

Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

- Product Name** • **Thinner for Silver Conductive Paint**
- Synonyms** • Solvent mixture; Thinner for SPI Silver Colloidal Suspension
- Product Code** • 05004-AB; 05004-DA; 05004-RA

1.2 Relevant identified uses of the substance or mixture and uses advised against

- Relevant identified use(s)** • Thinner for SPI Supplies' 05001, 05002 Thinner for Silver Conductive Paint

1.3 Details of the supplier of the safety data sheet

- Manufacturer** • SPI Supplies Division Structure Probe, Inc.
206 Garfield Ave.
West Chester, PA 19380
United States
<http://www.2spi.com>
SDS@2spi.com
- Telephone (General)** • 1-(610)-436-5400

1.4 Emergency telephone number

- Manufacturer** • 1-(800)-424-9300 - Chemtrec
- Manufacturer** • 1-(703)-741-5970 - Worldwide

Section 2: Hazards Identification

EU/EEC

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 2015/830]

2.1 Classification of the substance or mixture

- CLP**
- Flammable Liquids 2 - H225
 - Aspiration 1 - H304
 - Skin Irritation 2 - H315
 - Eye Irritation 2 - H319
 - Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects - H336
 - Reproductive Toxicity 2 - H361d
 - Specific Target Organ Toxicity Repeated Exposure 2 - H373
 - EUH066

2.2 Label Elements

CLP

DANGER



- Hazard statements** • H225 - Highly flammable liquid and vapour
H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H361d - Suspected of damaging the unborn child.
H373 - May cause damage to organs through prolonged or repeated exposure.
EUH066 - Repeated exposure may cause skin dryness or cracking.

Precautionary statements

- Prevention** • P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P233 - Keep container tightly closed.
P235 - Keep cool.
P240 - Ground and/or bond container and receiving equipment.
P241 - Use explosion-proof electrical/ventilating/lighting/equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P260 - Do not breathe mist, vapours and/or spray.
P264 - Wash thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P281 - Use personal protective equipment as required.
- Response** • P370+P378 - In case of fire: Use appropriate media for extinction.
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P321 - Specific treatment, see supplemental first aid information.
P362 - Take off contaminated clothing and wash before reuse.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P310 - Immediately call a POISON CENTER or doctor/physician.
P331 - Do NOT induce vomiting.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.
- Storage/Disposal** • P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P235 - Keep cool.
P405 - Store locked up.
P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other Hazards

- CLP**
- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

- OSHA HCS 2012**
- Flammable Liquids 2
Aspiration 1
Skin Irritation 2
Eye Irritation 2
Acute Toxicity Inhalation 4
Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation
Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects
Germ Cell Mutagenicity 1B

Reproductive Toxicity 2
 Specific Target Organ Toxicity Repeated Exposure 1

2.2 Label elements

OSHA HCS 2012

DANGER



- Hazard statements** • Highly flammable liquid and vapour
 May be fatal if swallowed and enters airways
 Causes skin irritation
 Causes serious eye irritation
 Harmful if inhaled
 May cause respiratory irritation
 May cause drowsiness or dizziness
 May cause genetic defects.
 Suspected of damaging fertility or the unborn child.
 Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

- Prevention** • Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
 Keep container tightly closed.
 Keep cool.
 Ground and/or bond container and receiving equipment.
 Use explosion-proof electrical/ventilating/lighting/equipment.
 Use only non-sparking tools.
 Take precautionary measures against static discharge.
 Do not breathe mist, vapours and/or spray.
 Wash thoroughly after handling.
 Do not eat, drink or smoke when using this product.
 Use only outdoors or in a well-ventilated area.
 Wear protective gloves/protective clothing/eye protection/face protection.
- Response** • In case of fire: Use to extinguish.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 Call a POISON CENTER or doctor/physician if you feel unwell.
 If on skin: Wash with plenty of water .
 Specific treatment, see supplemental first aid information.
 Take off contaminated clothing and wash before reuse.
 If skin irritation occurs: Get medical advice/attention.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 If eye irritation persists: Get medical advice/attention.
 IF SWALLOWED: Immediately call a POISON CENTER/doctor .
 Immediately call a POISON CENTER or doctor/physician.
 Do NOT induce vomiting.
 IF exposed or concerned: Get medical advice/attention.
 Get medical advice/attention if you feel unwell.
- Storage/Disposal** • Store in a well-ventilated place. Keep container tightly closed.
 Keep cool.
 Store locked up.
 Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Section 3 - Composition/Information on Ingredients

3.1 Substances

- Material does not meet the criteria of a substance.

