denatured ethanol; modified 3A alcohol; alcohol, anhydrous
Manufacturer	Avantor Performance Materials, Inc.
Address	3477 Corporate Parkway Suite #200 Center Valley, PA 18034 US
Customer Service	855-282-6867
24 Hour Emergency	908-859-2151
Chemtrec	800-424-9300

2. Hazards Identification

Emergency overview	DANGER -- POISON Flammable liquid and vapor. May be fatal or cause blindness if swallowed. Cannot be made nonpoisonous. Harmful if inhaled or absorbed through skin. Causes skin and eye irritation. High vapor concentrations may cause drowsiness and irritation of the eyes or respiratory tract. May cause harm to the unborn child. Prolonged exposure may cause chronic effects.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Skin contact. Eye contact. Ingestion.
Eyes	Causes eye irritation. High vapor/aerosol concentrations may be irritating.
Skin	Causes skin irritation. Prolonged or repeated contact with skin may cause redness, itching, irritation and eczema/chapping.
Inhalation	May cause irritation of respiratory tract. Toxic effects exerted upon nervous system, particularly the optic nerve. Once absorbed into the body, it is very slowly eliminated. Symptoms of overexposure may include headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma and death. A person may get better but then worse again up to 30 hours later.
Ingestion	Poison - may be fatal if swallowed. Even small amounts (30-250 ml methanol) may be fatal. Symptoms are stomach ache, nausea, vomiting, dullness, visual disorder and blindness.
Target organs	Eyes. Skin. Central nervous system. Liver. Reproductive organs.
Chronic effects	In serious cases absorption of methanol in the body may lead to damage to the eyesight. May cause adverse reproductive effects - such as birth defects, miscarriages, or infertility based on animal data. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion and blurred vision) and/or damage. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Potential environmental effects	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
ETHANOL	64-17-5	88 - 92
METHANOL	67-56-1	2.5 - 10
ISOPROPYL ALCOHOL	67-63-0	4 - 6

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.
Skin contact	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Get medical attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Notes to physician

Symptoms may be delayed. Treat symptomatically.

General advice

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties	HIGHLY FLAMMABLE! Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Heat may cause the containers to explode.
-----------------------------	--

Extinguishing media

Suitable extinguishing media	Water spray. Foam. Dry powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

Protection of firefighters

Specific hazards arising from the chemical	Can be ignited easily and burns vigorously. Vapor from the solvent may accumulate in container headspace resulting in flammability hazard.
Protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Move containers from fire area if you can do so without risk. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. Some of these materials, if spilled, may evaporate leaving a flammable residue. Cool containers exposed to flames with water until well after the fire is out.

Special protective equipment for fire-fighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
---	--

Specific methods	In the event of fire and/or explosion do not breathe fumes. Use water spray to cool unopened containers.
-------------------------	--

Hazardous combustion products	Carbon monoxide and carbon dioxide.
--------------------------------------	-------------------------------------

6. Accidental Release Measures

Personal precautions	Wear appropriate protective equipment and clothing during clean-up. Keep unnecessary personnel away. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained.
-----------------------------	--

Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.
Methods for containment	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Dike the spilled material, where this is possible.
Methods for cleaning up	<p>Use only non-sparking tools. All equipment used when handling the product must be grounded.</p> <p>Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Dike far ahead of spill for later disposal.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Collect in a non-combustible container for prompt disposal.</p> <p>Never return spills in original containers for re-use. Clean surface thoroughly to remove residual contamination. Clean up in accordance with all applicable regulations.</p> <p>J. T. Baker SOLUSORB® solvent adsorbent is recommended for spills of this product.</p>

7. Handling and Storage

Handling	DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Wear appropriate personal protective equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment.
Storage	Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children. Keep container tightly closed in a cool, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. Exposure Controls / Personal Protection

ACGIH

Components	Type	Value
ETHANOL (64-17-5)	STEL	1000.0000 ppm
ISOPROPYL ALCOHOL (67-63-0)	BEL	40.0000 mg/l
	STEL	400.0000 ppm
	TWA	200.0000 ppm
METHANOL (67-56-1)	BEL	15.0000 mg/l
	STEL	250.0000 ppm
	TWA	200.0000 ppm

Occupational exposure limits

U.S. - OSHA

Components	Type	Value
ETHANOL (64-17-5)	PEL	1900.0000 mg/m3
		1000.0000 ppm
ISOPROPYL ALCOHOL (67-63-0)	PEL	400.0000 ppm
		980.0000 mg/m3
METHANOL (67-56-1)	PEL	260.0000 mg/m3
		200.0000 ppm

Engineering controls	<p>Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.</p> <p>Explosion proof exhaust ventilation should be used.</p>
-----------------------------	---

Personal protective equipment**Eye / face protection**

Chemical goggles and face shield are recommended.

Skin protection

Wear appropriate chemical resistant clothing. Wear appropriate chemical resistant gloves.

