TAG SOLVENT PRODUCTS (PTY)LTD.

MATERIAL SAFETY DATA SHEET
ETHANOL 95/E5

1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Common name	**: ETHANOL 95/E5**		
Supplier	: TAG Solvent Products Mallet Road/Weg Knights Germiston 1401 Republic of South Africa TEL: +27 11 822-1600		
Synonym	: Not available.		
Trade name	: Ethanol 95/E5		

2 COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS#	% By Weight	Exposure Limits
Ethanol	64-17-5	95	**ACGIH TLV (United States, 2002).** TWA: 1000 ppm TWA: 1880 mg/m^3 **OSHA PEL (United States, 2002).** TWA: 1900 ppm TWA: 1900 mg/m^3
Ethyl acetate	141-78-6	5	**ACGIH TLV (United States, 2002).** TWA: 400ppm TWA: 1440ppm **OSHA PEL (United States, 2002).** TWA: 400ppm TWA: 1440ppm

3 HAZARDS IDENTIFICATION

Physical state and appearance	: Liquid.
Emergency overview	: WARNING! FLAMMABLE LIQUID AND VAPOUR. VAPOUR MAY CASUE FLASH FIRES. Keep away from heat, sparks and flame. Avoid contact with Eyes. Avoid prolonged or repeated contact with skin. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Avoid exposure during pregnancy.
Routes of entry	: Eye contact. Ingestion. Inhalation. Absorbed through the skin. Dermal contact.
Potential acute health effects	
Eyes	: Hazardous in case of eye contact (irritant)
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:** Classified A4 (Not classifiable for human or animal) by ACGIH (Ethanol). Classified A5 (not suspected for human) by ACGIH [Ethyl acetate]. **MUTAGENIC EFFECTS:** Not Listed. **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

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 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. If not breathing, administer 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 any thing by via the mouth to an unconscious person. 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

Flammability of the product	: Flammable
Autoignition temperature	: The lowest known value is 363ºC [Ethanol].
Flash points	: Closed cup: 0ºC.
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 open flames and sparks, of heat, static discharge, combustible materials, oxidizing materials, reducing 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 mixed with air explode when ignited.

6 ACCIDENTAL RELEASE MEASURES

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

Handling	: Keep away from heat and sources of ignition. 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 Limits**
Ethanol	**ACGIH TLV (United States, 2002).** TWA: 1000 ppm TWA: 1880 mg/m^3 **OSHA PEL (United States, 2002).** TWA: 1900 ppm TWA: 1900 mg/m^3
Ethyl acetate	**ACGIH TLV (United States, 2002).** TWA: 400ppm TWA: 1440ppm **OSHA PEL (United States, 2002).** TWA: 400ppm TWA: 1440ppm

9 PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance	: Liquid.
Colour	: Colourless. Clear.
Odor	: Alcohol like.
Taste	: Not available.
Molecular weight	: Not applicable
Molecular formula	: Not applicable.
PH (1% soln/water)	: 7 [Neutral.]
Boiling/condensation point	: The lowest known value is 77ºC [Ethyl acetate]. Weighted average: 78.33ºC
Melting/freezing point	: May start solidifying at –83.6ºC based on data for: Ethyl acetate. Weighted average: -112.58ºC
Critical temperature	: The lowest known value is 243ºC [Ethanol].
Specific gravity	: Weighted average 0.797 [water=1]
Vapor pressure	: The highest known value is 10.1kPa (76mmHg) (@20ºC)[Ethyl acetate]. Weighted average: 5.92 kPa (44.4mm of Hg) (@20ºC).
Vapor density	: The highest known value is 3.04 (Air=1) [Ethyl acetate]. Weighted average: 1.67 (Air=1}
Volatility	: 100%vlv. [Ethanol]. Weighted average: 100%v/v 100%w/w [Ethanol].
Odor threshold	: The highest known value is 18ppm (Ethyl acetate) Weighted average: 10.4ppm.
Evaporation rate	: 1.244 compared to Butyl acetate.
VOC	: 100 (%)
Viscosity	: The highest known value is 1.41cP (Ethanol). Weighted average: 1.36cP.
LogK_{ow}	: The product is more soluble in water.
Iconicity (in water)	: Not available.
Dispersion properties	: See solubility in water, methanol, diethyl ether, n-octanol, and acetone.
Solubility	: Soluble in cold water, hot water, methanol, diethyl ether, n-octanol, and acetone.
Physical chemical comments	: No additional remark.

