

Material Safety Data Sheet

[SPI #05004-AB; 05004-DA; 05004-RA Thinner Silver Paint](#)

Section 01: Identification

Date Effective... January 8, 2009
(most recent revision)

Chemical Names/Synonyms... Solvent mixture

Chemical family..... Acetone, Ethyl Acetate,
N-Butyl Acetate, Toluene

Emergencies

Use Only #'s:

Contacting CHEMTREC 24 Hour Emergency
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 #05004 Thinner for SPI Supplies Silver Paint
(Formulated for use with SPI# 05001 and 05002 Silver Paint)

CAS #'s..... Mixture

Chemical Formula..... Mixture

Section 02: Composition information on Ingredients

CAS #..... 67-64-1 Acetone - More than 20%
123-86-4 N-butyl acetate - More than 15%
141-78-6 Ethyl acetate - More than 20%
108-88-3 Toluene - More than 20%

Section 03: Hazards Identification

Clear, colorless liquid. Warning! Flammable liquid and vapor.

Potential health effects (acute and chronic): Causes Eye Irritation. Causes respiratory tract and digestive tract irritation. Harmful or fatal if swallowed. May cause central nervous system depression. May cause chemical conjunctivitis and corneal damage. May cause skin sensitization. May cause cyanosis of the extremities. Breathing vapors may cause drowsiness and dizziness. May cause central nervous system depression. May cause liver and kidney damage. Prolonged or repeated contact may dry the skin and cause irritation or defatting of the skin. Aspiration hazard if swallowed. Can enter lungs and cause damage. Poison. May be absorbed through intact skin. Vapor harmful. This substance has caused adverse reproductive and fetal effects in animals.

Target Organs:

kidneys, liver, central nervous system, respiratory system, eyes, skin.



Symptoms of exposure:

Effects of eye exposure: Causes eye irritation. May cause chemical conjunctivitis and corneal damage. Vapors may cause eye irritation.

Effects of skin contact: May cause skin irritation. May cause skin sensitization. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. May cause cyanosis of the extremities. May be absorbed through the skin.

Effects of ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver and kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Aspiration hazard. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.

Effects of inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. Aspiration may lead to pulmonary edema. Vapors may cause dizziness or suffocation. May cause motor incoordination and speech abnormalities. May cause liver and kidney damage. overexposure may cause dizziness, tremors, restlessness, rapid heart beat, increased blood pressure, hallucinations, acidosis, kidney failure.

Chronic Effects: Chronic exposure may produce anemia, leukocytosis, cloudy swelling, and fatty degeneration of the viscera. May cause liver and kidney damage. May cause fetal effects. May cause cardiac sensitization and severe heart abnormalities.

Section 04: First Aid Measures

Emergency and first aid procedures:

Get medical assistance for all cases of over-exposure.

Skin:

Get medical aid if irritation develops or persists. Flush skin with plenty of soap and water for at least 15 minutes, while removing contaminated clothing and shoes. Wash thoroughly before reusing.

Eyes:

Get medical aid immediately. Immediately flush thoroughly with water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Do not allow victim to rub or keep eyes closed.

Inhalation:

Get medical aid immediately. Remove to fresh air immediately. Artificial respiration if breathing has stopped. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased, apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Ingestion:

Do NOT induce vomiting. If conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Notes to Physician:

Treat symptomatically and supportively.

Section 05: Fire Fighting Measures

Flash Point.....n/a

Autoignition Temperature: . . .n/a

Explosion Limits n/a

NFPA Rating: (estimated) Health: 1; Flammability: 3; Instability: 0

Fire Extinguishing Media:

For small fires use dry chemical, CO₂, or "alcohol" foam, water spray to cool fire-exposed containers and disperse vapor; water on fire itself may be ineffective. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water. Cool containers with flooding quantities of water until well after fire is out.

Firefighting Procedure:

Wear self-contained breathing apparatus in pressure-demand, MSHA/NIOSH approved or equivalent, full protective gear.

Fire and explosion hazards:

Dangerous fire and explosion hazard. Vapors may form an explosive mixture with air. Vapor can travel distance to ignition source and flash back. During a fire, thermal decomposition or combustion may generate irritating and highly toxic gases. Flammable mixture. Can release vapors that form explosive mixtures with air. Hot organic chemical vapors or mists are susceptible to sudden spontaneous combustion when mixed with air. Material is lighter than water and a fire may be spread by the use of water. Containers may explode in the heat of a fire. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Section 06: Accidental Release Measures**Spill Response:**

General Information: Wear suitable protective equipment listed under exposure/personal protection, including self contained breathing apparatus.

