



TAG SOLVENT PRODUCTS (PTY)LTD.

MATERIAL SAFETY DATA SHEET ***SOLVENT 450***

1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Common name	: SOLVENT 450
Supplier	: TAG Solvent Products Mallet Road/Weg Knights Germiston 1401 Republic of South Africa TEL: +27 11 822-1600
Synonym	: Not available
Trade name	: Solvent 450
Material uses	: A solvent used in paints, lacquers, printing inks, dyes, industrial detergents, polished, degreasers and rust removers.

2 COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS#	% By Weight	Exposure Limits
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1.	Ethanol	64-17-5	99.99	<p>ACGIH TLV (United States, 2002). TWA: 1000 ppm TWA: 1880 mg/m³</p> <p>OSHA (United States, 2002). TWA: 1000 ppm TWA: 1900 mg/m³</p>
2.	Ethyl acetate	141-78-6	10	<p>ACGIH TLV (United States, 2002). TWA: 400 ppm TWA: 1440 mg/m³</p> <p>OSHA PEL (United States, 2002). TWA: 1400 ppm TWA: 1400 mg/m³</p>
3.	Isopropyl alcohol	67-63-0	5-7	<p>ACGIH TLV (United States, 2002). TWA: 400ppm TWA: 983mg/m³</p> <p>OSHA PEL (United States, 2002). TWA: 400ppm.</p>

3 HAZARDS IDENTIFICATION

Physical state and appearance	: Liquid.
Emergency overview	: WARNING! FLAMMABLE LIQUID AND VAPOUR. VAPOUR MAY CAUSE FLASH FIRE. Keep away from heat, sparks and flame. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
Routes of entry	: Eye contact. Ingestion. Inhalation. Absorbed through the skin. Dermal contact.
Potential acute health effects	
 Eyes	: Hazardous in case of eye contact
 Skin	: Hazardous in case of skin contact. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
 Inhalation	: Hazardous in case of inhalation
 Ingestion	: Hazardous in case of ingestion
Potential chronic health effects	: CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal). By ACGIH, 3 (Not classified for human) by IARC [Isopropanol]. Classified A4 (Not classifiable for human or animal) by ACGIH [Ethanol]. Classified A5 (Not suspected for human). By ACGIH [Ethyl acetate]. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast [Methyl ethyl ketone]. TERATOGENIC EFFECTS: Not listed
Medical conditions aggravated by overexposure	: Repeated exposure may produce general deterioration of health by an accumulation in one or many human organs.
Overexposure/signs/Symptoms	: Central nervous system depression, headaches, nausea, vomiting.

See toxicological information (section 11)

4	FIRST AID MEASURES
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Eye contact	: Check for and remove any contact lenses. Immediately flush the eyes with running water for at least 15 minutes, keep eyelids open. Cold water may be used. Get medical attention.
Skin contact	: In the case of contact, flush the skin with plenty of water for at least 15 minutes while removing the contaminated clothing and shoes. Cold water may be used. Wash clothes before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	: If inhaled, remove to fresh air. If not breathing apply artificial respiration. If breathing is laboured, give oxygen. Get medical attention.
Ingestion	: DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious patient. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention.
Notes to physician	: Support respiratory and cardiovascular function.

5	FIRE FIGHTING MEASURES
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Flammability of the product	: Flammable
Autoignition temperature	: The lowest known value is 363°C (685.4°F) [Ethanol].
Flash points	: CLOSED CUP: 0°C (32°F).
Flammable limits	: The greatest known range is LOWER: 3.3% UPPER: 19% [Ethanol].
Products of combustion	: These products are carbon oxides (CO, CO ₂)
Fire hazards in presence of various substances	: Flammable in the presence of open flames and sparks, of heat and oxidizing materials, Reducing materials, of combustible materials.
Explosion hazards in presence of various substances	: Explosive in the presence of open flames, sparks and static discharge.
Fire fighting media and instructions	: SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet on order to prevent pressure build-up, autoignition or explosion.
Protective clothing (fire)	: Be sure to use an approved/certified respirator or equivalent.
Special remarks on fire hazards	: Containers should be grounded.
Special remarks on explosive hazards	: Vapours may form explosive mixtures with air. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated.

6	ACCIDENTAL RELEASE MEASURES
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Small spill or leak	: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large spill or leak	: Keep away from heat. Keep away from sources of Ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed.

7	HANDLING AND STORAGE
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Handling	: Keep away from heat sparks and flame. Keep container closed. Use only with adequate ventilation. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.
Storage	: Store in segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

8 **EXPOSURE CONTROLS, PERSONAL PROTECTION**

Engineering controls	: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapour below their respective threshold limit values. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Personal protection	
Eyes	: Splash goggles.
Body	: Chemical resistant protective suite.
Respiratory	: Vapour respirator. Be sure to use an approved/certified or equivalent. Wear appropriate respirator when ventilation is inadequate.
Hands	: Butyl rubber gloves.
Feet	: Chemical resistant safety boots.
Protective clothing	: Splash goggles. Full chemical resistant protective suit. Vapour respirator. Butyl gloves. Chemical resistant boots.
Personal protection in case of large spills	: Splash goggles. Full suit. Vapour respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling the product.