3.2 Mixtures

Composition					
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive	Comments
Toluene	CAS:108-88-3 EC Number:203-625-9 EU Index:601-021-00-3	20% TO 30%	Ingestion/Oral-Rat LD50 • 636 mg/kg Skin-Rabbit LD50 • 14100 µL/kg Inhalation-Rat LC50 • 49 g/m ³ 4 Hour(s)	EU CLP: Annex VI, Table 3.1: Flam. Liq. 2, H225; Skin Irrit. 2, H315; Repr. 2, H361d; STOT SE 3: Narc., H336; STOT RE 2, H373; Asp. Tox. 1, H304 OSHA HCS 2012: Flam. Liq. 2; Acute Tox. 4 (Orl); Skin Irrit. 2; Eye Irrit. 2; Muta. 1B; Repr. 2; STOT SE 3: Narc.; STOT RE 1 (CNS, Inhl); Asp. Tox. 1	NDA
Ethyl acetate	CAS:141-78-6 EC Number:205-500-4 EU Index:607-022-00-5	20% TO 30%	Ingestion/Oral-Rat LD50 • 5620 mg/kg Skin-Rabbit LD50 • >20 mL/kg Inhalation-Rat LC50 • 1600 ppm 8 Hour(s)	EU CLP: Annex VI, Table 3.1: Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3: Narc., H336; EUH066 OSHA HCS 2012: Flam. Liq. 2; Acute Tox. 3 (Inhl); Eye Irrit. 2; STOT SE 3: Narc.; STOT SE 3: Resp. Irrit.	NDA
Acetone	CAS:67-64-1 EC Number:200-662-2 EU Index:606-001-00-8	20% TO 30%	Ingestion/Oral-Rat LD50 • 5800 mg/kg Inhalation-Rat LC50 • 50100 mg/m ³ 8 Hour(s)	EU CLP: Annex VI, Table 3.1: Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3: Narc., H336 OSHA HCS 2012: Flam. Liq. 2; Eye Irrit. 2; Repr. 2 (Inhl); STOT SE 3: Narc.	NDA
n-Butyl acetate	CAS:123-86-4 EC Number:204-658-1 EU Index:607-025-00-1	15% TO 20%	Ingestion/Oral-Rat LD50 • 10768 mg/kg Skin-Rabbit LD50 • >17600 mg/kg	EU CLP: Annex VI, Table 3.1: Flam. Liq. 3, H226; STOT SE 3: Narc., H336; EUH066 OSHA HCS 2012: Flam. Liq. 2; Skin Irrit. 2; Eye Irrit. 2B; STOT SE 3: Narc.; STOT SE 3: Resp. Irrit. (Inhl)	NDA

See Section 16 for full text of H-statements.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

- Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.

Skin

- Wash skin with soap and water. Remove and isolate contaminated clothing. If irritation develops and persists, get medical attention.

Eye

- In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.

Ingestion

- If conscious and alert, give 2-4 cupfuls of milk or water. Do NOT induce vomiting. Obtain medical attention immediately if ingested.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media • Dry Chemical, CO₂, water foam, "alcohol" foam, water spray to cool fire-exposed containers and disperse vapor.

Unsuitable Extinguishing Media • Do not use a direct stream of water.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards • HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Containers may explode when heated. Many liquids are lighter than water. Vapors may form explosive mixtures with air. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapors may travel to source of ignition and flash back. Vapor explosion hazard indoors, outdoors or in sewers. Runoff to sewer may create fire or explosion hazard.

Hazardous Combustion Products • CO_x (Carbon Dioxide / Carbon Monoxide), irritating and toxic fumes and gases.

5.3 Advice for firefighters

- Structural firefighters' protective clothing will only provide limited protection. Wear positive pressure self-contained breathing apparatus (SCBA). Move containers from fire area if you can do it without risk. LARGE FIRES: Cool containers with flooding quantities of water until well after fire is out.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions • CAUTION: Victim may be a source of contamination. Do not walk through spilled material. Use appropriate Personal Protective Equipment (PPE)

Emergency Procedures • As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. LARGE SPILL: Consider initial downwind evacuation for at least 300 meters (1000 feet) ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering.