10 STABILITY AND REACTIVITY

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

11 TOXICOLOGICAL INFORMATION

Toxicity to animals	: Acute oral toxicity (LD50): 5620 mg/kg [Rat]. [Ethyl acetate)] Acute toxicity of the vapour (LD50): 19596ppm 4 hours [rabbi]. { Ethyl acetate]. Acute toxicity of the gas (LC50): 8000pm 4 hour(s) [Rat] [Ethanol]. (Calculated value for the mixture).
Chronic effects on humans	: **CARCINOGENIC EFFECTS:** A4 (Not classifiable for human or animal) by ACGIH. (Ethanol). Classified A5 (Not suspected for human) by ACGUH [Ethyl acetate].
Other toxic effects on humans	: Hazardous in the case of eye contact, skin contact, ingestion, inhalation.

Special remarks on toxicity to animals	: No additional remark.
Special remarks on chronic effects on humans	: No additional remark.
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 52 mg/kg [hour. day(s)].
Biodegradable/OECD	: No data available.
Mobility	: No data available.
Products of degradation	: Acetaldehyde and Acetic acid are short-term products and carbon oxides (CO, CO_2) and water are long term products.
Toxicity of the products of biodegradation	: The products of degradation are more 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) [Ethanol].

13 DISPOSAL CONSIDERATIONS

Waste information	: Whatever can not be saved for recovery or recycling should be handled as hazardous waste and sent to an approved incinerator or disposed of in an approved waste facility.
Waste stream	: Not 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	UN 1170	ETHONAL [ETHYL ALCOHOL]	DOT CLASS 3: Flammable liquid.	II		-
TDG Classification	UN 1170	ETHONAL [ETHYL ALCOHOL]	TDG CLASS 3: Flammable liquid.	II		-

IMDG Class	UN 1170	ETHONAL [ETHYL ALCOHOL]	IMDG CLASS 3: Flammable liquid.	II		-
IATA-DGR Class	UN 1170	ETHONAL [ETHYL ALCOHOL]	IATA CLASS 3: Flammable liquid.	II		-

15 REGULATORY INFORMATION

HCS Classification	: Class: Flammable liquid having a flash point power than 37.8ºC.
U.S. Federal regulations	: TSCA 5(e) substance consent order: Ethyl acetate. TSCA 8(a) IUR: Ethyl acetate. TSCA 8(b) inventory: Ethanol., Ethyl acetate. TSCA 12(b) one time export: Ethylacetate. 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: 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: No products were found. Clean water act (CWA) 307: No products were found. Clean water act (CWA) 311: No products were found. 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.
State regulations	: Rhode Island RTK hazardous substances: Ethanol, Ethyl acetate Pennsylvania RTK: Ethanol, Ethyl acetate [environmental hazard]. Florida: Ethanol, Ethyl acetate Minnesota: Ethanol, Ethyl acetate, Ethyl acetate Massachusetts RTK: Ethanol New Jersey: Ethanol, Ethyl acetate New Jersey spill list: Ethanol, Ethyl acetate California prop. 65: No products were found

International Regulations

Hazard symbols(s) :

Classification : Highly flammable.

Risk phrases : R11 – Highly flammable.

Safety phrases : S7 - Keep container tightly closed.
S16 – Keep away from sources of ignition – No smoking.

EINECS Number : 200-578-6 (Ethanol) and 205-500-4 [Ethyl acetate].

16 OTHER INFORMATION

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

References	BDH; Hazard Data disks, Version 3 - RTECHS: National Institute for Occupational Safety and Health, Issue: 97-3 (august 1997). - CESARS: Chemical Evaluation and Retrieval System, Produced by: Ontario Ministry of Environment and Michigan Department of Natural Resources, Issue: 97-3 (August, 1997). - CHEMINFO: Canadian Centre for Occupational Health and Safety, Issue: 97-3 (August 1997). - Hazardous substances Data Bank (HSDB), Issue: 97-3 (August, 1997)
Other special considerations	: No additional remarks.
Date of issue	: 25/07/2005
Date of previous issue	: 25/07/2005

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 it's 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.