

A message from National Standard Parts Associates, Inc.

With OSHA's latest Hazard Communication Standard (HCS), revised in 2012, manufacturers provide a consistent 16-section format for communicating downstream information about hazardous chemicals in their products by published Safety Data Sheets (SDS). Only a subset of NSPA's heat shrink connectors contain a relevant solder alloy component (which contain both lead and cadmium) that requires the new labeling and Safety Data Sheets. Along with the part number listing below, the relevant SDS information from Alpha for these solder sleeves can be found in the following pages.

With the United States now transitioning to this new SDS format, 3M has replaced their old MSDS sheets with new Article Information Sheets for their heat shrink tubing (including the tubing that we use for our heat shrink connectors). NSPA can and will provide 3M's Article Information Sheet information upon request as a courtesy in response to a customer request; however, it is not required to be provided as part of OSHA's latest Hazard Communication Standard (HCS). The following statement outlines why 3M's tubing does not require a Safety Data Sheet as required for hazardous chemicals.

This Article Information Sheet is provided as a courtesy in response to a customer request. A Safety Data Sheet (SDS) has not been prepared for these product(s) because they are articles. Articles are not subject to the Occupational Safety and Health Administration's Hazard Communication Standard (29 CFR 1910.1200(b)(6)(v)). As defined in this standard: "Article" means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical, and does not pose a physical or health risk to employees.

To the best of our knowledge, the information contained herein is accurate; however, NSPA relies solely on the SDS information provided to us by our raw material suppliers. Neither Alpha nor NSPA assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

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 in the following SDS information, we cannot guarantee that these are the only hazards that exist.



J Brooks Endacott
President

| Product Line | NSPA# | Description | SDS Product # |
|--------------------------|---------|--------------------------------------|---------------|
| Sealed Solder Connectors | ELA5-08 | Butt Connector 8 AWG | M813RS2.1 |
| Sealed Solder Connectors | ELA5-10 | Butt Connector 10-12 AWG | M813RS2.1 |
| Sealed Crimp & Solder | ML56-10 | Stepdown Butt 10-12 AWG to 8 AWG | M813RS2.1 |
| Sealed Crimp & Solder | ML5-10 | Butt Connector 10-12 AWG | M813RS2.1 |
| Sealed Crimp & Solder | ML56-14 | Stepdown Butt 14-16 AWG to 10-12 AWG | M813RS2.1 |

alpha

Safety Data Sheet

Safety Data Sheet

Section 1. Identification

Product name : Preforms, Alloy Sn45/Pb32/Cd18/Bi5 coated with RS2.1 flux, <3%
Product code : M813RS2.1
Product type : Solid.
Date of issue/Date of revision : June 11 2015.

| Manufacturer - Supplier | Telephone no.: | Fax no. | Emergency phone: |
|--|---|-----------------------|--|
| ALPHA Global Headquarters 300 Atrium Drive Somerset, New Jersey 08873 | Toll Free: (800) 367-5460 Main Phone: (908) 791-3000 | (908) 791-3090 | UNITED STATES AND CANADA Tel: 800-424-9300 INTERNATIONAL, CALL Tel: +1 703-527-3887 (collect calls accepted) Alpha Chemtrec #5591 |
| ALPHA METALS MEXICO SA DE CV Ave Nafta 800, Parque Industrial STIVA Apodaca NL 66600 Mexico | Tel: +52 81 1156-6602 | Fax: +52 81 1156-6655 | Tel: 01 800 022 1400 Tel: +52 55 5559-1588 |
| Alent Brasil Soldas Ltda. Rio Jaguarão, 1540 - Vila Buriti Manaus Amazonas 69072-055 Brasil | Tel: 55 92 3614-7400 | Fax: 55 92 3614-7400 | Tel: 55 92 3614-7423 |

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture : ACUTE TOXICITY (oral) - Category 4
 CARCINOGENICITY - Category 1A
 TOXIC TO REPRODUCTION (Fertility) - Category 1A
 TOXIC TO REPRODUCTION (Unborn child) - Category 1A
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
 AQUATIC HAZARD (ACUTE) - Category 1
 AQUATIC HAZARD (LONG-TERM) - Category 1

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Harmful if swallowed.
 May cause cancer.
 May damage fertility or the unborn child.
 Causes damage to organs through prolonged or repeated exposure.
 Very toxic to aquatic life with long lasting effects.