6.2 Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures • Stop leak if you can do it without risk. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material. A vapor suppressing foam may be used to reduce vapors. All equipment used when handling the product must be grounded. LARGE SPILLS: Dike far ahead of liquid spill for later disposal. LARGE SPILLS: Water spray may reduce vapor; but may not prevent ignition in

closed spaces.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Use only in well ventilated areas. Keep away from heat, sparks, and flame. Do not use sparking tools. Take precautionary measures against static charges. All equipment used when handling the product must be grounded. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe the mist, vapours and/or spray. Avoid contact with skin, eyes, and clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Empty containers should not be re-used. Because empty containers may retain product residue and flammable vapors, keep away from heat, sparks and flame. Do not cut, puncture or weld on or near the empty container.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Store in a flammables area, away from incompatible materials. Store in a tightly closed container. Store in a cool, dry, well-ventilated place. Keep away from heat, sparks, and flame.

7.3 Specific end use(s)

- This item is not being offered for clinical or diagnostic applications, agricultural uses or for human or animal consumption. Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines				
	Result	ACGIH	NIOSH	OSHA
n-Butyl acetate (123-86-4)	TWAs	150 ppm TWA	150 ppm TWA; 710 mg/m3 TWA	150 ppm TWA; 710 mg/m3 TWA
	STELs	200 ppm STEL	200 ppm STEL; 950 mg/m3 STEL	Not established
Toluene (108-88-3)	Ceilings	Not established	Not established	300 ppm Ceiling
	TWAs	20 ppm TWA	100 ppm TWA; 375 mg/m3 TWA	200 ppm TWA
	STELs	Not established	150 ppm STEL; 560 mg/m3 STEL	Not established
Acetone (67-64-1)	TWAs	250 ppm TWA	250 ppm TWA; 590 mg/m3 TWA	1000 ppm TWA; 2400 mg/m3 TWA
	STELs	500 ppm STEL	Not established	Not established
Ethyl acetate (141-78-6)	TWAs	400 ppm TWA	400 ppm TWA; 1400 mg/m3 TWA	400 ppm TWA; 1400 mg/m3 TWA

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation 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. Use explosion-proof electrical/ventilating/lighting/equipment.

Personal Protective Equipment

Respiratory

- Follow the OSHA respirator regulations found in 29 CFR 1910.134. Use a NIOSH/MSHA approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear safety goggles.

- Skin/Body**
 - Wear appropriate gloves.
- Environmental Exposure Controls**
 - Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.
- Additional Protection Measures**
 - An eyewash station and emergency shower must be available to the work station.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene
 NIOSH = National Institute of Occupational Safety and Health
 OSHA = Occupational Safety and Health Administration

STEL = Short Term Exposure Limits are based on 15-minute exposures
 TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Material Description			
Physical Form	Liquid	Appearance/Description	Clear, colorless liquid with sweet odor.
Color	Clear, colorless.	Odor	Sweet
Odor Threshold	Data lacking		
General Properties			
Boiling Point	Ethyl Acetate - 170.6°F @ 760 mmHg; N-Butyl Acetate - 257°F @ 760 mmHg; Acetone - 133.2°F @ 760 mmHg; Toluene - 232°F @ 760 mmHg	Melting Point/Freezing Point	Ethyl Acetate: -83°C; N-Butyl Acetate: -107°C; Acetone: -139.6°C; Toluene: -139°C
Decomposition Temperature	Data lacking	pH	7 Acetone
Specific Gravity/Relative Density	Ethyl Acetate: 0.9; N-Butyl Acetate: 0.88; Acetone: 0.79; Toluene: 0.9	Water Solubility	Ethyl Acetate: Moderate; N-Butyl Acetate: Slight; Acetone: Soluble; Toluene: Insoluble
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	Ethyl Acetate: 100 mmHg N-Butyl Acetate: 15 mmHg Acetone: 189 mmHg Toluene: 36.7 mmHg	Vapor Density	Ethyl Acetate: 3 (Air=1); N-Butyl Acetate: 4 (Air=1); Acetone: 2 (Air=1); Toluene: 3.1 (Air=1)
Evaporation Rate	Ethyl Acetate: 6 (n-Butyl Acetate = 1); N-Butyl Acetate: 5.8(CCL4/1) (n-Butyl Acetate = 1); Acetone: 7.7 (n-Butyl Acetate = 1); Toluene: 2.4 (n-Butyl Acetate = 1)		
Flammability			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Data lacking		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Heat, incompatible materials, ignition sources, contact with ignition source, strong oxidants, plastics, resins, rubber.

