

SAFETY DATA SHEET



CircuitWorks® Electrically Conductive Paint (UFI)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

| | | |
|--------------------------------------|---|--|
| Product name | : | CircuitWorks® Electrically Conductive Paint (UFI) |
| Product code | : | CW2205, CW2220_ |
| Product description | : | Conductive agents Coating. Industrial/Professional use |
| Product type | : | Liquid. |
| Other means of identification | : | Conductive agent Coating. Industrial/Professional use UFI: PR98-80V8-100D-MKFC |

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

Not applicable.

1.3 Details of the supplier of the safety data sheet

Manufacturer
Chemtronics
8125 Cobb Center Drive
Kennesaw, GA 30152
Tel. 770-424-4888 or toll free 800-645-5244

Supplier: Transfer Multisort Elektronik Ltd.
Coleshill, Birmingham Coleshill House Suite 1C, 1 Station Road
+44 1675790026 e-mail: office@tme-uk.eu

Importer
ITW Contamination Control BV
Saffierlaan 5
VZ-2132 Hoofddorp
The Netherlands

Email: info@itw-cc.com

Tel: +31 88 1307 400
FAX: +31 88 1307 499
Website: www.chemtronicseu.com

e-mail address of person responsible for this SDS : Importer/Only Representative
Bay 150
Shannon Industrial Estate
Shannon
County Clare
Ireland
V14 DF82
+353 61 771 500
customerservice.shannon@itwpp.com

National contact

ITW Contamination Control BV
Saffierlaan 5
VZ-2132 Hoofddorp
The Netherlands

Email: info@itw-cc.com

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Tel: +31 88 1307 400

FAX: +31 88 1307 499

Website: www.chemtronicseu.com

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number : EMERGENCY HEALTH INFORMATION:

Supplier

Telephone number : Chemtronics Product Information: 800-TECH-401 (800-832-4401)
Chemtronics Customer Service: 800-645-5244

Hours of operation : 8:00 AM to 5:00 PM

Information limitations : EMERGENCY HEALTH INFORMATION:
EMERGENCY SPILL INFORMATION:
Transport information

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 2, H225

Acute Tox. 3, H331

Eye Irrit. 2, H319

Aquatic Acute 1, H400

Aquatic Chronic 1, H410

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Ingredients of unknown toxicity : 55 percent of the mixture consists of component(s) of unknown acute oral toxicity
67.5 percent of the mixture consists of component(s) of unknown acute dermal toxicity
92.5 percent of the mixture consists of component(s) of unknown acute inhalation toxicity

Ingredients of unknown ecotoxicity : Contains 25% of components with unknown hazards to the aquatic environment

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Highly flammable liquid and vapour.

Causes serious eye irritation.

Toxic if inhaled.

Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

: Wear eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid release to the environment. Avoid breathing vapour.

SECTION 2: Hazards identification

| | |
|---|--|
| Response | : Collect spillage. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor. 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 or attention. |
| Storage | : Not applicable. |
| Disposal | : Dispose of contents and container in accordance with all local, regional, national and international regulations. |
| Hazardous ingredients | : n-butyl acetate |
| Supplemental label elements | : Not applicable. |
| Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles | : Not applicable. |
| <u>Special packaging requirements</u> | |
| Containers to be fitted with child-resistant fastenings | : Not applicable. |
| Tactile warning of danger | : Not applicable. |

2.3 Other hazards

| | |
|--|---|
| Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII | : This mixture does not contain any substances that are assessed to be a PBT or a vPvB. |
| Other hazards which do not result in classification | : None known. |

