June 11, 2015

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

National Standard Parts Associates, Inc. 1301 E. Belmont St, Pensacola, FL 32501 www.nspa.com

Product Line	NSPA#	Description	SDS Product #
Sealed Solder Connectors	ELA114-06X	Ring 14-16 AWG #6 Stud	M351RS-2.1
Sealed Solder Connectors	ELA114-08X	Ring 14-16 AWG #8 Stud	M351RS-2.1
Sealed Solder Connectors	ELA114-10X	Ring 14-16 AWG #10 Stud	M351RS-2.1
Sealed Solder Connectors	ELA114-14X	Ring 14-16 AWG 1/4" Stud	M351RS-2.1
Sealed Solder Connectors	ELA114-38X	Ring 14-16 AWG 3/8" Stud	M351RS-2.1
Sealed Solder Connectors	ELA114-516X	Ring 14-16 AWG 5/16" Stud	M351RS-2.1
Sealed Solder Connectors	ELA116-06X	Ring 18-22 AWG #6 Stud	M351RS-2.1
Sealed Solder Connectors	ELA116-08X	Ring 18-22 AWG #8 Stud	M351RS-2.1
Sealed Solder Connectors	ELA116-10X	Ring 18-22 AWG #10 Stud	M351RS-2.1
Sealed Solder Connectors	ELA116-14X	Ring 18-22 AWG 1/4" Stud	M351RS-2.1
Sealed Solder Connectors	ELA116-38X	Ring 18-22 AWG 3/8" Stud	M351RS-2.1
Sealed Solder Connectors	ELA116-516X	Ring 18-22 AWG 5/16" Stud	M351RS-2.1
Sealed Solder Connectors	ELA214-10X	Spade 14-16 AWG #10 Stud	M351RS-2.1
Sealed Solder Connectors	ELA216-10X	Spade 18-22 AWG #10 Stud	M351RS-2.1
Sealed Solder Connectors	ELA6-14F	Female 14-16 AWG .250	M351RS-2.1
Sealed Solder Connectors	ELA6-14FF	Fully-Insulated Female 14-16 AWG .250	M351RS-2.1
Sealed Solder Connectors	ELA6-14M	Male 14-16 AWG .250	M351RS-2.1
Sealed Solder Connectors	ELA6-18F	Female 18-22 AWG .250	M351RS-2.1
Sealed Solder Connectors	ELA6-18FF	Fully-Insulated Female 18-22 AWG .250	M351RS-2.1
Sealed Solder Connectors	ELA6-18M	Male 18-22 AWG .250	M351RS-2.1
Sealed Crimp & Solder	ML110-06	Ring 10-12 AWG #6 Stud	M351RS-2.1
Sealed Crimp & Solder	ML110-08	Ring 10-12 AWG #8 Stud	M351RS-2.1
Sealed Crimp & Solder	ML110-10	Ring 10-12 AWG #10 Stud	M351RS-2.1
Sealed Crimp & Solder	ML110-12	Ring 10-12 AWG 1/2" Stud	M351RS-2.1
Sealed Crimp & Solder	ML110-14	Ring 10-12 AWG 1/4" Stud	M351RS-2.1
Sealed Crimp & Solder	ML110-38	Ring 10-12 AWG 3/8" Stud	M351RS-2.1
Sealed Crimp & Solder	ML110-516	Ring 10-12 AWG 5/16" Stud	M351RS-2.1
Sealed Crimp & Solder	ML114-06	Ring 14-16 AWG #6 Stud	M351RS-2.1
Sealed Crimp & Solder	ML114-08	Ring 14-16 AWG #8 Stud	M351RS-2.1
Sealed Crimp & Solder	ML114-10	Ring 14-16 AWG #10 Stud	M351RS-2.1
Sealed Crimp & Solder	ML114-14	Ring 14-16 AWG 1/4" Stud	M351RS-2.1
Sealed Crimp & Solder	ML114-38	Ring 14-16 AWG 3/8" Stud	M351RS-2.1
Sealed Crimp & Solder	ML114-516	Ring 14-16 AWG 5/16" Stud	M351RS-2.1
Sealed Crimp & Solder	ML116-06	Ring 18-22 AWG #6 Stud	M351RS-2.1
Sealed Crimp & Solder	ML116-08	Ring 18-22 AWG #8 Stud	M351RS-2.1
Sealed Crimp & Solder	ML116-10	Ring 18-22 AWG #10 Stud	M351RS-2.1
Sealed Crimp & Solder	ML116-14	Ring 18-22 AWG 1/4" Stud	M351RS-2.1
Sealed Crimp & Solder	ML116-38	Ring 18-22 AWG 3/8" Stud	M351RS-2.1
Sealed Crimp & Solder	ML116-516	Ring 18-22 AWG 5/16" Stud	M351RS-2.1
Sealed Crimp & Solder	ML210-06	Spade 10-12 AWG #6 Stud	M351RS-2.1