Precautionary statements

Continued on next page

Section 2. Hazards identification

- Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Avoid release to the environment. Do not breathe dust. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
- Response** : Collect spillage. Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.
- Storage** : Store locked up.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazards not otherwise classified** : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

| Ingredient name | % | CAS number |
|---|---------|------------|
| tin | 40-50 | 7440-31-5 |
| lead | 30-40 | 7439-92-1 |
| Cadmium (Non-pyrophoric) | 10-20 | 7440-43-9 |
| [1R-(1 α ,4 α β,10 α)]-1,2,3,4,4a,9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid | 1-10 | 1740-19-8 |
| Proprietary Rosin/Resin | 1-10 | - |
| Resin acids and Rosin acids, fumarated, esters with glycerol | 0.1-1.0 | 97489-11-7 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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 and hence require reporting in this section.

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

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 30 minutes, keeping eyelids open. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 15 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. If necessary, call a poison center or physician. 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

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Section 4. First aid measures

or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : Harmful if swallowed.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:
 - reduced fetal weight
 - increase in fetal deaths
 - skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
 - reduced fetal weight
 - increase in fetal deaths
 - skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
 - reduced fetal weight
 - increase in fetal deaths
 - skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that mists 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

- Specific hazards arising from the chemical** : 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 thermal decomposition products** : Decomposition products may include the following materials:
 - carbon dioxide
 - carbon monoxide
 - metal oxide/oxides

- 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.

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Section 5. Fire-fighting measures

- 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.

Section 6. Accidental release measures

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 spilled material. 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".

- Environmental precautions** : Avoid dispersal of spilled 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.

Methods and materials for containment and cleaning up

- Small spill** : Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. 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.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. 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. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

| Ingredient name | Exposure limits |
|--------------------------|--|
| tin | OSHA PEL (United States, 9/2005). TWA: 2 mg/m ³ 8 hours. ACGIH TLV (United States, 4/2014). TWA: 2 mg/m ³ , (as Sn) 8 hours. NIOSH REL (United States, 10/2013). TWA: 2 mg/m ³ , (as Sn) 10 hours. |
| lead | OSHA PEL (United States, 5/2005). TWA: 0.05 mg/m ³ 8 hours. ACGIH TLV (United States, 4/2014). Notes: as Pb TWA: 0.05 mg/m ³ , (as Pb) 8 hours. OSHA PEL (United States, 2/2013). Notes: as Pb TWA: 50 µg/m ³ , (as Pb) 8 hours. NIOSH REL (United States, 10/2013). Notes: See Appendix C - Supplemental Exposure Limits Note: The REL and PEL also apply to other lead compounds (as Pb). TWA: 0.05 mg/m ³ 10 hours. |
| Cadmium (Non-pyrophoric) | OSHA PEL Z2 (United States, 2/2013). TWA: 0.2 mg/m ³ 8 hours. Form: Dust CEIL: 0.6 mg/m ³ Form: Dust CEIL: 0.3 mg/m ³ Form: Fume TWA: 0.1 mg/m ³ 8 hours. Form: Fume ACGIH TLV (United States, 4/2014). TWA: 0.01 mg/m ³ , (as Cd) 8 hours. Form: Inhalable fraction ACGIH TLV (United States, 4/2014). Notes: as Cd TWA: 0.002 mg/m ³ , (as Cd) 8 hours. Form: Respirable fraction OSHA PEL (United States, 2/2013). Notes: as Cd TWA: 5 µg/m ³ , (as Cd) 8 hours. |

Appropriate engineering controls

- : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

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.

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.

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: safety glasses with side-shields.

Skin protection

Section 8. Exposure controls/personal 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.
- 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** : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Solid.
- Color** : Silver.
- Odor** : Not available.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : Not available.
- Flash point** : Not available.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : 1
- Solubility** : Partially soluble in the following materials: cold water and hot water.
- VOC** : 10.1 g/l
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

Section 10. Stability and reactivity

- Incompatibility with various substances** : Highly reactive or incompatible with the following materials: alkalis and moisture.
Reactive or incompatible with the following materials: acids.
Slightly reactive or incompatible with the following materials: oxidizing materials and reducing materials.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|--|-------------|---------|-------------|----------|
| tin | LD50 Oral | Rat | >2000 mg/kg | - |
| lead | LD50 Oral | Rat | >5000 mg/kg | - |
| Cadmium (Non-pyrophoric) | LD50 Oral | Rat | 225 mg/kg | - |
| [1R-(1 α ,4 α β ,10 $\alpha\alpha$)]-1,2,3,4,4a,9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid | LD50 Oral | Rat | 1710 mg/kg | - |
| Proprietary Rosin/Resin | LD50 Dermal | Rabbit | >2.5 g/kg | - |
| | LD50 Oral | Mouse | >3 g/kg | - |
| | LD50 Oral | Rat | >4 g/kg | - |