Spills/Leaks: Avoid runoff into storm sewers and ditches which lead to waterways. Avoid all sources of ignition. Absorb spill with an absorbent, non-combustible material such as earth, sand or vermiculite and place in suitable container for proper disposal, using a spark-proof tool. A vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.

Section 07: Handling and Storage**Handling:**

Use only in a well-ventilated area. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin and clothing. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with heat, sparks and flame. Empty containers may contain residue - do not pressurize, or expose empty containers to heat, sparks or open flames. Do not take internally. Eye wash and safety equipment should be readily available.

Storage:

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

Section 08: Exposure Controls and Personal Protection

An eyewash facility and a safety shower should be available. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Airborne Exposure Limits:

Chemical Name	ACGIH	NIOSH	OSHA - Final PEL
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Ethyl Acetate	400 ppm TWA	400 ppm TWA	400ppm TWA
	1400 mg/m ³ TWA	1400 mg/m ³ TWA	
	2000 ppm IDHL		

N-Butyl Acetate	150 ppm TWA	150 ppm TWA	150 ppm TWA
	200 ppm STEL	710 mg/m ³ TWA	710 mg/m ³ TWA
	1700 ppm IDHL		

Acetone	500 ppm TWA	250 ppm TWA	1000 ppm TWA
	750 ppm STEL	590 mg/m ³ TWA	2000 mg/m ³ TWA
	2500 ppm IDHL		

Toluene 50 ppm TWA 100 ppm TWA 200 ppm TWA
 375 mg/m³ TWA C 300 ppm
 500 ppm IDHL C 300 ppm

OSHA Vacated PELs:

Ethyl Acetate: 400 ppm TWA; 1400 mg/m³ TWA
 N-Butyl Acetate: 150 ppm TWA; 710 mg/m³ TWA; 200ppm STEL; 950 mg/m³ = STEL
 Acetone: 750 ppm TWA; 1800 mg/m³ TWA; 1000ppm STEL; 2400 mg/m³ = STEL
 Toluene: 100 ppm TWA; 375 mg/m³ TWA; 150ppm STEL; 560 mg/m³ = STEL

Personal Protective Equipment:

Eyes: Wear chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or the European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in **29CFR 1910.134** or the European Standard EN149. Always use a NIOSH or European Standard approved respirator when necessary.

Section 09: Physical and Chemical Properties

	Ethyl Acetate	N-Butyl Acetate	Acetone	Toluene
Boiling Point.(760mm Hg).	170.6°F	257°F	133.2°F	232°F
Formula Weight..(g/mol)..	88	116	58	92
pH (Liquids Only).....	n/a	n/a	7	n/a
Melting Point.....	-83°C	-107°C	-139.6°C	-139°C
Vapor Pressure.(mm Hg)...	100	15	189	36.7
Vapor Density/Air is 1...	3.0	4.0	2.0	3.1
Solubility In Water.....	moderate	slight	soluble	insoluble
Appearance and Color.....	Mixture is a clear, colorless liquid			
Specific Gravity(H ₂ O=1):	0.9	0.88	0.79	0.9
Evaporation Rate	6.0	5.8(CCL4/1)	7.7	2.4
	(in N-Butyl acetate unless otherwise noted)			
Odor.....	Mixture has a sweet smell			

NFPA Rating (estimated) Health 1; Flammability 3; Instability 0

Section 10 Stability and Reactivity

Stable: Stable at room temperature in closed containers under normal storage and handling conditions. May form explosive mixtures with air.

Hazardous Polymerization: Has not been reported.

Hazardous Decomposition Products: COx (Carbon Dioxide / Carbon Monoxide), irritating and toxic fumes and gases

Conditions to avoid: Heat, incompatible materials, ignition sources, contact with ignition source, strong oxidants, plastics, resins, rubber.

Materials to avoid: Water; Oxidizing agents; Reducing agents; Strong acids; Nitrates; Caustics and strong bases; Potassium-tert-butoxide; Nitrogen tetroxide; Nitric acid + sulfuric acid; Silver perchlorate; Sodium difluoride; Chlorosulfonic acid; Lithium aluminum hydride + 2-Chloromethyl furan; Lithium tetra hydroaluminum; Oleum.