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

| Product/ingredient name | Identifiers | % | Classification | Specific Conc. Limits, M-factors and ATEs | Type |
|---------------------------------|---|-----------|--|---|---------|
| silver | EC: 231-131-3 CAS: 7440-22-4 | ≥50 - ≤75 | Aquatic Acute 1, H400 Aquatic Chronic 1, H410 | M [Acute] = 1000 M [Chronic] = 1000 | [1] [2] |
| 2-methoxy-1-methylethyl acetate | EC: 203-603-9 CAS: 108-65-6 Index: 607-195-00-7 | ≥25 - ≤50 | Flam. Liq. 3, H226 | - | [2] |
| propyl acetate | EC: 203-686-1 CAS: 109-60-4 Index: 607-024-00-6 | ≥10 - ≤15 | Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 Aquatic Chronic 3, H412 EUH066 | - | [1] |
| n-butyl acetate | EC: 204-658-1 CAS: 123-86-4 Index: 607-025-00-1 | ≤4.3 | Flam. Liq. 3, H226 Acute Tox. 2, H330 Eye Irrit. 2, H319 STOT SE 3, H336 Aquatic Chronic 3, H412 EUH066 | ATE [Inhalation (gases)] = 390 ppm | [1] [2] |

SECTION 3: Composition/information on ingredients

| | | | | | |
|--|--|--|---|--|--|
| | | | See Section 16 for the full text of the H statements declared above. | | |
|--|--|--|---|--|--|

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact

- : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation

- : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact

- : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

- : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders

- : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact

- : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation

- : Adverse symptoms may include the following:
nausea or vomiting
headache
dizziness/vertigo
drowsiness/fatigue
unconsciousness

Skin contact

- : Adverse symptoms may include the following:
irritation
redness

SECTION 4: First aid measures

Ingestion : Adverse symptoms may include the following:
Ingestion Seek medical attention.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Highly flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapour/gas is heavier than air and will spread along the ground. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

SECTION 6: Accidental release measures

6.3 Methods and material for containment and cleaning up

Small spill

: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections

: See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures

: Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

Danger criteria

| Category | Notification and MAPP threshold | Safety report threshold |
|-----------------|-------------------------------------|---------------------------------------|
| H2 P5c E1 | 50 tonne 5000 tonne 100 tonne | 200 tonne 50000 tonne 200 tonne |

7.3 Specific end use(s)

SECTION 7: Handling and storage

Recommendations : Conductive agent

Industrial sector specific solutions : Electrical/electronic engineering industry

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

| Product/ingredient name | Exposure limit values |
|---------------------------------|---|
| silver | EU OEL (Europe, 1/2022). Notes: list of indicative occupational exposure limit values TWA: 0.1 mg/m ³ 8 hours. |
| 2-methoxy-1-methylethyl acetate | EU OEL (Europe, 10/2019). Absorbed through skin. Notes: list of indicative occupational exposure limit values STEL: 550 mg/m ³ 15 minutes. STEL: 100 ppm 15 minutes. TWA: 275 mg/m ³ 8 hours. TWA: 50 ppm 8 hours. |
| n-butyl acetate | EU OEL (Europe, 10/2019). Notes: list of indicative occupational exposure limit values STEL: 150 ppm 15 minutes. STEL: 723 mg/m ³ 15 minutes. TWA: 241 mg/m ³ 8 hours. TWA: 50 ppm 8 hours. |

Biological exposure indices

No exposure indices known.

Recommended monitoring procedures : Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

| Product/ingredient name | Type | Exposure | Value | Population | Effects |
|---------------------------------|------|----------------------|------------------------|--------------------|----------|
| silver | DNEL | Long term Inhalation | 0.04 mg/m ³ | General population | Systemic |
| | DNEL | Long term Inhalation | 0.1 mg/m ³ | Workers | Systemic |
| 2-methoxy-1-methylethyl acetate | DNEL | Long term Oral | 1.2 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Oral | 1.67 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Inhalation | 33 mg/m ³ | General population | Local |
| | DNEL | Long term Inhalation | 33 mg/m ³ | General population | Systemic |
| | DNEL | Long term Dermal | 54.8 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Dermal | 153.5 mg/kg bw/day | Workers | Systemic |
| | DNEL | Long term | 275 mg/m ³ | Workers | Systemic |

