SPI Supplies Division

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Safety Data Sheet

Date Effective: April 8, 2015

01321-AB SPI Supplies® Lapping Vehicle for Metallography

Section 1: Identification

Chemical Name/Synonyms...... Lapping Vehicle for Metallography

Chemical family..... Mixture

Emergencies Contacting CHEMTREC:

24 Hour Emergency Use Only #'s... Worldwide phone: 1-(703)-527-3887 Worldwide FAX: 1-(703)-741-6090 Toll-free phone: 1-(800)-424-9300 USA only

Product or Trade Name...... SPI Supplies® Lapping Vehicle for Metallography

CAS #'s..... 107-21-1; 111-76-2; 67-56-1; 7632-00-0

Chemical Formula..... Mixture

GHS CLASSIFICATION:

Flammable Liquid: Category 4 Acute Toxicity (oral): Category 4 Reproductive Toxicity: Category 2 Specific Target Organ Toxicity (single exposure): Category 1 Specific Target Organ Toxicity (central nervous system): Category3 Specific Target Organ Toxicity (repeated Exposure): Category 1

Pictogram(s):



Signal Word: Danger

Hazard Statements:

H223 Combustible liquid.

H302 Harmful if swallowed

H336 May cause drowsiness or dizziness

H360 Suspected of damaging fertility or the unborn child.

H370 Causes damage to organs: blood or blood-forming organs, cardiovascular system, nervous system, kidney/urinary tract, respiratory system, sensory organs.

H372 Causes damage to organs through prolonged or repeated exposure: blood or blood-forming organs.

Precautionary Statements:

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P281 Wear protective gloves and eye/face protection.
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P330 Rinse mouth
- P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
- P308 + P313 If exposed or concerned: Get medical advice/ attention.
- P321 Specific treatment: See Notes to Physician on this label.
- P312 Call a POISON CENTER or doctor/ physician if you feel unwell.

P370 In case of fire: Use a fire fighting agent suitable for flammable liquids such as dry chemical or carbon dioxide to extinguish.

- P 402 + P414 Store in a well-ventilated place. Keep container tightly closed.
- P235 Keep cool.
- P405 Store locked up.

P501 Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

Notes to Physician:

<u>This product contains ethylene glycol.</u> Effects of oral ethylene glycol poisoning can be divided into three stages which generally occur over a time-course of hours to days following ingestion: Stage 1 (neurological effects), stage 2 (cardiopulmonary effects(and stage 3 (renal effects). If ethylene glycol poisoning is confirmed, intravenous (Iv) administration of ethanol should be considered. Additional pharmacological and supportive care should be based on the treating physician's judgment.

<u>This product contains methanol.</u> Methanol poisoning can cause metabolic acidosis, blindness, and death. Onset of signs or symptoms may be delayed for 18 to 24 hours. If methanol poisoning is confirmed, intravenous (IV) administration of ethanol should be considered. Additional pharmacological and supportive care should be based on the treating physician's judgment.

Hazardous Material Information System USA (estimated)

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NFPA Rating (estimated)

Health2	2
Flammability 1	1
Reactivity)

Section 2: Composition

Ingredient	CAS No.	% by V	Veight
Ethylene Glycol	107-21-1	90-99	Trade Secret*
Ethylene Glycol Monobutyl Ether	111-76-2	1 – 5	Trade Secret*
Methyl Alcohol	67-56-1	1 – 5	Trade Secret*

Sodium Nitrite

<0.10 Trade Secret*

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

Section 3: Hazard Identification

Clear, reddish-colored liquid. Flash point >=184°F Combustible liquid

Potential health effects (acute and chronic):

Symptoms of exposure:

Eye Contact: Dust created by grinding, sanding or machining may cause eye irritation. Symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin Contact: Mild skin irritation. Symptoms may include localized redness, swelling, itching, and dryness.

Inhalation: Respiratory tract irritation. Symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. Dust from grinding, sanding or machining may cause irritation of the respiratory system. Symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. May cause target organ effects after inhalation.

Ingestion: Harmful if swallowed. Gastrointestinal irritation. Symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea. May cause target organ effects after ingestion.

Target Organs:

Single exposure may cause:

Cardiac Effects: Symptoms may include irregular heartbeat *arrhythmia), changes in heart rate, damage to heart muscle, heart attack, and may be fatal.