Section 11: Toxicological Information

RTECS #:

CAS# 141-78-6: AH5425000

CAS# 123-86-4: AF7350000

CAS# 67-64-1: AL3150000

CAS# 108-88-3: XS5250000

Toxicity data:	CAS# 141-78-6	CAS# 123-86-4	CAS# 67-64-1	CAS# 108-88-3
Draize test, Rabbit, eye:	n/a	100mg Moderate	20mg Severe	870ug Mild
Draize test, Rabbit, eye:	n/a	n/a	20mg/24H Mod.	2 mg/24H Severe
Draize test, Rabbit, skin:	n/a	500mg/24H Mod.	500mg/24H Mild	435 mg Mild
Draize test, Rabbit, skin:	n/a	n/a	n/a	500 mg Moderate
Draize test, Rabbit, skin:	n/a	n/a	n/a	20mg/24H Mod.
Inhalation, Mouse LC50:	45 gm/m ³ /2H	6 gm/m ³ /2H	44gm/m ³ /4H	400 ppm/24H
Inhalation, rat LC50:	200gm/m ³	390 ppm/4H	50100mg/m ³ /8H	49 gm/m ³ /4H
Oral, Mouse LD50:	4100mg/kg	6 gm/kg	3 gm/kg	n/a
Oral, Rabbit LD50:	4935mg/kg	3200 mg/kg	5340 mg/kg	n/a
Oral, rat LD50:	5620mg/kg	10768 mg/kg	5800 mg/kg	636 mg/kg
Skin, rabbit LD50:	>20mL/kg	>17600 mg/kg	n/a	14100 uL/kg
Dermal, guinea pig LD50:	n/a	n/a	>9400uL/kg	n/a

Carcinogenicity:

CAS# 141-78-6: Not listed by ACGIH, IARC, NIOSH, NTP or OSHA

CAS# 123-86-4: Not listed by ACGIH, IARC, NIOSH, NTP or OSHA

CAS# 67-64-1: A4 - Not listed by ACGIH or IARC

CAS# 108-88-3: A4 - Not listed by ACGIH; IARC category 3;

Epidemiology: No information available

Teratogenicity: CAS# 108-88-3: Specific developmental abnormalities included craniofacial effects involving the nose and tongue, musculoskeletal effects, urogenital and metabolic effects in studies on mice and rats. Some evidence of fetotoxicity with reduced fetal weight and retarded skeletal development reported in mice and rats.

Reproductive effect:

123-86-4: Fetotoxicity; Specific developmental abnormalities: Musculoskeletal.

67-64-1: Reproductive - Paternal Effects - spermatogenesis, including genetic material, sperm morphology, motility and count.

108-88-3: Effects on fertility such as abortion were reported in rabbits by inhalation. Paternal effects were noted in rats by inhalation, involving

the testes, sperm duct and epididymis.

Neurotoxicity:

No information available

Mutagenicity:

141-78-6: Cytogenetic Analysis: hamster fibroblast 9g/L Sex Chromosome Loss/Non-disjunction: S. cerevisiae 24400 ppm.

67-64-1: Sex chromosome loss and nondisjunction (Yeast-Saccharomyces cerevisiae)= 47600 ppm;
Cytogenetic analysis (Rodent-hamster Fibroblast)= 40 gm/L

Section 12: Ecological Information

CAS#141-78-6 CAS# 123-86-4 CAS# 67-64-1 CAS# 108-88-3

Ecotoxicity:

Fish (LC50):

Fathead Minnow	230 mg/L	18.0 mg/L/96H	7280-8120 mg/L	36.2 mg/L
Bluegill	100.0 mg/L/96H	8300 mg/L	17 lmg/L/24H	

Environmental:

Terrestrial: mobile in soil May be subject to volatilizes, evaporates from
Volatile from leeching.Expected leaches, and soil, is micro-
Soil surface to biodegrade in biodegrades bially biodegraded
Degraded water. when released
photochem. to soil.
In air/L/2=10d

Section 13: Disposal Considerations

Consult state and local hazardous waste regulations to ensure complete and accurate classification.

US EPA guidelines for hazard classification determination are listed in 40 CFR Parts 261.3.

RCRA P-Series: None listed

RCRA U-Series: CAS# 141-78-6: waste number U112 (Ignitable Waste)

CAS# 67-64-1: waste number U002 (Ignitable Waste)

CAS# 108-88-3: waste number U220

Section 14: Transport Information

	Ethyl Acetate	N-Butyl Acetate	Acetone	Toluene
US DOT CAN.TDG	US DOT CAN.TDG	US DOT CAN.TDG	US DOT CAN.TDG	US DOT CAN.TDG
Shipping Name	Ethyl Acetate	Butyl Acetate	Acetone	Toluene
Hazard Class	3 3	3 3(9.2)	3 3	3 3(9.2)
UN Number	UN1173 UN1173	UN1123 UN1123	UN1090 UN1090	UN1294 UN1294
Packing Group	II II	II II	II II	II II
Flash Point	-4C	22C	-20C	4C

