TAG SOLVENT PRODUCTS (PTY) LTD.

MATERIAL SAFETY DATA SHEET

LACQUER THINNERS A

1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Common name	: Lacquer Thinners A		
Synonym	: Not available		
Material uses	: Not available		
Trade name	: Lacquer Thinners A		
Supplier	: TAG Solvent Products Mallet Road/Weg Knights Germiston 1401 Republic of South Africa TEL: +27 11 822-1600	**In case of emergency**	TAG: 011 822 1600

2 COMPOSITION / INFORMATION

NAME	CAS#	% BY WEIGHT	EXPOSURE LIMITS
Aromatics	108-88-3	19-26	**ACGIH TLV (USA, 2003)** TWA: 50ppm 8 hrs **OSHA PEL Z2 (USA, 2003)** TWA: 200ppm 8 hrs CEIL: 300ppm **NIOSH (USA, 1997)** STEL: 150ppm 15 min STEL: 560 mg/m^3
	1330-20-7	7-12	**ACGIH TLV (USA, 2003)** TWA: 100ppm 8 hrs STEL: 150ppm 15min **OSHA PEL Z1 (USA, 1993)** : 100ppm :435mg/m^3 **NIOSH (USA, 1997)** STEL: 150ppm 15 min STEL: 665mg/m^3 15 min
Alcohol	71-23-8	26	**ACGIH TLV (USA, 2003)** STEL: 250ppm 15 min TWA: 200ppm 8 hrs **OSHA PEL Z1 (USA, 1993)** TWA: 200ppm 8 hrs TWA: 500mg/m^3
Actives		17	**ACGIH TLV (USA, 2002)** TWA: 500ppm 8 hrs TWA: 1188mg/m^3 8 hrs STEL: 750ppm 15 min STEL: 1782mg/m^3 **OSHA (USA, 2002)** TWA: 750ppm 8 hrs TWA: 1800mg/m^3 8 hrs STEL: 1000ppm 15min STEL: 2400mg/m^3 15min
		6	**ACGIH TLV (USA, 2003)** TWA: 20ppm 8 hrs **OSHA PEL Z1 (USA, 1993)** : 50ppm : 240mg/m^3 **NIOSH REL (USA, 1997). SKIN** REL: 5ppm 40 hrs REL: 24mg/m^3
Hydrocarbon	611-14-3 78-92-2	1-4 3	Not Available. **OSHA PEL Z1 (USA, 2002)** TWA: 150ppm 8hrs TWA: 450mg/m^3 hrs

3. HAZARDS IDENTIFICATION

Physical state and appearance	: Liquid.
Emergency overview	: WARNING! FLAMMABLE LIQUID AND VAPOUR. VAPOUR MAY CAUSE FLASH FIRE. RISK OF SERIOUS DAMAGE TO EYES. HARMFUL BY INHALATION. REPEATED EXPOSURE MAY CASUE SKIN CRYNESS & CRACKING. 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.
Potential acute health effects:	
Eyes	: risk of serious damage to eyes.
Skin	: Repeated exposure may cause skin dryness or cracking.
Inhalation	: Harmful be inhalation.
Ingestion	: Hazardous in case of ingestion
Potential chronic health	: **CARCINOGENIC EFFECTS** classified A4 (Not classifiable for human or animal). By ACGIH, 3 (not classifiable for human) by IARC [Toluene]. Classified A$ (Not classifiable for human or animal)by ACGIH,3 (Not classifiable for human) by IARC [xylenes]. Classified None, by OSHA, [Acetone]. Classified A4 (not classifiable for human or animal)by ACGIH, D (Not classifiable for human or animal), by EPA [Acetone]. Classified A3 (Proven for animal) by ACGIH [Propyl alcohol]. Classified None, by OSHA, NONE. By NIOSH [propyl alcohol]. classified 4 (probably not for human) by IARC, none, by NIOSH [butan-2-ol]. Classified none, by NIOSH. Classified None by NIOSH[2-Methylpropan-1-ol]. Classified A3 (proven for animal) by ACGIH [Glycol ether]. **MUTAGENIC EFFECTS:** Non-mutagenic for bacteria and/or yeast [Xylenes]. **TERATOGENIC EFFECTS** classified none. For human [Acetone].
Medical conditions aggravated by overexposure	: No data available.
Overexposure/signs/symptoms	: No data available.