Sealed Crimp & Solder	ML210-08	Spade 10-12 AWG #8 Stud	M351RS-2.1
Sealed Crimp & Solder	ML210-10	Spade 10-12 AWG #10 Stud	M351RS-2.1
Sealed Crimp & Solder	ML214-06	Spade 14-16 AWG #6 Stud	M351RS-2.1
Sealed Crimp & Solder	ML214-08	Spade 14-16 AWG #8 Stud	M351RS-2.1
Sealed Crimp & Solder	ML214-10	Spade 14-16 AWG #10 Stud	M351RS-2.1
Sealed Crimp & Solder	ML216-06	Spade 18-22 AWG #6 Stud	M351RS-2.1
Sealed Crimp & Solder	ML216-08	Spade 18-22 AWG #8 Stud	M351RS-2.1
Sealed Crimp & Solder	ML216-10	Spade 18-22 AWG #10 Stud	M351RS-2.1
Sealed Crimp & Solder	ML310S-06	Spring Spade 10-12 AWG #6 Stud	M351RS-2.1
Sealed Crimp & Solder	ML310S-08	Spring Spade 10-12 AWG #8 Stud	M351RS-2.1
Sealed Crimp & Solder	ML310S-10	Spring Spade 10-12 AWG #10 Stud	M351RS-2.1
Sealed Crimp & Solder	ML314S-06	Spring Spade 14-16 AWG #6 Stud	M351RS-2.1
Sealed Crimp & Solder	ML314S-08	Spring Spade 14-16 AWG #8 Stud	M351RS-2.1
Sealed Crimp & Solder	ML314S-10	Spring Spade 14-16 AWG #10 Stud	M351RS-2.1
Sealed Crimp & Solder	ML316S-06	Spring Spade 18-22 AWG #6 Stud	M351RS-2.1
Sealed Crimp & Solder	ML316S-08	Spring Spade 18-22 AWG #8 Stud	M351RS-2.1
Sealed Crimp & Solder	ML316S-10	Spring Spade 18-22 AWG #10 Stud	M351RS-2.1
Sealed Crimp & Solder	ML6-10-250F	Female 10-12 AWG .250	M351RS-2.1
Sealed Crimp & Solder	ML6-10-250FF	Fully-Insulated Female 10-12 AWG .250	M351RS-2.1
Sealed Crimp & Solder	ML6-10-250M	Male 10-12 AWG .250	M351RS-2.1
Sealed Crimp & Solder	ML6-14-250F	Female 14-16 AWG .250	M351RS-2.1
Sealed Crimp & Solder	ML6-14-250FF	Fully-Insulated Female 14-16 AWG .250	M351RS-2.1
Sealed Crimp & Solder	ML6-14-250M	Male 14-16 AWG .250	M351RS-2.1
Sealed Crimp & Solder	ML6-18-250F	Female 18-22 AWG .250	M351RS-2.1
Sealed Crimp & Solder	ML6-18-250FF	Fully-Insulated Female 18-22 AWG .250	M351RS-2.1
Sealed Crimp & Solder	ML6-18-250M	Male 18-22 AWG .250	M351RS-2.1

alpha

Safety Data Sheet

Safety Data Sheet

Section 1. Identification

Product name : **Preforms, Alloy 50Sn/32Pb/18Cd coated with RS2.1 Flux, <1.75%**

Product code : M351RS-2.1

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-(1α,4aβ,10aα)]-1,2,3,4,4a,9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid	0.1-1.0	1740-19-8
Modified Rosin/Resin	0.1-1.0	-

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 or waistband.

Continued on next page

Section 4. First aid measures

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:
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.

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.

Continued on next page

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.

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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/m³ 8 hours. **ACGIH TLV (United States, 4/2014).** TWA: 2 mg/m³, (as Sn) 8 hours. **NIOSH REL (United States, 10/2013).** TWA: 2 mg/m³, (as Sn) 10 hours.
lead	**OSHA PEL (United States, 5/2005).** TWA: 0.05 mg/m³ 8 hours. **ACGIH TLV (United States, 4/2014). Notes: as Pb** TWA: 0.05 mg/m³, (as Pb) 8 hours. **OSHA PEL (United States, 2/2013). Notes: as Pb** TWA: 50 µg/m³, (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/m³ 10 hours.
Cadmium (Non-pyrophoric)	**OSHA PEL Z2 (United States, 2/2013).** TWA: 0.2 mg/m³ 8 hours. Form: Dust CEIL: 0.6 mg/m³ Form: Dust CEIL: 0.3 mg/m³ Form: Fume TWA: 0.1 mg/m³ 8 hours. Form: Fume **ACGIH TLV (United States, 4/2014).** TWA: 0.01 mg/m³, (as Cd) 8 hours. Form: Inhalable fraction **ACGIH TLV (United States, 4/2014). Notes: as Cd** TWA: 0.002 mg/m³, (as Cd) 8 hours. Form: Respirable fraction **OSHA PEL (United States, 2/2013). Notes: as Cd** TWA: 5 µg/m³, (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

Continued on next page

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 : 5.9 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.

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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-(1α,4aβ,10aα)]-1,2,3,4,4a,9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid	LD50 Oral	Rat	1710 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
[1R-(1α,4aβ,10aα)]-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 Cell: Germ	Equivocal
	-	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

Continued on next page

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/m³	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	-
	Equivocal - Inhalation	Rat	10 mg/m³	24 hours per day
Cadmium (Non-pyrophoric)	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	1272.3 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
Cadmium (Non-pyrophoric)	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

Continued on next page

Section 12. Ecological information

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

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
[1R-(1α,4aβ,10aα)]-1,2,3,4,4a, 9,10,10a-octahydro-7-isopropyl-1,4a-dimethylphenanthren-1-carboxylic acid	4.8	131.83	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)	-	-	-	-	-	-
Packing group	-	-	-	-	-	-

Continued on next page

Section 14. Transport information

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.

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 Cadmium (Non-pyrophoric)	7439-92-1 7440-43-9	30-40 10-20
Supplier notification	lead Cadmium (Non-pyrophoric)	7439-92-1 7440-43-9	30-40 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).

International lists

National inventory

Europe : All components are listed or exempted.

Republic of Korea : All components are listed or exempted.

Continued on next page

Section 16. Other information

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

Health	1
Flammability	0
Physical hazards	0

Procedure used to derive the classification

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

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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.

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