Section 15: Regulatory Information

US FEDERAL:

TSCA

CAS# 141-78-6 is listed on the TSCA inventory.
CAS# 123-86-4 is listed on the TSCA inventory.
CAS# 67-64-1 is listed on the TSCA inventory.
CAS# 108-88-3 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 108-88-3: Effective Date: October 4, 1982;
Sunset Date: October 4, 1992

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule

Section 12b

CAS# 141-78-6: 4/12b
CAS# 123-86-4: 4/12b
CAS# 67-64-1: 4/12b

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

Section 302 (RQ)

CAS# 141-78-6: final RQ = 5000 pounds (2270 kg)
CAS# 123-86-4: final RQ = 5000 pounds (2270 kg)
CAS# 67-64-1: final RQ = 5000 pounds (2270 kg)
CAS# 108-88-3: final RQ = 1000 pounds (454 kg)

Section 302 (TPQ)

None of the chemicals in this product have a TPQ.

SARA Codes

CAS# 141-78-6: flammable
CAS# 123-86-4: acute, flammable
CAS# 67-64-1: acute, chronic, flammable
CAS# 108-88-3: acute, flammable

Section 313

This material contains Toluene (CAS# 108-88-3, >20%) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 108-88-3 is listed as a hazardous air pollutant (HAP). This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

CAS# 123-86-4 is listed as a Hazardous Substance under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

CAS# 108-88-3 is listed as a Hazardous Substance under the CWA.

CAS# 108-88-3 is listed as a Priority Pollutant under the Clean Water Act.

CAS# 108-88-3 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE:

CAS# 141-78-6 can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

CAS# 123-86-4 can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

CAS# 67-64-1 can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

CAS# 108-88-3 can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

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

No Significant Risk Level: CAS# 108-88-3: NOEL = 7000 ug/day.

European/International Regulations**Hazard Symbols:**

CAS# 141-78-6: XI F

CAS# 67-64-1: XI F

CAS# 108-88-3: XN F

Risk Phrases:

R11 Highly flammable

R20 Harmful by inhalation

R36 Irritating to eyes

R 66 Repeated exposure may cause skin dryness or cracking

R 67 Vapors may cause drowsiness and dizziness

Safety Phrases:

S9 Keep container in a well-ventilated place

S16 Keep away from sources of ignition - No smoking

S25 Avoid contact with eyes

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S29 Do not empty into drains

S33 Take precautionary measures against static discharges.

WGK (Water Danger/Protection)

141-78-6:1

128-86-4:1

67-64-1:1

108-88-3:2

Canada - DSL/NDSL

141-78-6, 128-86-4, 67-64-1, and 108-88-3 are all listed on Canada's DSL List.

Canada - WHMIS

CAS# 0141-78-6: B2, D2B

CAS# 128-86-4: B2, D18, D28

CAS# 67-64-1: B2, D2B

CAS# 108-88-3: B2, D2B

Canada Ingredient Disclosure List

141-28-6, 128-86-4, 67-64-1, and 108-88-3 are all listed on the Canadian Ingredient Disclosure List.

Exposure Limits Around the World

TWA for:	Ethyl acetate	N-Butyl acetate	Acetone	Toluene
Australia	400 ppm	150 ppm	500 ppm	100 ppm
Belgium	400 ppm	150 ppm	750 ppm	100 ppm
Czechoslovakia	400 mg/m3	400 mg/m3	800 mg/m3	200 mg/m3
Denmark	300 ppm	150 ppm	250 ppm	50 ppm
Finland	300 ppm	150 ppm	500 ppm	100 ppm
France	400 ppm	150 ppm	750 ppm	100 ppm
Germany	400 ppm	200 ppm	1000 ppm	100 ppm
Hungary	400 mg/m3	200 mg/m3	600 mg/m3	100 mg/m3
Japan	400 ppm	200 ppm	200 ppm	100 ppm
The Netherlands	400 ppm	150 ppm	750 ppm	100 ppm
The Philippines	400 ppm	150 ppm	1000 ppm	100 ppm
Poland	200 ppm	200 mg/m3	200 mg/m3	100 mg/m3
Russia	400 ppm	200 ppm	200 ppm	100 ppm
Sweden	150 ppm	100 ppm	250 ppm	50 ppm
Switzerland	400 ppm	150 ppm	750 ppm	100 ppm
Turkey	400 ppm	150 ppm	1000 ppm	200 ppm
United Kingdom	400 ppm	150 ppm	750 ppm	100 ppm

Section 16: Additional 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 or fluids.

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