10.5 Incompatible materials

- Water; Oxidizing agents; Reducing agents; Strong acids; Nitrates; Caustics and strong bases; Potassium-tertbutoxide; Nitrogen tetroxide; Nitric acid + sulfuric acid; Silver perchlorate; Sodium difluoride; Chlorosulfonic acid; Lithium aluminum hydride + 2-Chloromethyl furan; Lithium tetra hydroaluminate; Oleum.

10.6 Hazardous decomposition products

- Ox (Carbon Dioxide / Carbon Monoxide), irritating and toxic fumes and gases.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

		Components
Acetone (20% TO 30%)	67- 64- 1	<p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 5800 mg/kg; Inhalation-Rat LC50 • 50100 mg/m³ 8 Hour(s); Skin-Guinea Pig LD50 • >9400 µL/kg;</p> <p>Irritation: Eye-Rabbit • 20 mg 24 Hour(s) • Moderate irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation;</p> <p>Mutagen: Sex chromosome loss & nondisjunction • Inhalation-Mouse • 12 g/L; Cytogenetic analysis • Unreported Route-Hamster • Fibroblast (Somatic cell) • 40 g/L;</p> <p>Reproductive: Ingestion/Oral-Rat TDLo • 273 g/kg (13W male); <i>Reproductive Effects:Paternal Effects:Spermatogenesis</i>; Inhalation-Mouse TCLo • 6600 ppm (6-17D preg); <i>Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus)</i>; <i>Reproductive Effects:Effects on Fertility:Post-implantation mortality</i>; Inhalation-Rat TCLo • 11000 ppm (6-19D preg); <i>Reproductive Effects:Specific Developmental Abnormalities:Other developmental abnormalities</i>; Inhalation-Rat TCLo • 30 mg/m³ (1-13D preg); <i>Reproductive Effects:Effects on Fertility:Pre-implantation mortality</i>; <i>Reproductive Effects:Effects on Fertility:Post-implantation mortality</i>; <i>Reproductive Effects:Effects on Embryo or Fetus:Fetal death</i></p>
n-Butyl acetate (15% TO 20%)	123 -86- 4	<p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 10768 mg/kg; <i>Behavioral:Somnolence (general depressed activity)</i>; <i>Lungs, Thorax, or Respiration:Other changes</i>; <i>Liver:Other changes</i>; Skin-Rabbit LD50 • >17600 mg/kg;</p> <p>Irritation: Eye-Rabbit • 100 mg • Moderate irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Moderate irritation;</p> <p>Multi-dose Toxicity: Inhalation-Rat TCLo • 1500 ppm 6 Hour(s) 13 Week(s)-Intermittent; <i>Behavioral:Somnolence (general depressed activity)</i>; <i>Nutritional and Gross Metabolic:Gross Metabolite Changes:Weight loss or decreased weight gain</i>; Inhalation-Rat TCLo • 1500 ppm 6 Hour(s) 13 Week(s)-Continuous; <i>Behavioral:Somnolence (general depressed activity)</i>; <i>Behavioral:Food intake (animal)</i>; <i>Nutritional and Gross Metabolic:Gross Metabolite Changes:Weight loss or decreased weight gain</i>;</p> <p>Reproductive: Inhalation-Rat TCLo • 1500 ppm 7 Hour(s)(7-16D preg); <i>Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus)</i>; <i>Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system</i>; Inhalation-Rat TCLo • 1500 ppm (6-20D preg); <i>Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus)</i></p>
		<p>Acute Toxicity: Ingestion/Oral-Guinea Pig LD50 • 5500 mg/kg; <i>Behavioral:Somnolence (general depressed activity)</i>; <i>Behavioral:Changes in motor activity (specific assay)</i>; <i>Behavioral:Coma</i>; Ingestion/Oral-Rat LD50 • 5620 mg/kg; Inhalation-</p>

