

Safety Data Sheet

According to EC Directive 1907/2006/EC

Photonic

Cleaning Technologies

Date of issue: 19.2.2008

Supersedes edition of: 24.7.2007

1. Identification of the substance/preparation and of the company/undertaking

Identification of the product

Product name: First Contact Thinner

Product numbers: All Colorless First Contact Thinner Sizes

Use of the substance/preparation

Chemical for cleaning, protecting, masking and shipping precision surfaces.

Company/undertaking identification

Company:

Photonic Cleaning Technologies, LLC 53818, PO Box 435, Platteville, Wisconsin, USA

Tel: +1 608-467-5396,

email: safety@photoniccleaning.com

Emergency Telephone No.: Please contact the regional representation in your country (see website).

2. Composition/information on ingredients *Synonyms: Mix of solvents.*

| CHEMICAL NAMES | CAS NUMBER | MASS CONTENT | EXPOSURE LIMITS IN AIR (UNITS) | |
|---------------------|------------|--------------|--------------------------------|-----------|
| | | | ACGIH TLV | OSHA PEL |
| FORMAL GLYCOL | [646-06-0] | 10-40% | none est. | none est. |
| BIS(METHOXY)METHANE | [109-87-5] | 10-30% | 1000 PPM | 1000 PPM |
| ETHYL ALCOHOL | [64-17-5] | 30-50% | 400 PPM | 400 PPM |
| ACETONE | [67-64-1] | 10-30% | 750 PPM | 750 PPM |
| ETHYL LACTATE | [97-64-3] | <10% | none est. | none est. |
| ETHYL ACETATE | [141-78-6] | <10% | 250 PPM | 310 PPM |

3. Hazards Identification

F, Xi - Highly Flammable, Irritating

4. First aid measures

After inhalation: fresh air.

After skin contact: wash off with plenty of water. Remove contaminated clothing.

After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist.

After swallowing: make victim drink plenty of water, avoid vomiting (risk of aspiration!). No milk.

No digestible oils. Laxative: Sodium sulfate (1 tablespoon/1/4 litre water). Immediately call in physician.

PCT Safety Data Sheet

According to EC Directive 1907/2006/EC

Product name: First Contact Thinner

5. Fire-fighting measures

Suitable extinguishing media: Water, CO₂, foam, powder.

Special risks:

Combustible. Development of hazardous combustion gases or vapours possible in the event of fire. Vapours heavier than air. Could form explosive mixtures with air at ambient temperatures. Beware of backfiring.

Special protective equipment for fire fighting:

Do not stay in dangerous zone without self-contained breathing apparatus.

Other information:

Cool container with spray water from a safe distance. Prevent fire-fighting water from entering surface water or groundwater.

6. Accidental release measures

Person-related precautionary measures:

Do not inhale vapours/aerosols. Ensure supply of fresh air in enclosed rooms.

Environmental-protection measures: Do not allow to enter sewerage system; risk of explosion!

Procedures for cleaning / absorption:

Take up with liquid-absorbent material (e.g. Chemizorb®). Forward for disposal. Clean up affected area.

7. Handling and storage

Handling:

Notes for prevention of fire and explosion:

Keep away from sources of ignition. Take measures to prevent electrostatic charging.

Storage:

Tightly closed in a well-ventilated place, away from sources of ignition and heat. Cool (below +25°C).

8. Exposure controls/personal protection

Personal protective equipment:

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Respiratory protection: required when vapours/aerosols are generated. Filter A (acc. to DIN 3181) for vapours of organic compounds

Eye protection: required

PCT Safety Data Sheet

According to EC Directive 1907/2006/EC

Product name: First Contact Thinner

| | | |
|------------------|--------------------|--------------|
| Hand protection: | In full contact: | |
| | Glove material: | viton |
| | Layer thickness: | 0.70 mm |
| | Breakthrough time: | > 480 in. |
| | In splash contact: | |
| | Glove material: | butyl rubber |
| | Layer thickness: | 0.7 mm |
| | Breakthrough time: | > 60 min. |

The protective gloves to be used must comply with the specifications of EC directive 89/686/EEC and the resultant standard EN374, for example KCL 890 Vitoject® (full contact), 898 Butoject® (splash contact). The breakthrough times stated above were determined for Formyl Glycol (Merck) by KCL in laboratory tests for Merck acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Industrial hygiene:

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

9. Physical and chemical properties

| | |
|-----------------------------|--|
| Form: | slightly viscous liquid |
| Colour: | colourless |
| Odour: | ether-like |
| pH value | not available |
| Viscosity dynamic (25 °C) | circa 100 mPa*s |
| Melting Point | above -95 °C |
| Boiling point | (1013 hPa) below 74 °C |
| Ignition temperature | unknown °C |
| Flash point | below 2 °C |
| Explosion limits | lower unknown Vol% |
| | upper unknown Vol% |
| Vapour pressure (20 °C) | unknown hPa |
| Relative vapour density | circa 1.7 |
| Density (20 °C) | circa 0.95 g/cm ³ |
| Solubility in water (20 °C) | partially miscible in small quantities |
| log Pow: | circa -0.2 (extrapolation from solvents) |

PCT Safety Data Sheet

According to EC Directive 1907/2006/EC

Product name: First Contact Thinner

10. Stability and reactivity

Conditions to be avoided

Heating. Upon decomposition in closed containers and tubes risk of bursting due to buildup of overpressure.

Substances to be avoided

Risk of explosion with: perchlorates.

Risk of ignition or formation of inflammable gases or vapors with: fire-promoting substances, high-oxygen materials / oxidizing agent.

Exothermic reaction with: strong acids, strong bases.

Hazardous decomposition products: no information available

Trace Stabilizer in Formyl Glycol Additive: 2,6-di-t-butyl-4-methylphenol (BHT)

Further information

Explosible with air in a vaporous/gaseous state. light-sensitive, sensitive to air heat-sensitive. Protect from direct sunlight. tends to polymerize (Please observe stabilisation)

11. Toxicological information

Acute toxicity for components

LC₅₀ (formyl glycol) (inhalation, rat): 87 mg/l /4 h.

LD₅₀ (formyl glycol) (dermal, rabbit): 9040 mg/kg.

LD₅₀ (formyl glycol) (oral, rat): 3000 mg/kg.

Specific symptoms in animal studies:

Skin irritation test (rabbit): Slight irritations.

Subacute to chronic toxicity for components

Mutagenicity (mammal cell test): negative.

Bacterial mutagenicity: Ames test: negative.

Further toxicological information

After inhalation: drowsiness, headache.

After absorption of large quantities: narcosis.

After skin contact: Slight irritations. Degreasing effect on the skin, possibly followed by secondary inflammation.

After eye contact: Slight irritations. After swallowing: gastrointestinal complaints, Nausea, vomiting, diarrhoea.

Further data: The product should be handled with the care usual when dealing with chemicals.

12. Ecological information

Biological degradation:

Solvent Blend Miscible with water. Water-dissolved constituents biodegradable.

Polymer will precipitate when mixed with water.

Behavior in environmental compartments:

Distribution: log p(o/w): -0.37 (experimental for formyl glycol).

No bioaccumulation is to be expected (log P(o/w) <1).

Henry constant: 2.48 Pa*m³/mol (formyl glycol). Distribution preferentially in air.

Ecotoxic effects:

Biological effects:

The Safety Data Sheets are also available at www.photoniccleaning.com

PCT Safety Data Sheet

According to EC Directive 1907/2006/EC

Product name: First Contact Thinner

Daphnia toxicity (formyl glycol): Daphnia EC₅₀: 6950 mg/l /48 h.

Algal toxicity (formyl glycol): Selenastrum capricornutum IC₀: 1000 mg/l /14 d.

Further ecologic data:

No ecological problems are to be expected when the product is handled and used with due care and attention.

13. Disposal considerations

Product:

Chemicals must be disposed of in compliance with the respective national regulations. Under www.retrologistik.de you will find country-and substance-specific information as well as contact partners.

Packaging:

PCT product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system. Under www.retrologistik.de you will find special information on the respective national conditions as well as contact partners.

14. Transport information

| | | |
|--------------------------------------|-----|----------------------------------|
| Road & Rail ADR, RID | Sea | IMDG-Code |
| UN 1170 Ethanol Solution, 3, II | | UN 1170 Ethanol Solution, 3, II |
| | Ems | F-E S-D |
| Inland waterway ADN, ADNR not tested | Air | CAO, PAX |
| | | Ethanol Solution, 3, UN 1170, II |

The transport regulations are cited according to international regulations and in the form applicable in Germany . Possible national deviations in other countries are not considered.

15. Regulatory information

Labelling according to EC Directives

Symbol: F Highly flammable

R-phrases: 11-36-67 Highly flammable.

S-phrases: 9-16-23-33 Keep away from sources of ignition - No smoking.

EC-No.: 211-463-5 EC label

16. Other information

Reason for alteration

19.2.2008 Updated Version to EC Directive 1907/2006/EC

Regional representation: see www.photoniccleaning.com

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.