SECTION 8: Exposure controls/personal protection

| | | | | | |
|-----------------|------|--|--------------------------|--------------------|----------|
| | DNEL | Inhalation Short term Inhalation | 550 mg/m ³ | Workers | Local |
| propyl acetate | DNEL | Long term Inhalation | 149 mg/m ³ | General population | Local |
| | DNEL | Long term Inhalation | 149 mg/m ³ | General population | Systemic |
| | DNEL | Short term Inhalation | 298 mg/m ³ | General population | Local |
| | DNEL | Short term Inhalation | 298 mg/m ³ | General population | Systemic |
| | DNEL | Long term Inhalation | 420 mg/m ³ | Workers | Local |
| | DNEL | Long term Inhalation | 420 mg/m ³ | Workers | Systemic |
| | DNEL | Short term Inhalation | 840 mg/m ³ | Workers | Local |
| | DNEL | Short term Inhalation | 840 mg/m ³ | Workers | Systemic |
| n-butyl acetate | DNEL | Long term Oral | 3.4 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Dermal | 3.4 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Dermal | 7 mg/kg bw/day | Workers | Systemic |
| | DNEL | Long term Inhalation | 12 mg/m ³ | General population | Systemic |
| | DNEL | Long term Inhalation | 48 mg/m ³ | Workers | Systemic |
| | DNEL | Long term Inhalation | 102.34 mg/m ³ | General population | Local |
| | DNEL | Long term Inhalation | 480 mg/m ³ | Workers | Local |
| | DNEL | Short term Inhalation | 859.7 mg/m ³ | General population | Local |
| | DNEL | Short term Inhalation | 859.7 mg/m ³ | General population | Systemic |
| | DNEL | Short term Inhalation | 960 mg/m ³ | Workers | Local |
| | DNEL | Short term Inhalation | 960 mg/m ³ | Workers | Systemic |

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls

- Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Individual protection measures

Hygiene measures

- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

SECTION 8: Exposure controls/personal protection

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid.

Colour : Silver.

Odour : Not available.

Odour threshold : Not available.

Melting point/freezing point : Not available.

Initial boiling point and boiling range : Not available.

Flammability : Not available.

Lower and upper explosion limit : Not available.

Flash point : Closed cup: 14°C (57.2°F) [Tagliabue]

Auto-ignition temperature :

| Ingredient name | °C | °F | Method |
|---------------------------------|-----|-------|-----------|
| 2-methoxy-1-methylethyl acetate | 333 | 631.4 | DIN 51794 |
| propyl acetate | 380 | 716 | DIN 51794 |
| n-butyl acetate | 415 | 779 | EU A.15 |

SECTION 9: Physical and chemical properties

Decomposition temperature : Not available.

pH : Not available.

Viscosity : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/ water : Not applicable.

Vapour pressure :

| Ingredient name | Vapour Pressure at 20°C | | | Vapour pressure at 50°C | | |
|---------------------------------|--------------------------------|------------|----------------|--------------------------------|------------|---------------|
| | mm Hg | kPa | Method | mm Hg | kPa | Method |
| propyl acetate | 35.93 | 4.8 | | | | |
| n-butyl acetate | 11.25 | 1.5 | DIN EN 13016-2 | | | |
| 2-methoxy-1-methylethyl acetate | 2.7 | 0.36 | OECD 104 | | | |

Relative density : Not available.

Vapour density : >1 [Air = 1]

Particle characteristics

Median particle size : Not applicable.

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Explosive properties : Non-explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidising materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture.

Oxidising properties : Not available.

9.2.2 Other safety characteristics

Miscible with water : Not available.

Evaporation rate : Not available.

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour to accumulate in low or confined areas.