4. FIRST AID MEASURES

Eye contact	: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Get medical attention immediately.
Skin contact	: In case of skin contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if symptoms appear.
Inhalation	: If inhaled, remove to fresh air and allow victim to rest. 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. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. If large quantities of this material are swallowed , seek immediate 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 238ºC [Glycol ether]
Flash points	: Closed cup: <0ºC
Flammable limits	: The greatest known range is LOWER: 1.1% UPPER: 14.7% [Glycol ether]
Products of combustion	: These products are carbon oxides [CO, CO_2]
Fire hazards in the presence of various substances	: Flammable in presence of open flames, sparks and static discharge of heat, of oxidizing materials, of combustible materials, of combustible materials, of reducing materials, of alkalis.
Explosive hazards in the presence of various substances	: Not available.
Fire fighting media and instructions	: SMALL FIRE: Use DRY chemical powder LARGE FIRE: Use water spray or fog. Cool containing vessels with jet in 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	: Explosive in the form of vapour when exposed to heat or flame. Vapour may travel considerable distance to source of ignition and flash back. When heated to decomposition it emits acrid smoke and irritating fumes
Special remarks on explosion hazards	: No additional remark.

6. ACCIDENTAL RELEASE MEASURES

Small spill or leak	: Absorb with an inert dry material and place in an appropriate waste disposal container.
Large spill or leak	: Poisonous flammable liquid, insoluble or very slightly soluble in water. 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 get water inside the container. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Call for assistance on disposal. .

7. HANDLING AND STORAGE

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 a 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 flames)

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.
	: Butyl rubber gloves.
Hands	: Chemical resistant safety boots.
Feet	
Protective clothing	: Splash goggles. Full chemical resistant protective suit. Vapor respirator. Butyl gloves. Chemical resistant boots.
Personal protection in case of large spills	: Splash goggles. Full suit. Vapor 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.

NAME	EXPOSURE LIMITS
Aromatics	**ACGIH TLV (USA, 2003)** TWA: 50ppm 8 hrs **OSHA PEL Z2 (USA, 2003)** TWA: 200ppm 8 hrs CEIL: 300ppm **NIOSH (USA, 1997)** STEL: 150ppm 15 min STEL: 560 mg/m^3 **ACGIH TLV (USA, 2003)** TWA: 100ppm 8 hrs STEL: 150ppm 15min **OSHA PEL Z1 (USA, 1993)** : 100ppm :435mg/m^3 **NIOSH (USA, 1997)** STEL: 150ppm 15 min STEL: 665mg/m^3 15 min
Alcohol	**ACGIH TLV (USA, 2003)** STEL: 250ppm 15 min TWA: 200ppm 8 hrs **OSHA PEL Z1 (USA, 1993)** TWA: 200ppm 8 hrs TWA: 500mg/m^3 (table continues on next page)
Actives	**ACGIH TLV (USA, 2002)** TWA: 500ppm 8 hrs TWA: 1188mg/m^3 8 hrs STEL: 750ppm 15 min STEL: 1782mg/m^3 **OSHA (USA, 2002)** TWA: 750ppm 8 hrs TWA: 1800mg/m^3 8 hrs STEL: 1000ppm 15min STEL: 2400mg/m^3 15min **ACGIH TLV (USA, 2003)** TWA: 20ppm 8 hrs **OSHA PEL Z1 (USA, 1993)** : 50ppm : 240mg/m^3 **NIOSH REL (USA, 1997). SKIN** REL: 5ppm 40 hrs REL: 24mg/m^3
Hydrocarbon	Not Available. **OSHA PEL Z1 (USA, 2002)** TWA: 150ppm 8hrs TWA: 450mg/m^3 hrs

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State & Appearance	: Liquid
Colour	: Clear, colourless (Light)
Odor	: No data available
Taste	: No data available
Molecular Weight	: Not applicable
Molecular Formula	: Not applicable
PH (1% Soln/Water)	: Neutral
Boiling/condensation Point	: 58ºC
Melting / freezing point	: may start to solidify at -70ºC based on data for: Glycol ether. Weighted average: -103.95ºC.
Critical temperature	: No data available.
Specific gravity	: 0.801 (water=1)
Volatility	: 100% (v/v) (propyl alcohol). Weighted average: 100% (v/v) 100% (w/w) (propyl alcohol) weighted average: 100% (w/w)
Odor threshold	: the lowest known value is 0.1ppm (glycol ether). Weighted average: 15.97ppm
Evapouration threshold	: 1.109 compared to Butyl acetate
VOC	: 100 (%)
LogK_{ow}	: No data aviable..
Ionicity (in water)	: No data available
Dispersion properties	: Is not dispersed in cold water, hot water, methanol, dietyl ether, n-octanol. See solubility in methanol, diethyl ether, n=octanol.
Solubility	: Soluble in n-octanol, diethyl ether, methanol...