Central Nervous System (CNS) Depression: Symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Eye: May cause blindness.

Blood Effects: Symptoms may include generalized weakness and fatigue, skin pallor, changes in blood clotting time, internal bleeding, and/or hemoglobinemia.

Neurological Effects: Symptoms may include personality changes, lack of coordination, sensory loss, tingling or numbness of the extremities, weakness, tremors, and/or changes in blood pressure and heart rate.

Respiratory Effects: Symptoms may include cough, shortness of breath, chest tightness, wheezing, increased heart rate, bluish colored skin (cyanosis), sputum production, changes in lung function tests, and/or respiratory failure.

Kidney/Bladder Effects: Symptoms may include changes in urine production, abdominal or lower back pain, increased protein in urine, increased blood urea nitrogen (BUN), blood in urine, and painful urination.

Prolonged or repeated exposure may cause:

Blood Effects: Symptoms may include generalized weakness and fatigue, skin pallor, changes in blood clotting time, internal bleeding, and/or hemoblobinemia.

Routes of entry: Inhalation, ingestion or eye or skin contact.

Section 4: First Aid Measures

Inhalation: Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact: Wash with soap and water. If symptoms develop, get medical attention.

Eye Contact: Immediately flush with large amounts of water for at least 15 minutes. Remove contact lenses if easy to do so. Continue rinsing. Immediately get medical attention.

If Swallowed: Rinse mouth. If you feel unwell, get medical attention.

Indication for immediate medical attention and special treatment required:

<u>This product contains methanol.</u> Methanol poisoning can cause metabolic acidosis, blindness, and death. Onset of signs or symptoms may be delayed for 18 to 24 hours. If methanol poisoning is confirmed, intravenous (IV) administration of ethanol should be considered. Additional pharmacological and supportive care should be based on the treating physician's judgment.

<u>This product contains ethylene glycol.</u> Effects of oral ethylene glycol poisoning can be divided into three stages which generally occur over a time-course of hours to days following ingestion: State 1 (neurological effects), Stage 2 (cardiopulmonary effects) and stage 3 (renal effects). If ethylene glycol poisoning is confirmed, intravenous (IV) administration of ethanol should be considered. Additional pharmacological and supportive care should be based on the treating physician's judgment.

Section 5: Fire Fighting Measures

Flash Point: >=184°F

Explosion Limits: (estimated) Upper: >=1.1 Lower: >=15.3

Suitable extinguishing media: In case of fire: Use a fir fighting agent suitable for flammable liquids, such as dry chemical or carbon dioxide, to extinguish.

Special Hazards arising from the substance or mixture: Closed containers exposed to heat from fire may build pressure and explode.

Hazardous decomposition or by-products produced during combustion: Formaldehyde, Carbon monoxide, Carbon dioxide.

Special protective actions for fire-fighters: Water may not effectively extinguish fire. However, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:

Evacuate area. Keep away from heat/ sparks/ open flames/ hot surfaces. - No smoking. Use only non-sparking tools. Ventilate the area with fresh air. For large spill, or spills in confined areas, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Warning! A motor could be

an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

Environmental precautions:

Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

Methods and material for containment and cleaning up:

Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible using non-sparking tools. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with water. Seal the container. Dispose of collected material as soon as possible.

Section 7: Handling and Storage

Precautions for safe handling:

Avoid breathing of dust created by cutting, sanding, grinding or machining. For industrial or professional use only. Do not handle until all safety precautions have been read and understood. Keep away from heat/ sparks/ open flames/ hot surfaces. - No smoking. Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. Do not get in eyes, on skin, or on clothing. So not eat, drink, or smoke when using this product. Wash thoroughly after handling. Avoid contact with oxidizing agents (eg. Chlorine, chromic acid, etc.) Use personal protective equipment (gloves, respirators, etch.) as required.

Conditions for safe storage including any incompatibilities.

Store in a well-ventilated place. Keep container tightly closed. Deep cool. Protect from sunlight. Store away from heat. Store away form acids. Store away from oxidizing agents.