10.5 Incompatible materials : Reactive or incompatible with the following materials:
oxidising materials

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|--|----------------------|---------|--------------|----------|
| 2-methoxy-1-methylethyl acetate propyl acetate n-butyl acetate | LD50 Dermal | Rabbit | >5 g/kg | - |
| | LD50 Oral | Rat | 8532 mg/kg | - |
| | LD50 Oral | Rat | 9370 mg/kg | - |
| | LC50 Inhalation Gas. | Rat | 390 ppm | 4 hours |
| | LD50 Dermal | Rabbit | >17600 mg/kg | - |
| | LD50 Oral | Rat | 10768 mg/kg | - |

Conclusion/Summary : Not available.

Acute toxicity estimates

| Product/ingredient name | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapours) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|---------------------------------|--------------|----------------|--------------------------|-----------------------------|-------------------------------------|
| 2-methoxy-1-methylethyl acetate | 8532 | N/A | N/A | N/A | N/A |
| propyl acetate | 9370 | N/A | N/A | N/A | N/A |
| n-butyl acetate | 10768 | N/A | 390 | N/A | N/A |

Irritation/Corrosion

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|-------------------------|--|----------------------------|-------------|-------------------------------------|-------------|
| propyl acetate | Eyes - Mild irritant | Rabbit | - | 24 hours 500 mg | - |
| n-butyl acetate | Skin - Mild irritant Eyes - Moderate irritant Skin - Moderate irritant | Rabbit Rabbit Rabbit | - - - | 500 mg 100 mg 24 hours 500 mg | - - - |

Conclusion/Summary : Not available.

Sensitisation

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

| Product/ingredient name | Category | Route of exposure | Target organs |
|-------------------------|------------|-------------------|------------------|
| propyl acetate | Category 3 | - | Narcotic effects |
| n-butyl acetate | Category 3 | - | Narcotic effects |

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

SECTION 11: Toxicological information

Information on likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Toxic if inhaled.
- Skin contact** : May cause skin irritation.
- Ingestion** : Do not ingest. If swallowed then seek immediate medical assistance.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
dizziness/vertigo
drowsiness/fatigue
unconsciousness
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : Adverse symptoms may include the following:
Ingestion Seek medical attention.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

- Potential immediate effects** : Not available.

- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.

- Potential delayed effects** : Not available.

Potential chronic health effects

Not available.

- Conclusion/Summary** : Not available.

- General** : No known significant effects or critical hazards.

- Carcinogenicity** : No known significant effects or critical hazards.

- Mutagenicity** : No known significant effects or critical hazards.

- Reproductive toxicity** : No known significant effects or critical hazards.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

| Product/ingredient name | Result | Species | Exposure |
|-------------------------|---|---|--|
| silver | Acute EC50 1.4 µg/l Marine water Acute EC50 0.24 µg/l Fresh water Acute LC50 11 µg/l Fresh water | Algae - Chroomonas sp. Daphnia - Daphnia magna Crustaceans - Ceriodaphnia reticulata | 4 days 48 hours 48 hours |
| propyl acetate | Acute LC50 2.13 µg/l Fresh water | Fish - Pimephales promelas | 96 hours |
| n-butyl acetate | Chronic NOEC 5 mg/l Marine water Acute LC50 60000 µg/l Fresh water Acute LC50 32 mg/l Marine water Acute LC50 18000 µg/l Fresh water | Algae - Glenodinium halli Fish - Pimephales promelas Crustaceans - Artemia salina Fish - Pimephales promelas | 72 hours 96 hours 48 hours 96 hours |

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

| Product/ingredient name | LogP _{ow} | BCF | Potential |
|---------------------------------|--------------------|-----|-----------|
| silver | - | 70 | low |
| 2-methoxy-1-methylethyl acetate | 1.2 | - | low |
| propyl acetate | 1.4 | - | low |
| n-butyl acetate | 2.3 | - | low |

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

Not available.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

SECTION 13: Disposal considerations

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

| | ADR/RID | ADN | IMDG | IATA |
|--|----------------|----------------|----------------|--|
| 14.1 UN number or ID number | Not regulated. | Not regulated. | Not regulated. | Not regulated. |
| 14.2 UN proper shipping name | | | | |
| 14.3 Transport hazard class(es) | | | | |
| 14.4 Packing group | | | | |
| 14.5 Environmental hazards | Yes. | Yes. | Yes. | Yes. The environmentally hazardous substance mark is not required. |