Respiratory protection

Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

General hygiene considerations

Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance	Clear.
Color	Colorless.
Odor	Mild. Pleasant. Alcoholic
Odor threshold	Not available.
Physical state	Liquid.
Form	Liquid.
pH	Not available.
Melting point	-173.2 °F (-114 °C)
Freezing point	-173.2 °F (-114 °C)
Boiling point	172.4 °F (78 °C)
Flash point	55.4 °F (13 °C) Closed Cup
Flammability limits in air, upper, % by volume	19 %
Flammability limits in air, lower, % by volume	3.3 %
Vapor pressure	8.12436 kPa
Vapor density	1.6 (ethanol)
Specific gravity	0.7894
Relative density	Not available.
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	791.6 °F (422 °C)
Decomposition temperature	Not available.

10. Chemical Stability & Reactivity Information

Chemical stability	Stable under normal temperature conditions.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	Strong oxidizing agents. Alkali metals. Inorganic salts. Organic - organometallic. Inorganic hydrides.
Hazardous decomposition products	At thermal decomposition temperatures, carbon monoxide and carbon dioxide.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information**Toxicological data****Product****Test Results**

REAGENT ALCOHOL (Mixture)

Acute Inhalation LC50 Rat: 129 mg/l estimated

Product		Test Results
REAGENT ALCOHOL (Mixture)		Acute Oral LD50 Rat: 6861 mg/kg estimated
Components		Test Results
ETHANOL (64-17-5)		Acute Inhalation LC50 Rat: 124.7 mg/l 4.00 Hours Acute Oral LD50 Rat: 6.2 g/kg
ISOPROPYL ALCOHOL (67-63-0)		Acute Dermal LD50 Rabbit: 12800 mg/kg Acute Oral LD50 Rat: 5045 mg/kg
METHANOL (67-56-1)		Acute Dermal LD50 Rabbit: 15800 mg/kg Acute Inhalation LC50 Rat: 87.5 mg/l 6.00 Hours Acute Oral LD50 Rat: 5628 mg/kg
Sensitization	Not a skin sensitizer.	
US ACGIH Threshold Limit Values: Skin designation		
METHANOL (CAS 67-56-1)		Can be absorbed through the skin.
Acute effects	May be fatal or cause blindness if swallowed. Cannot be made nonpoisonous. Harmful if inhaled or absorbed through skin.	
Local effects	Causes eye irritation. Prolonged or repeated skin contact may cause drying, cracking, or irritation. High vapor concentrations may cause drowsiness and irritation of the eyes or respiratory tract.	
Chronic effects	May cause central nervous system effects. In serious cases absorption of methanol in the body may lead to damage to the eyesight. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.	
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	
ACGIH Carcinogens		
ISOPROPYL ALCOHOL (CAS 67-63-0)		A4 Not classifiable as a human carcinogen.
Skin corrosion/irritation	Causes skin irritation.	
Epidemiology	No epidemiological data is available for this product.	
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Neurological effects	High vapor/aerosol concentrations (attainable only at elevated temperatures) may cause central nervous system effects such as dizziness, drowsiness or headaches. Central and/or peripheral nervous system damage.	
Reproductive effects	Suspected of damaging fertility or the unborn child.	
Symptoms and target organs	Irritation. Drowsiness and dizziness. Blindness. Cough. Shortness of breath. Unconsciousness.	
Further information	Danger of very serious irreversible effects. Symptoms may be delayed.	

12. Ecological Information

Ecotoxicological data	
Product	Test Results
REAGENT ALCOHOL (Mixture)	EC50 Daphnia: 7287 mg/l 48.00 hours estimated LC50 Fish: 9945 mg/l 96.00 hours estimated
Components	Test Results
ETHANOL (64-17-5)	EC50 Water flea (Daphnia magna): 7.7 mg/l 48.00 hours LC50 Fathead minnow (Pimephales promelas): > 100 mg/l 96.00 hours
METHANOL (67-56-1)	EC50 Water flea (Daphnia magna): > 10000 mg/l 48.00 hours

Components	Test Results
ISOPROPYL ALCOHOL (67-63-0)	LC50 Fathead minnow (<i>Pimephales promelas</i>): > 100 mg/l 96.00 hours LC50 Western mosquitofish (<i>Gambusia affinis</i>): > 1400 mg/l 96.00 hours
Ecotoxicity	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Environmental effects	Ecological injuries are not known or expected under normal use.
Persistence and degradability	Expected to be readily biodegradable.
Partition coefficient (n-octanol/water)	Not available

13. Disposal Considerations

Waste codes

US RCRA Hazardous Waste U List: Reference

METHANOL (CAS 67-56-1)

U154

Disposal instructions	Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. All wastes must be handled in accordance with local, state and federal regulations.
Contaminated packaging	Since emptied containers retain product residue, follow label warnings even after container is emptied. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near this container. Offer rinsed packaging material to local recycling facilities.