Irritation/Corrosion

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|--|----------------------|------------|-------|---------------------|-------------|
| [1R-(1 α ,4 α β ,10 $\alpha\alpha$)]-1,2,3,4,4a,9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid | Skin - Mild irritant | Guinea pig | - | 72 hours 10 Percent | - |

Sensitization

Not available.

Mutagenicity

| Product/ingredient name | Test | Experiment | Result |
|--------------------------|------|---------------------------|-----------|
| lead | - | Subject: Mammalian-Animal | Equivocal |
| Cadmium (Non-pyrophoric) | - | Subject: Mammalian-Animal | Equivocal |
| | - | Cell: Germ | |
| | - | Subject: Mammalian-Human | Equivocal |

Carcinogenicity

No applicable toxicity data

Additional information:

Classification

| Product/ingredient name | OSHA | IARC | NTP |
|--------------------------|------|------|--|
| lead | - | 2B | Reasonably anticipated to be a human carcinogen. |
| Cadmium (Non-pyrophoric) | + | 1 | Known to be a human carcinogen. |

Reproductive toxicity

Section 11. Toxicological information

| Product/ingredient name | Maternal toxicity | Fertility | Development toxin | Species | Dose | Exposure |
|--------------------------|-------------------|-----------|-------------------|----------------|---------------------------------|------------------|
| lead | - | - | Equivocal | Rat - Female | Oral: 520 mg/kg | - |
| | - | - | Equivocal | Rat - Female | Inhalation: 3 mg/m ³ | 24 hours per day |
| | Equivocal | - | - | Mouse - Female | Oral: 300 mg/kg | - |
| | - | Equivocal | - | Mouse | Oral: 4099.2 mg/kg | - |
| Cadmium (Non-pyrophoric) | - | - | Equivocal | Rat - Male | Oral: 155 mg/kg | - |
| | - | - | Equivocal | Rat - Female | Oral: 220 mg/kg | - |
| | - | Equivocal | - | Rat - Female | Intraperitoneal: 1124 µg/kg | - |

Teratogenicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|--------------------------|-------------------------|------------------------------|----------------------|------------------|
| lead | Equivocal - Oral | Mammal - species unspecified | 2118 mg/kg | - |
| Cadmium (Non-pyrophoric) | Equivocal - Inhalation | Rat | 10 mg/m ³ | 24 hours per day |
| | Equivocal - Oral | Rat | 23 mg/kg | - |
| | Equivocal - Intravenous | Rat | 8 mg/kg | - |

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

| Name | Category | Route of exposure | Target organs |
|------|------------|-------------------|--|
| lead | Category 1 | Not determined | nervous system and reproductive organs |

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.
Inhalation : Adverse symptoms may include the following:
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations

Continued on next page

Section 11. Toxicological information

- Skin contact** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also 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

- General** : Causes damage to organs through prolonged or repeated exposure.
- Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : May damage the unborn child.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : May damage fertility.

Numerical measures of toxicity

Acute toxicity estimates

| Route | ATE value |
|-------|--------------|
| Oral | 1094.3 mg/kg |

Section 12. Ecological information

Toxicity

| Product/ingredient name | Result | Species | Exposure |
|--------------------------|-------------------------------------|--|----------|
| lead | Acute EC50 105 ppb Marine water | Algae - Chaetoceros sp. - Exponential growth phase | 72 hours |
| | Acute EC50 0.489 mg/l Marine water | Algae - Ulva pertusa | 96 hours |
| | Acute EC50 8000 µg/l Fresh water | Aquatic plants - Lemna minor | 4 days |
| | Acute LC50 530 µg/l Fresh water | Crustaceans - Ceriodaphnia reticulata | 48 hours |
| | Acute LC50 5100 µg/l Fresh water | Daphnia - Daphnia pulex | 48 hours |
| | Acute LC50 0.44 ppm Fresh water | Fish - Cyprinus carpio - Juvenile (Fledgling, Hatchling, Weanling) | 96 hours |
| | Chronic NOEC 0.25 mg/l Marine water | Algae - Ulva pertusa | 96 hours |
| | Chronic NOEC 0.03 µg/l Fresh water | Fish - Cyprinus carpio | 4 weeks |
| | Acute EC50 97 µg/l Fresh water | Algae - Pseudokirchneriella subcapitata - Exponential growth phase | 72 hours |
| | Acute EC50 0.095 mg/l Marine water | Algae - Ulva pertusa | 96 hours |
| | Acute EC50 200 µg/l Fresh water | Aquatic plants - Lemna minor | 4 days |
| | Acute EC50 24.4 µg/l Fresh water | Daphnia - Daphnia magna - Neonate | 48 hours |
| Cadmium (Non-pyrophoric) | | | |