Additional information

ADR/RID : The environmentally hazardous substance mark is not required when transported in sizes of ≤ 5 L or ≤ 5 kg.
Special provisions 640 (C)
Tunnel code (D/E)

ADN : The environmentally hazardous substance mark is not required when transported in sizes of ≤ 5 L or ≤ 5 kg.
Special provisions 640 (C)

IMDG : The marine pollutant mark is not required when transported in sizes of ≤ 5 L or ≤ 5 kg.

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions : Not applicable.

on the manufacture,
placing on the market
and use of certain
dangerous substances,
mixtures and articles

Other EU regulations

Industrial emissions : Listed
(integrated pollution
prevention and control) -
Air

Industrial emissions : Listed
(integrated pollution
prevention and control) -
Water

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category

H2
P5c
E1

National regulations

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : All components are listed or exempted.
Canada : All components are listed or exempted.

SECTION 15: Regulatory information

| | |
|--|--|
| China | : All components are listed or exempted. |
| Eurasian Economic Union | : Russian Federation inventory: Not determined. |
| Japan | : Japan inventory (CSCL): Not determined. Japan inventory (ISHL): Not determined. |
| New Zealand | : All components are listed or exempted. |
| Philippines | : All components are listed or exempted. |
| Republic of Korea | : All components are listed or exempted. |
| Taiwan | : All components are listed or exempted. |
| Thailand | : Not determined. |
| Turkey | : All components are listed or exempted. |
| United States | : All components are active or exempted. |
| Viet Nam | : All components are listed or exempted. |
| 15.2 Chemical safety assessment | : This product contains substances for which Chemical Safety Assessments are still required. |

SECTION 16: Other information

► Indicates information that has changed from previously issued version.

| | |
|-----------------------------------|--|
| Abbreviations and acronyms | : ATE = Acute Toxicity Estimate CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level EUH statement = CLP-specific Hazard statement N/A = Not available PBT = Persistent, Bioaccumulative and Toxic PNEC = Predicted No Effect Concentration RRN = REACH Registration Number SGG = Segregation Group vPvB = Very Persistent and Very Bioaccumulative |
|-----------------------------------|--|

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

| Classification | Justification |
|-------------------------|-----------------------|
| Flam. Liq. 2, H225 | On basis of test data |
| Acute Tox. 3, H331 | Calculation method |
| Eye Irrit. 2, H319 | Calculation method |
| Aquatic Acute 1, H400 | Calculation method |
| Aquatic Chronic 1, H410 | Calculation method |

Full text of abbreviated H statements

| | |
|--------|---|
| H225 | Highly flammable liquid and vapour. |
| H226 | Flammable liquid and vapour. |
| H319 | Causes serious eye irritation. |
| H330 | Fatal if inhaled. |
| H331 | Toxic if inhaled. |
| H336 | May cause drowsiness or dizziness. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |
| H412 | Harmful to aquatic life with long lasting effects. |
| EUH066 | Repeated exposure may cause skin dryness or cracking. |

Full text of classifications [CLP/GHS]

SECTION 16: Other information

| | |
|-------------------|---|
| Acute Tox. 2 | ACUTE TOXICITY - Category 2 |
| Acute Tox. 3 | ACUTE TOXICITY - Category 3 |
| Aquatic Acute 1 | SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1 |
| Aquatic Chronic 1 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1 |
| Aquatic Chronic 3 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3 |
| Eye Irrit. 2 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 |
| Flam. Liq. 2 | FLAMMABLE LIQUIDS - Category 2 |
| Flam. Liq. 3 | FLAMMABLE LIQUIDS - Category 3 |
| STOT SE 3 | SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3 |

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Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.