Ethyl acetate (20% TO 30%)	141 -78- 6	<p>Rat LC50 • 200 g/m³; Behavioral:Somnolence (general depressed activity); Lungs, Thorax, or Respiration:Acute pulmonary edema; Gastrointestinal:Changes in structure or function of salivary glands; Inhalation-Rat LC50 • 1600 ppm 8 Hour(s); Inhalation-Human TClO • 400 ppm; Sense Organs and Special Senses:Olfaction:Other changes; Sense Organs and Special Senses:Eye:Conjunctive irritation; Lungs, Thorax, or Respiration:Other changes; Skin-Rabbit LD50 • >20 mL/kg;</p> <p>Irritation: Eye-Human • 400 ppm;</p> <p>Multi-dose Toxicity: Inhalation-Dog TClO • 22 g/m³ 40 Minute(s) 4 Week(s)-Intermittent; Behavioral:Ataxia; Lungs, Thorax, or Respiration:Respiratory stimulation; Nutritional and Gross Metabolic:Changes in Chemistry or Temperature:Body temperature decrease; Inhalation-Rat TClO • 1500 ppm 90 Day(s)-Intermittent; Sense Organs and Special Senses:Olfaction:Change in sensation of smell; Sense Organs and Special Senses:Olfaction:Other changes;</p> <p>Mutagen: Cytogenetic analysis • Unreported Route-Hamster • Fibroblast (Somatic cell) • 9 g/L</p>
Toluene (20% TO 30%)	108 -88- 3	<p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 636 mg/kg; Inhalation-Rat LC50 • 49 g/m³ 4 Hour(s); Inhalation-Human TClO • 1500 mg/m³ 8 Hour(s); Sense Organs and Special Senses:Eye:Lacrimation; Sense Organs and Special Senses:Eye:Conjunctive irritation; Behavioral:Ataxia; Inhalation-Human TClO • 200 ppm; Brain and Coverings:Recordings from specific areas of CNS; Behavioral:Antipsychotic; Blood:Changes in bone marrow not included above; Inhalation-Man TClO • 50 ppm; Kidney, Ureter, and Bladder:Other changes in urine composition; Skin-Rabbit LD50 • 14100 µL/kg;</p> <p>Irritation: Eye-Rabbit • 2 mg 24 Hour(s) • Severe irritation; Skin-Rabbit • 20 mg 24 Hour(s) • Moderate irritation;</p> <p>Multi-dose Toxicity: Inhalation-Mouse TClO • 250 ppm 4 Day(s)-Continuous; Behavioral:Convulsions or effect on seizure threshold; Behavioral:Abuse; Inhalation-Mouse TClO • 50 ppm 12 Week(s)-Intermittent; Brain and Coverings:Other degenerative changes; Inhalation-Rat TClO • 10 ppm 6 Hour(s) 13 Week(s)-Intermittent; Brain and Coverings:Other degenerative changes; Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels:Multiple enzyme effects;</p> <p>Mutagen: Micronucleus test • Ingestion/Oral-Mouse • 200 mg/kg; Sister chromatid exchange • Inhalation-Human • 252 µg/L 19 Year(s); Cytogenetic analysis • Inhalation-Rat • 5400 µg/m³ 16 Week(s)-Intermittent;</p> <p>Reproductive: Inhalation-Mouse TClO • 500 mg/m³ 24 Hour(s)(6-13D preg); Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus); Inhalation-Mouse TClO • 200 ppm 7 Hour(s)(7-16D preg); Reproductive Effects:Specific Developmental Abnormalities:Urogenital system</p>

GHS Properties	Classification
Acute toxicity	EU/CLP • Data lacking OSHA HCS 2012 • Acute Toxicity - Inhalation 4 - ATEmix (Inhl) = 7542 ppmV 4h (Gases)
Skin corrosion/Irritation	EU/CLP • Skin Irritation 2 OSHA HCS 2012 • Skin Irritation 2
Serious eye damage/Irritation	EU/CLP • Eye Irritation 2 OSHA HCS 2012 • Eye Irritation 2
Skin sensitization	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Respiratory sensitization	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Aspiration Hazard	EU/CLP • Aspiration 1 OSHA HCS 2012 • Aspiration 1
Carcinogenicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Germ Cell Mutagenicity	EU/CLP • Data lacking OSHA HCS 2012 • Germ Cell Mutagenicity 1B
Toxicity for Reproduction	EU/CLP • Toxic to Reproduction 2 OSHA HCS 2012 • Toxic to Reproduction 2
STOT-SE	EU/CLP • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects OSHA HCS 2012 • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects; Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation

STOT-RE

EU/CLP • Specific Target Organ Toxicity Repeated Exposure 2
 OSHA HCS 2012 • Specific Target Organ Toxicity Repeated Exposure 1

Potential Health Effects

Inhalation

Acute (Immediate)

- Harmful if inhaled. May cause respiratory irritation. May affect the central nervous system. Symptoms may include dizziness, drowsiness, lethargy, coma and death.

Chronic (Delayed)

- No data available

Skin

Acute (Immediate)

- Causes skin irritation.