Continued on next page

Section 12. Ecological information

| | | | |
|---|---|--|----------------------------------|
| [1R-(1 α ,4 α β ,10 α)]-1,2,3,4,4a,9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid Proprietary Rosin/Resin | Acute LC50 0.072 μ g/l Marine water Acute LC50 2 μ g/l Fresh water Chronic NOEC 2 μ g/l Fresh water | Crustaceans - Amphipoda - Adult Fish - Cyprinus carpio Algae - Parachlorella kessleri - Exponential growth phase | 48 hours 96 hours 72 hours |
| | Chronic NOEC 0.02 μ g/l Fresh water Acute LC50 2470 μ g/l Fresh water | Fish - Cyprinus carpio Daphnia - Daphnia magna - Neonate | 4 weeks 48 hours |
| | Acute LC50 700 μ g/l Fresh water LC50 60.3 mg/l | Fish - Esox lucius Fish | 96 hours 96 hours |

Persistence and degradability

Not available.

Bioaccumulative potential

| Product/ingredient name | LogP _{ow} | BCF | Potential |
|--|--------------------|--------|-----------|
| [1R-(1 α ,4 α β ,10 α)]-1,2,3,4,4a,9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid | 4.8 | 131.83 | low |
| Proprietary Rosin/Resin | 3.42 | - | low |

Mobility in soil

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

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

| | DOT Classification | TDG Classification | Mexico Classification | UN | IMDG | IATA |
|----------------------------|-----------------------|-----------------------|--------------------------|----------------|----------------|----------------|
| UN number | Not regulated. | Not regulated. | Not regulated. | Not regulated. | Not regulated. | Not regulated. |
| UN proper shipping name | - | - | - | - | - | - |
| Transport hazard class(es) | - | - | - | - | - | - |
| | | | | | | |

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Section 14. Transport information

| | | | | | | |
|------------------------------|-----|-----|-----|-----|-----|-----|
| Packing group | - | - | - | - | - | - |
| Environmental hazards | No. | No. | No. | No. | No. | No. |

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.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 5(a)2 proposed significant new use rule (SNUR): No products were found.
TSCA 5(a)2 final significant new use rule (SNUR): No products were found.
TSCA 12(b) one-time export notification: No products were found.
TSCA 12(b) annual export notification: lead
Refer to Proposed Rule (59 Federal Register 11122, March 9, 1994) for details on TSCA 12(b) applicability for lead.

United States inventory (TSCA 8b) : All components are listed or exempted.

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 311/312

Classification : Immediate (acute) health hazard
Delayed (chronic) health hazard

SARA 313

| | Product name | CAS number | % |
|--|--------------------------|-------------------|----------|
| Form R - Reporting requirements | lead | 7439-92-1 | 30-40 |
| | Cadmium (Non-pyrophoric) | 7440-43-9 | 10-20 |
| Supplier notification | lead | 7439-92-1 | 30-40 |
| | Cadmium (Non-pyrophoric) | 7440-43-9 | 10-20 |

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

California Prop. 65

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

Canada

WHMIS (Canada) : Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
Class D-2A: Material causing other toxic effects (Very toxic).

Canada inventory : All components are listed or exempted.

International lists

National inventory

Europe : All components are listed or exempted.

Republic of Korea : All components are listed or exempted.

Section 15. Regulatory information

Section 16. Other information

Hazardous Material Information System (U.S.A.)

| | |
|------------------|---|
| Health | 2 |
| Flammability | 0 |
| Physical hazards | 0 |
| | |

Procedure used to derive the classification

| Classification | Justification |
|--|--|
| Acute Tox. 4, H302 Carc. 1A, H350 Repr. 1A, H360 (Fertility) Repr. 1A, H360 (Unborn child) STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 | Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method |

History

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Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

▣ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

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.

Section 16. Other information

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