14. Transport Information

DOT

Basic shipping requirements:

UN number	UN1987
Proper shipping name	Alcohols, n.o.s. (Ethanol, Methanol, Isopropanol)
Hazard class	3
Packing group	II

Additional information:

Special provisions	IB2, T7, TP1, TP8, TP28
---------------------------	-------------------------

Basic shipping requirements:

Labels required	3
Additional information:	
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242
ERG number	127

IATA

Basic shipping requirements:

UN number	1987
Proper shipping name	Alcohols, n.o.s. (Ethanol, Methanol, Isopropanol)
Hazard class	3
Packing group	II

Additional information:

ERG code	3L
-----------------	----

IMDG

Basic shipping requirements:

UN number	1987
Proper shipping name	ALCOHOLS, N.O.S. (ETHANOL, METHANOL, ISOPROPANOL)
Hazard class	3
Packing group	II



DOT



IATA



IMDG

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

ISOPROPYL ALCOHOL (CAS 67-63-0)	1.0 %
METHANOL (CAS 67-56-1)	1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

ISOPROPYL ALCOHOL (CAS 67-63-0)	Listed.
METHANOL (CAS 67-56-1)	Listed.

CERCLA (Superfund) reportable quantity

ETHANOL: 100.0000
METHANOL: 5000.0000
ISOPROPYL ALCOHOL: 100.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes
	Delayed Hazard - Yes
	Fire Hazard - Yes
	Pressure Hazard - No
	Reactivity Hazard - No

Section 311 hazardous chemical	Yes
---------------------------------------	-----

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

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

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

ETHANOL (CAS 64-17-5) Listed: July 1, 1988 Carcinogenic.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

ETHANOL (CAS 64-17-5) Listed: October 1, 1987 Developmental toxin.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

ISOPROPYL ALCOHOL (CAS 67-63-0) 500 LBS

METHANOL (CAS 67-56-1) 500 LBS

US - Pennsylvania RTK - Hazardous Substances: Listed substance

ETHANOL (CAS 64-17-5) Listed.

ISOPROPYL ALCOHOL (CAS 67-63-0) Listed.

METHANOL (CAS 67-56-1) Listed.

Saf-T-Data Health: 2 - Moderate (Poison)
 Flammability: 3 - Severe (Flammable)
 Reactivity: 1 - Slight
 Contact: 3 - Severe (Life)
 Lab Protective Equip: DB - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER
 Storage Color Code: R - Red (Flammable)

16. Labeling Info

Label Hazard Warning DANGER -- POISON
 FLAMMABLE LIQUID AND VAPOR. May be fatal or cause blindness if swallowed. Cannot be made nonpoisonous. Harmful if inhaled or absorbed through skin. Causes skin and eye irritation. High vapor concentrations may cause drowsiness and irritation of the eyes or respiratory tract. May cause harm to the unborn child. Prolonged exposure may cause chronic effects.

Label Precautions Keep away from heat, sparks and flame. Take precautionary measures against static discharge. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Keep container closed. Wash thoroughly after handling.

Label First Aid Immediately flush eyes with plenty of water for at least 15 minutes. Immediately flush skin with plenty of water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention immediately. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs. Do not use mouth-to-mouth method if victim ingested the substance.

17. Other Information

NFPA ratings Health: 2
 Flammability: 3
 Instability: 0

Disclaimer

THE INFORMATION PRESENTED IN THIS MATERIAL SAFETY DATA SHEET (MSDS/SDS) WAS PREPARED BY TECHNICAL PERSONNEL BASED ON DATA THAT THEY BELIEVE IN THEIR GOOD FAITH JUDGMENT IS ACCURATE. HOWEVER, THE INFORMATION PROVIDED HEREIN IS PROVIDED "AS IS," AND AVANTOR PERFORMANCE MATERIALS MAKES AND GIVES NO REPRESENTATIONS OR WARRANTIES WHATSOEVER, AND EXPRESSLY DISCLAIMS ALL WARRANTIES REGARDING SUCH INFORMATION AND THE PRODUCT TO WHICH IT RELATES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION, WARRANTIES OF ACCURACY, COMPLETENESS, MERCHANTABILITY, NON-INFRINGEMENT, PERFORMANCE, SAFETY, SUITABILITY, STABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE. THIS MSDS/SDS IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PROPERLY TRAINED PERSON USING THIS PRODUCT, AND IS NOT INTENDED TO BE COMPREHENSIVE AS TO THE MANNER AND CONDITIONS OF USE, HANDLING, STORAGE, OR DISPOSAL OF THE PRODUCT. INDIVIDUALS RECEIVING THIS MSDS/SDS MUST ALWAYS EXERCISE THEIR OWN INDEPENDENT JUDGMENT IN DETERMINING THE APPROPRIATENESS OF SUCH ISSUES. ACCORDINGLY, AVANTOR PERFORMANCE MATERIALS ASSUMES NO LIABILITY WHATSOEVER FOR THE USE OF OR RELIANCE UPON THIS INFORMATION. NO SUGGESTIONS FOR USE ARE INTENDED AS, AND NOTHING HEREIN SHALL BE CONSTRUED AS, A RECOMMENDATION TO INFRINGE ANY EXISTING PATENTS OR TO VIOLATE ANY FEDERAL, STATE, LOCAL, OR FOREIGN LAWS. AVANTOR PERFORMANCE MATERIALS REMINDS YOU THAT IT IS YOUR LEGAL DUTY TO MAKE ALL INFORMATION IN THIS MSDS/SDS AVAILABLE TO YOUR EMPLOYEES.

Issue date

02-22-2012