10. STABILITY AND REACTIVITY

Stability and reactivity	: The product is stable.
Conditions of instability	: sparks, flames, heat and other ignition sources.
Incompatibility with various substances	: Reactive with oxidizing agents, reducing agents, organic materials, acids, alkalis and metals.
Hazardous decomposition products	: No data available
Hazardous polymerization	: Will not occur.

11 TOXICOLOGICAL INFORMATION

Toxicity to animals	: Acute oral toxicity (LD50): 1441mg/kg [Rat] (calculated value for mixture) Acute dermal toxicity (LD50): 220mg/kg [Rabbit] (Glycol ether) Acute toxicity of the gas (LC50): 450 ppm 4 hour(s) [Rat]. (Glycol ether)
Chronic effects on humans	: **CARCINOGENIC EFFECTS** classified A4 (Not classifiable for human or animal). By ACGIH, 3 (not classifiable for human) by IARC [Toluene]. Classified A$ (Not classifiable for human or animal)by ACGIH,3 (Not classifiable for human) by IARC [xylenes]. Classified None, by OSHA, [Acetone]. Classified A4 (not classifiable for human or animal)by ACGIH, D (Not classifiable for human or animal), by EPA [Acetone]. Classified A3 (Proven for animal) by ACGIH [Propyl alcohol]. Classified None, by OSHA, NONE. By NIOSH [propyl alcohol]. classified 4 (probably not for human) by IARC, none, by NIOSH [butan-2-ol]. Classified none, by NIOSH. Classified None by NIOSH[2-Methylpropan-1-ol]. Classified A3 (proven for animal) by ACGIH [Glycol ether]. **MUTAGENIC EFFECTS:** Non-mutagenic for bacteria and/or yeast [Xylenes]. **TERATOGENIC EFFECTS** classified none. For human [Acetone].
Other toxic effects on humans	: No additional remark
Special remarks on toxicity to animals	: No additional remark.
Special remarks on chronic effects on humans	: Inhalation of vapours may cause dizziness, an irregular heartbeat, narcosis, nausea or asphyiation (Toluene)
Special remarks on other toxic effects on humans	: No additional remark.

12 ECOLOGICAL INFORMATION

Ecotoxicity	: No data available
BOD and COD	: No data available
Biodegradable/OECD	: No data available
Mobility	: No data available
Products of degradation	: these products are carbon oxides (CO, CO_2) and water
Toxicity of the products of biodegradation	: No data available
Special remarks on the products of biodegradation	: No food chain concentration potential (Propyl alcohol

13 DISPOSAL CONSIDERATION

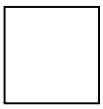
Waste information	: Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Waste stream	: No data available.

14. TRANSPORT INFORMATION

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN 1993	Flammable liquid N.O.S	ADR CLASS 3: Flammable liquid.	II		Reportable quantity **100 lbs. (45.36 kg)**
TDG Classification	UN 1993	Flammable liquid N.O.S	ADN CLASS 3: Flammable liquid.	II		
IMDG Classification	UN 1993	Flammable liquid N.O.S	IMDG CLASS 3: Flammable liquid.	II		
IATA-DGR Classification	UN 1993	Flammable liquid N.O.S	IATA CLASS 3: Flammable liquid.	II		