Chronic (Delayed)

- Repeated exposure may cause skin dryness or cracking.

Eye

Acute (Immediate)

- Causes serious eye irritation.

Chronic (Delayed)

- No data available

Ingestion

Acute (Immediate)

- Material may be aspirated into lungs during ingestion and/or subsequent vomiting. Aspiration of this material will cause severe lung injury, chemical pneumonitis, pulmonary edema or death.

Chronic (Delayed)

- No data available

Other

Chronic (Delayed)

- CNS depression has been reported to occur in chronic abusers exposed to high levels of toluene. Symptoms include drowsiness, ataxia, tremors, cerebral atrophy, nystagmus (involuntary eye movements), and impaired speech, hearing, and vision. Neurobehavioral effects have been observed in occupationally exposed workers.

Mutagenic Effects

- Repeated and prolonged exposure may cause mutagenic effects.

Reproductive Effects

- Repeated and prolonged exposure may cause reproductive effects.

Key to abbreviations

LC = Lethal Concentration

LD = Lethal Dose

TC = Toxic Concentration

TD = Toxic Dose

Section 12 - Ecological Information

12.1 Toxicity

- Material data lacking.

12.2 Persistence and degradability

- Material data lacking.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Material data lacking.

12.5 Results of PBT and vPvB assessment

- No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN1263	Paint related material	3	III	NDA
IMO/IMDG	UN1263	PAINT RELATED MATERIAL	3	III	NDA
IATA/ICAO	UN1263	Paint related material	3	III	NDA

14.6 Special precautions for user

- None specified.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

- Data lacking.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications

- Acute, Chronic, Fire

Inventory						
Component	CAS	Canada DSL	Canada NDSL	EU EINECS	EU ELNICS	TSCA
Acetone	67-64-1	Yes	No	Yes	No	Yes
Ethyl acetate	141-78-6	Yes	No	Yes	No	Yes
n-Butyl acetate	123-86-4	Yes	No	Yes	No	Yes
Toluene	108-88-3	Yes	No	Yes	No	Yes

Canada

Labor

Canada - WHMIS 1988 - Classifications of Substances

• Acetone	67-64-1	B2, D2B
• n-Butyl acetate	123-86-4	B2
• Ethyl acetate	141-78-6	B2
• Toluene	108-88-3	B2, D2A, D2B

Canada - WHMIS 1988 - Ingredient Disclosure List

• Acetone	67-64-1	1 %
• n-Butyl acetate	123-86-4	1 %
• Ethyl acetate	141-78-6	1 %
• Toluene	108-88-3	1 %

Environment

Canada - CEPA - Priority Substances List

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	Priority Substance List 1 (substance not considered toxic)

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Acetone	67-64-1	5000 lb final RQ; 2270 kg final RQ
• n-Butyl acetate	123-86-4	5000 lb final RQ (listed under Butyl acetate); 2270 kg final RQ (listed under Butyl acetate)
• Ethyl acetate	141-78-6	5000 lb final RQ; 2270 kg final RQ
• Toluene	108-88-3	1000 lb final RQ; 454 kg final RQ

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Acetone	67-64-1	Not Listed
-----------	---------	------------

• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	1.0 % de minimis concentration

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	Not Listed

United States - California**Environment****U.S. - California - Proposition 65 - Carcinogens List**

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	developmental toxicity, 1/1/1991

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	7000 µg/day MADL (level represents absorbed dose)

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed
• Toluene	108-88-3	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Acetone	67-64-1	Not Listed
• n-Butyl acetate	123-86-4	Not Listed
• Ethyl acetate	141-78-6	Not Listed

• Toluene

108-88-3

Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

15.3 Other Information

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

Section 16 - Other Information

Relevant Phrases (code & full text)

- H226 - Flammable liquid and vapour

Revision Date

- 09/January/2017

Preparation Date

- 30/March/2016

Disclaimer/Statement 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 date hereof, however SPI Supplies and Structure Probe, Inc. make no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assume no liability to any user thereof. The information contained in this sheet does not constitute a hazard assessment and should not be used in place of the user's own assessment of work place risks as required by other health and safety legislation. Be aware of the Structure Probe, Inc. Copyright Policy. Structure Probe, Inc. grants a nonexclusive license to make unlimited copies of this safety sheet for internal use only. Quite obviously, this information would pertain only to this material when purchased from SPI Supplies as product from other sources, with other ingredients and impurity levels could have substantially different properties.

Key to abbreviations

NDA = No Data Available