PRODUCT NAME	EXPOSURE LIMIT
1. Ethanol	<p>ACGIH TLV (United States, 2002). TWA: 1000 ppm TWA: 1880 mg/m³</p> <p>OSHA (United States, 2002). TWA: 1000 ppm TWA: 1900 mg/m³</p>
2. Ethyl acetate	<p>ACGIH TLV (United States, 2002). TWA: 400 ppm TWA: 1440 mg/m³</p> <p>OSHA PEL (United States, 2002). TWA: 1400 ppm TWA: 1400 mg/m³</p>
3. Isopropyl alcohol	<p>ACGIH TLV (United States, 2002). TWA: 400ppm TWA: 983mg/m³</p> <p>OSHA PEL (United States, 2002). TWA: 400ppm.</p>

9	PHYSICAL AND CHEMICAL PROPERTIES
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Physical state and appearance	: Liquid.
Colour	: Colourless. Clear.
Odor	: Alcohol like.
Taste	: No data available.
Molecular weight	: Not applicable
Molecular formula	: Not applicable
PH (1% soln/water)	: 7 [Neutral.]
Boiling/condensation point	: 76°C (168.8°F)
Melting/freezing point	: May start to solidify at -83.6°C (-118.5°F) based on data for: Ethyl acetate. Weighted average: -109.44°C (-165°F).
Critical temperature	: The lowest known value is 232.5°C [Isopropanol]
Specific gravity	: 0.802(water=1)
Vapor pressure	: The highest known value is 10.1kPa (76mmHg) (@20°C) [Ethyl acetate]. Weighted average: 6.06kPa (45.45mmHg) (@20°C).
Vapor density	: The highest known value is 3.04 (Air=1) [Ethyl acetate]. Weighted average: 1.77 (Air=1).
Volatility	: 100% vlv. 100% (w/w)
Odor threshold	: The lowest known value is 18ppm [Ethyl acetate] Weighted average: 165.06ppm
Evaporation rate	: 1.557 compared to Butyl acetate
VOC	: 100 (%)
Viscosity	: Dynamic: The highest known value is 2.4cP [Isopropanol]. Weighted average: 1.38cP.
LogK_{ow}	: the product is more soluble in water.
Iconicity (in water)	: No data available.
Dispersion properties	: See solubility in water, methanol, diethyl ether, n-octanol acetone..
Solubility	: Soluble in cold water, hot water, methanol, diethyl ether, acetone and n-octanol.
Physical chemical comments	: No additional remark.

10	STABILITY AND REACTIVITY
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Stability and reactivity	: The product is stable.
Conditions of instability	: Heat.
Incompatibility with various substances	: Reactive with oxidizing agents, reducing agents, acids, alkalis..
Hazardous decomposition products	: No data available
Hazardous polymerization	: Will not occur.

11	TOXICOLOGICAL INFORMATION
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Toxicity to animals	: Acute oral toxicity (LD50): 6671mg/kg [Rat] (calculated value for mixture). Acute dermal toxicity (LD50): 12800mg/kg [Rabbit] (Isopropanol). Acute toxicity of the vapour (LC50): 16970ppm 4 hour(s) [Rat] (Isopropanol)
Chronic effects on humans	: CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal). By ACGIH, 3 (Not classified for human) by IARC [Isopropanol]. Classified A4 (Not classifiable for human or animal) by ACGIH [Ethanol]. Classified A5 (Not suspected for human). By ACGIH [Ethyl acetate]. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast [Methyl ethyl ketone]. DEVELOPMENTAL TOXICITY: classified reproductive system/toxin/female, Reproductive system/toxin/male.
Other toxic effects on humans	: Hazardous in case of skin contact, of ingestion, of inhalation.
Special remarks on toxicity to animals	: BIOCONCENTRATION FACTOR: Using the octanol/water coefficient of 3.44, using recommended regression equation the estimated BCF is 242. (Cyclohexane).
Special remarks on chronic effects on humans	: Embryotoxic and/or foetotoxic in animal. Detected in maternal milk in human. Passes through the placental barrier in human. [Methyl ethyl ketone]
Special remarks on other toxic effects on humans	: Moderately toxic and narcotic in high concentrations. Experimentally tumorigen. [Ethanol].

12 ECOLOGICAL INFORMATION

Ecotoxicity	: No data available.
BOD and COD	: The COD is 52mg/kg [hour. day (s)].
Biodegradable/OECD	: No data available
Mobility	: No data available
Products of degradation	: Possibly hazardous short-term degradation products are not likely. However, long-term degradation products may arise.
Toxicity of the products of biodegradation	: The products of degradation are less toxic than the product itself.
Special remarks on the products of biodegradation	: Formaldehyde and Acetic acid are products of Biodegradation. BIOCONCENTRATION: There is no indication in fish as a result of Ethanol's low log P value (log P=-0.31)

13 DISPOSAL CONSIDERATIONS


Waste information	: Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Waste stream	: No data available.