Section 8: Exposure Controls and Personal Protection

Occupational Exposure Limits:

Ingredient	CAS#	Agency	Limit Type
Ethylene glycol	107-21-1	ACGIH	CEIL (as aerosol): 100 mg/m ³
Ethylene glycol monobutyl ethe	er 111-76-2	ACGIH	TWA: 20 ppm
Methyl alcohol*	67-56-1	ACGIH	TWA: 200 ppm
			STEL: 250 ppm
		OSHA	TWA: 260 mg/m ³ (200 ppm)

*Can be absorbed through the skin.

ACGIH: Ethylene glycol (CAS# 107-21-1) is not classified as a human carcinogen.

ACGIH: Ethylene glycol monobutyl ether (CAS# 111-76-2) is classified as a confirmed animal carcinogen.

Engineering Controls:

Provide appropriate local exhaust ventilation for sanding, grinding or machining. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/ fume/ gas/ mist/ vapors/ spray. If ventilation is not adequate, use respiratory protection equipment.

Personal Protective Equipment (PPE):

Eye/face protection:

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. Safety Glasses with side shields or chemical splash goggles are recommended.

Skin/hand protection:

Select and use solvent resistant gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.

Respiratory protection:

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select either a full facepiece air-purifying respirator suitable for organic vapors and particulates or a half-facepiece/full-facepiece supplied-air respirator.

Section 9: Physical and Chemical Properties

Appearance: Clear, reddish-colored liquid

Odor: No data available

Odor threshold: No data available

pH: Not available

Melting point: >= 9°F

Boiling point: >-284°F

Flash Point: >=184°F

Evaporation rate: No data available

Flammability (solid, gas): Not Applicable

Flammable Limits (LEL): >=1.1 Flammable Limits (UEL): >=15.3 (estimated) Vapor Pressure: 0.1 mm Hg(@ 68°F)

Vapor Density: 2.1 (air = 1)

Specific Gravity: 1.1 (water = 1)

Solubility in Water: Complete

Partition coefficient: N-octanol/water: No data available

Autoignition temperature: No data available

Viscosity: No data available

Volatile Organic Compounds: 1,000 g/l

Percent volatile: 99.97%

Section 10: Stability and Reactivity

Reactivity: This material may be reactive with certain agents under certain conditions – see the remaining headings in this section.

Chemical Stability: Stable.

Possibility of hazardous reactions: Will not occur.

Conditions to avoid: Sparks and/or flames; Heat.

Incompatible materials: Strong oxidizing agents, Strong acids.

Hazardous decomposition products: None known.

Hazardous decomposition products during combustion: Formaldehyde, Carbon monoxide, Carbon dioxide.

Section 11: Toxicological Information

Ethylene Glycol:				
Acute Toxicity:				
Ingestion, Human	LD50 =1,600 mg/kg			
Dermal, Rabbit	9,530 mg/kg			
Skin Irritation:				
Rabbit	Minimal irritation			
Serious Eye Damage/Irritation:				
Rabbit	Mild irritant			
Skin Sensitization:				
Human	Some positive data exist, but are not su	ufficient for classification		
Germ Cell Mutagenicity				
In Vitro	Not mutagenic			
Carcinogenicity:				
Ingestion, multiple anin	nal species Not carcinogenic			
Reproductive and/or Developm				
•	S: Not toxic to female reproduction			
	S: Not toxic to male reproduction			
Mouse: Dermal, Ingest		mental data exist		
Mouse. Dermai, ingest	but are insufficient for o			
Specific Target Organ Toxicity – single exposure:				
Ingestion, Human:	Heart, Nervous System, Kidney	Causaa damaga ta		
ingestion, numan.		Causes damage to		
la se d'an a bhuar an	and/or Bladder, Respiratory System			
Ingestion, Human:	Central Nervous System	May cause drowsiness or dizziness		
	Depression			
Specific Target Organ Toxicity -				
Ingestion, Rat:	Kidney and/or Bladder, Vascular	Some positive data exist,		
	System, Heart, Hematopoietic	but are insufficient for classification		
	System, Liver, Immune System,			
	Muscles			
Ingestion, Mouse	Respiratory System	Some positive data exist,		
		but are insufficient for classification		

RTECS: KW2975000

Methyl Alcohol:

Acute Toxi		<u>.</u>			
		Oral, Human		143 mg/kg	
	220		or Respi	iratory: Dyspnea	
			ause ga		tation, nausea, vomiting, and diarrhea
		Oral, Rat		1,187 – 2,769 r	ng/kg
		Inhalation, Rat, Inhalation, Rat,		128.2 mg/l 87.6 mg/l	
		Dermal, Rabbit	OII	17,100 mg/kg	
				,	
Skin Corro					
Sł	kin	Rabbit	No skir	n irritation	
Serious Ev	ve Dai	mage / Eye Irrita	ition		
		Rabbit – No eye		n	
		Skin Sensitizatior zation Test (GPN		uinon Dia	
1010	aniiiiz	Does not cause			
		(OECD Test Gu			
	Muta	e e e i e i tra			
Germ Cell	mes Te		S Typh	imurium	Result: Negative
, .			e ijpii		1.000all 1.00gall10
in	Vitro	Assay	Fibrobl	ast	Result: Negative
M	utagei	nicity	Mouse	, male & female	Result: Negative
(ir	n vivo	mammalian bon	e-marro	ow cytogenic test	i, chromosomal analysis)
Carcinoge	nicity				
Not identified as a carcinogen by IARC, ACGIH, NTP, OSHA.					
Reproductive Toxicity Damage to fetus not classifiable.					
Fertility classification not available.					
Specific Organ Toxicity – single exposure Causes damage to organs.					
U.	auses	uanaye to olya			
Specific O	rgan T	Toxicity – repeate	ed expo	sure	

Specific Organ Toxicity – repeated exposure Not classified as specific target organ toxicant, repeated exposure

RTECS: PC1400000

If swallowed, may be fatal or cause blindness. Ingestion may cause headache, dizziness, drowsiness, metabolic acidosis, coma, seizure. Symptoms may be delayed. Damage of the: Liver, Kidney.

Ethylene Glycol Monobutyl Ether:

Acute Toxicity:		
Dermal, Rabbit	LD50	400 mg/kg
Inhalation, Rat, 4h	LC50	2.2 mg/l
Ingestion, Rat	LD50	560 mg/kg
Skin Corrosion/Irritation		
Rabbit	Irritant	

Serious Eye Damage/ Irritation Rabbit	Severe irritant
Skin Sensitization Guinea Pig	Not sensitizing
Germ Cell Mutagenicity in Vitro	Some positive data exist, but are insufficient for classification.
Carcinogenicity Inhalation, Multiple species	Some positive data exist, but are insufficient for classification.
Reproductive and/or Developmental B Dermal, Rat Ingestion, Rat Inhalation, multiple species	Effects Not toxic to development . Some positive developmental data exist, but are insufficient for classification. Some positive developmental data exist, but are insufficient for classification.
Target Organ(s) Specific Target Organ – single expose Dermal, Rabbit Endo	ure ocrine System, Liver, Kidney and/or Bladder, Blood Some positive data exist, but are insufficient for classification
Inhalation, Multiple animal sp	ecies May cause damage to organs
Inhalation, Human Central Nervous Sys Respiratory irritation	tem Depression May cause drowsiness or dizziness Some positive data exist, but are insufficient for classification.
Ingestion, Human Blood Kidney and/or Liver	Causes damage to organs Some positive data exist, but are insufficient for classification
Specific Target Organ – repeated exp Dermal, multiple animal spec blood	
Dermal, Rabbit endo	crine system All data are negative
Liver Som	cause damage to organs through prolonged or repeated exposure. e positive data exist, but are insufficient for classification. er Some positive data exist, but are insufficient for classification. Some positive data exist, but are insufficient for classification.
	ecies ses damage to organs through prolonged or repeated exposure. er Some positive data exist, but are insufficient for classification.

RTECS: K8575000

Section 12: Ecological Information

Ethylene Glycol:

Ethylene Glycol:
Toxicity to fish: LC50 – Oncorhynchus mykiss (rainbow trout) - 18,500mg/l – 96 h LC50 – Leuciscus idus (Golden orfe) - >10,000 mg/l – 48 h NOEC – Pimephales promelas (fathead minnow) – 32,000 mg/l – 7d NOEC – pimephales promelas (fathead minnow) – 39,140 mg/l – 96 h
Toxicity to daphnia EC50 – Daphnia magna – 74,000 mg/l – 24 h NOEC – Daphnia magna – 24,000 mg/l – 48 h LC50 – Daphnia magna – 41,000 mg/l – 48 h
Persistence and degradability No data available Ratio BOD/ThBOD – 0.78 %
Bioaccumulative potential Does not bioaccumulate. Bioaccumulation factor (BCF): 0.60
Mobility in soil No data available
Other adverse effects No data available
<u>Methanol:</u> Toxicity to fish LC50 – Lepomis macrochirus (Bluegill) – 15,400.0 mg/l – 96 h NOEC – Oryzias latipes – 7,900 mg/l – 200 h
Toxicity to daphnia EC50 – Daphnia magna - >10,000.0 mg/l – 48 h
Persistence and degradability aerobic – Exposure time 5d, Result: 72% - rapidly biodegradable
Bioaccumulative potential Bioconcentration factor (BCF): 1.0
Mobility in soil Will not adsorb on soil.
Stability in water Hydrolyses readily on contact with water.
Additional ecological information: Avoid release to the environment.
<u>Ethylene glycol monobutyl ether:</u> Toxicity to fish LC50 – other fish – 220 mg/l – 96 h
\pm \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot

Toxicity to daphnia

EC50 - Daphnia magna - 1,815 mg/l - 24 h

Persistence and degradability No data available Ratio BOD/ThBOD – 88%

Bioaccumulative potential No data available

Mobility in soil No data available

Other adverse effects No data available

Section 13: Disposal Considerations

Waste treatment methods:

Dispose of contents / container in accordance with the local/ regional/ national/ international regulations.

Product: This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging: Dispose of as unused product.

Section 14: Transport Information

DOT(US)

UN Number: 3082 Class: 9 Packing group: III Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Ethylene glycol) Reportable Quantity (RQ): 5000 lbs.

IMDG

Not dangerous goods

IATA

Not dangerous goods

Section 15: Regulatory Information

SARA 302 Components

No chemicals in this material are subject tot he reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313 2-Butoxyethanol CAS# 111-76-2 Revision Date: 1993-04-24

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

SARA 313 Toxic Chemicals subject to the reporting requirements of Section 313 and 40 CFR part 372 (EPCRA):

Íngredient	CAS No.	% by Weight
Ethylene Glycol	107-21-1	90 - 99
Methyl Alcohol	67-56-1	1 – 5
Ethylene Glycol Monobuty	/I Ether 111-76-2	1 – 5

TSCA Section 5

This material contains a chemical which is regulated by an EPA Significant New Use Rule: Reference: 40CFR721.4740

Ingredient	CAS No.	% by Weight
Sodium Nitrite	7632-00-0	<0.10

TSCA Section 12(b)

This material contains a chemical which requires export notification under TSCA Section 12(b): Regulation: Toxic Substances Control Act (TSCA) 5 SNUR or Consent Order Chemicals (ALKALI METAL NITRITES FOR USE IN METALWORKING FLUIDS CONTAINING AMINES)

Ingredient	CAS No.	% by Weight
Sodium Nitrite	7632-00-0	<0.10

State Right To Know Regulations

Ethylene Glycol, CAS# 107-21-1, is listed on the MA, NJ, and PA lists. Methanol, CAS# 67-56-1, is listed on the MA, NJ, and PA lists. Ethylene Glycol Monobutyl Ether, CAS# 111-76-2, is listed on the MA, NJ, and PA lists. Sodium Nitrite, CAS# 7632-00-0, is listed on the MA, NJ, and PA Lists.

California Prop. 65 Components

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

Ingredient	CAS No.	Revision Date
Methanol	67-56-1	2012-03-16

Section 16: Other Information

Disclaimer of Liability:

Caution! Do not use SPI Supplies products or materials in applications involving implantation within the body; direct or indirect contact with the blood pathway; contact with bone, tissue, tissue fluid, or blood; or prolonged contact with mucous membranes. Products offered by SPI Supplies are not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. SPI Supplies will not provide to customers making devices for such applications any notice, certification, or information necessary for such medical device use required by US FDA (Food and Drug Administration) regulation or any other statute. SPI Supplies and Structure Probe, Inc. make no representation, promise, express warranty or implied warranty concerning the suitability of these materials for use in implantation in the human body or in contact with internal body tissues of fluids.

The information and recommendations set forth above are taken from sources believed to be accurate as of the

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