15. REGULATION INFORMATION

HCS Classification	: HCS Class: Flammable liquid having flash point lower than 37.8ºC cCass: irritating substance.
U.S. Federal regulations	: TSCA 4(a) proposed test rules: Butan-2-ol TSCA5(e)substance consent order: Aliphatic ketone; 2-Methylpropan-1-ol TSCA 8(a) PAIR: Trimethyl benzene (isomers); Butan-2-ol; 2-Methylpropan-1-ol TSCA8(a) IUR: Aliphatic ketone; 2-Methylpropan-1-ol TSCA 8(b) inventory: Toluene; Xylenes; Ethyl toluene; trimethyl benzene (isomers), Aliphatic ketone; propyl alcohol; butan-2-ol; 2-Methylpropan-1-ol; Glycol ether TSCA 8(d) H and S data reporting; Toluene; xylenes; Butan-2-ol; Glycol ether TSAC 12(b) one time export; Aliphatic ketone 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: Butan-2-ol, 2-Methylpropan-1-ol SARA 311/312 MSDS distribution- chemical inventory – hazardous identification: Butan-2-ol; Fire hazard, immediate (acute) health Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard; 2-Methylpropan-1-ol: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard. SARA 313 toxic chemical notification and release reporting: Xylenes 9.996%; Butan-2-ol 3.1482% Clean water act (CWA) 307: Toluene Clean water act (CWA) 311: Toluene; xylenes. Clean water act (CAA) 112 accidental release prevention: Toluene; xylenes 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	: Connecticut hazardous material survey: propyl alcohol Illinois toxic substances disclosure to employee act: Glycol ether. Illinois chemical safety act: Propyl alcohol; Glycol ether. Rhode island RTK hazardous substances: Toluene; Trimethyl benzene (isomers), Aliphatic Ketone; propyl alcohol; Butan-2-ol; 2-Methylpropan -1-ol, Glycol ether. Pennsylvania RTK: Toluene; Xylene (environmental hazard); Trimethyl benzene (isomers), Aliphatic ketone; (environmental hazard), Propyl alcohol; Butan-2-ol (environmental hazard, generic environmental hazard); 2-methylpropan-1-ol:(environmental hazard, generic environmental hazard); Glycol ether. Florida: Toluene; Trimethyl benzene (isomers); Aliphatic ketone; Propyl alcohol; Butan-2-ol; 2-methylpropan-1-ol. Minnesota: toluene; Xylenes; Trimethyl benzene (isomers); Aliphatic; Propyl alcohol; butan-2-ol; 2-methylpropan-1-ol; Glycol ether. Michigan critical material: Toluene; xylenes. Massachusetts RTK: Toluene, xylenes, trimethyl benzene (isomers), Aliphatic ketone; Propyl alcohol, Butan-2-ol; 2-methylpropan-1-ol, Glycol ether. Massachusetts spill list: Glycol ether. New Jersey: Toluene; Xylenes; Aliphatic Ketone; Butan-2-ol; 2-methylpropan-1-ol; Glycol ether. New Jersey spill list – Toluene; xylenes; Trimethyl benzene (isomers); Aliphatic ketone; Propyl alcohol; Butan-2-ol, 2-Methylpropan-1-ol. Louisana spill reporting: propyl alcohol; Glycol ether California prop 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which could require a warning under the statue: Toluene. California prop 65 (no significant risk level): Toluene: 7mg/day (value), 13mg/day (inhalation). California prop 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statue: Toluene
EU regulations **Hazardous symbol(s)**	
Classification	: Highly flammable
Risk phrases	: R11 – Highly flammable R20 – Harmful by inhalation R41 – Risk of serious damage to eyes R66 – Repeated exposure may cause skin dryness or cracking
Safety phrases	: S9 – Keep container I well ventilated place. S16 – Keep container away from sources of ignition – No smoking. S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S39 – Wear eye/face protection S60 – This material and its container must be disposed of as hazardous waste.
ENIECS Number	: 200-746-9 (Propyl alcohol), 200-662-2 (Acetone), 203-625-9 (toluene), 215-535-7 (xylene), 203-905-0 (Ethylene glycol momobutyl ether), 201-255-1 (Ethyl methyl benzene), 201-158-5 (butan-2-ol)

16 OTHER INFORMATION

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

References	- Manufacturers Material Safety Data sheet.. - 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). – 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). - TOMES Plus System: Toxicology, Occupational Medicine & Environmental Series: incorporating: - MEDITEX, HAZARDTEXT, 1st Medical Response Protocols, INFOTEXT, HSDB, CHRIS, OHM/TAD, IRIS, NIOSH Pocket Guide, RTECS, NJ Facts Sheets, North American Emergency Response Guides, REPROTEXT, REPROTOX, TERIS, Shepard's Catalog of Teraogenic Agents. - LOLI Database: The regulated List of Lists.
Other special considerations	: No additional remarks.
Date of issue	: 15/11/2004
Version	
Verified by	

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.