Consult your local or regional authorities.

14 TRANSPORT INFORMATION

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information

DOT Classification	UN1993	FLAMMABLE LIQUIDS, N.O.S. (ethanol, ethyl alcohol)	DOT CLASS 3: Flammable liquid.	II	<input type="checkbox"/>	
TDG Classification	UN1993	FLAMMABLE LIQUIDS, N.O.S. (ethanol, ethyl alcohol)	TDG CLASS 3: Flammable liquid.	II	<input type="checkbox"/>	
IMDG Classification	UN1993	FLAMMABLE LIQUIDS, N.O.S. (ethanol, ethyl alcohol)	IMDG CLASS 3: Flammable liquid.	II	<input type="checkbox"/>	
IATA-DGR Classification	UN1993	FLAMMABLE LIQUIDS, N.O.S. (ethanol, ethyl alcohol)	IATA CLASS 3: Flammable liquid.	II	<input type="checkbox"/>	

HCS Classification	: Class: Flammable liquid having flash point lower than 37.8°C (100°F)
U.S. Federal regulations	: TSCA 5(e) substance consent order: Ethyl acetate. TSCA8(a) PAIR: Isopropanol. TSAC 8(a) IUR: Ethyl acetate; Isopropanol TSCA 8(b) inventory: Ethanol, Ethyl acetate; Isopropanol; Methyl ethyl ketone; Cyclohexane. TSCA 12(b) one time export: Ethyl acetate; Isopropanol. SARA 302/304/311/312 extremely hazardous substances: No reports were found. SARA 302/304 emergency planning and notification: No products were found. SARA 302/304/311/312 hazardous chemicals: No products were found. SARA 311/312 MSDS distribution- chemical inventory – hazardous identification: NO products were found SARA 313 toxic chemical notification and release reporting: Isopropanol 6.3%; Methyl ethyl ketone 0.27% Clean water act (CWA) 307: No products were found. Clean water act (CWA) 311: No products were found. Clean water act (CAA) 112 accidental release prevention: No products were found. Clean water act (CAA) 112 regulated flammable substances: No products were found. Clean water act (CAA) 112 regulated toxic substances: No products were found.
State regulations	: Rhode Island RTK hazardous substances: Ethanol, Ethyl acetate; Isopropanol. Pennsylvania RTK: Ethyl acetate (environmental hazard); Isopropanol (environmental hazard); Methyl ethyl ketone; Cyclohexane; Ethanol. Florida: Ethyl acetate; Isopropanol; Methyl ethyl ketone; Cyclohexane; Ethanol. Minnesota: Ethanol, Ethyl acetate; Isopropanol. Massachusetts RTK: Ethyl acetate; Isopropanol; Methyl ethyl ketone; Cyclohexane; Ethanol. New Jersey: Ethyl acetate; Isopropanol; Methyl ethyl ketone; Ethanol. New Jersey spill list: Ethanol, Ethyl acetate; Isopropanol. California prop. 65: No products were found
EU regulations	
Hazardous symbol(s)	
Classification	: Highly flammable
Risk phrases	: R11 – Highly flammable
Safety phrases	: S7 – Keep container tightly closed. S16 – Keep container away from sources of ignition – No smoking.
EINECS Number	: 200-578-6 [Ethanol], 200-661-7 [Isopropyl alcohol], 200-500-4 [Ethyl acetate].

National Fire Protection Association (U.S.A.)	:	
References	:	- CHEMINFO: Canadian Centre for Occupational Health and Safety, Issue: 97-3 (August 1997). – BDH; Hazard Data Disk, Version 3. – CESARS: Chemical Evaluation and Retrieval System, Produced by: Ontario Ministry of Environment and Michigan Department of Natural Resources, Issue 97-3 (August 1997). CRIS: Chemical Hazards Response Information System; United States Coast Guard, Issue: 97-3 (August, 1997). Hazardous Substance Data Bank (HSDB), Issue: 97-3 9August, 1997).
Other special considerations	:	No additional remarks.
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Notice to reader:

This MSDS summarizes at the date of issue our best knowledge of the health, safety and environmental hazard information related to the product, and in particular how to safely handle, use and transport the product in the workplace. Since TAG Solvent Products (PTY) LTD. and its subsidiaries cannot anticipate or control the conditions under which the product may be handled, used, stored or transported, each user must, prior to usage, review MSDS in the context of how the user intends to handle, use, store or transport the product in the workplace and beyond, and communicate such information to all relevant parties. If clarification or further information is required to ensure that an appropriate assessment can be made, the user should contact the company.

We shall not assume any liability for the accuracy or completeness of the information contained herein or any advice given unless there has been gross negligence on our part. In such event our liability shall be limited only to direct damages suffered. Our responsibility for the product as sold is subject to our standards terms and conditions, a copy of which is sent to our customers and is also available upon request. All risk with possession and application of the product passes on delivery.