

MATERIAL SAFETY DATA SHEET

MSDS 0499

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Section 1 -- PRODUCT AND COMPANY IDENTIFICATION

| | |
|----------------------------|-------------------------|
| PRODUCT NAME | HMIS CODES |
| 1 | Health |
| 1 | Flammability |
| 0 | Reactivity |
| PRODUCT CODES | PPI |
| B | |
| 14115 | |
| CHEMICAL FAMILY: | |
| Organic/Inorganic | |
| USE | |
| Soldering Flux | |
| MANUFACTURER'S NAME | EMERGENCY TELEPHONE NO. |
| The RectorSeal Corporation | Chemtrec 24 Hours |
| 2601 Spenwick Drive | (800)424-9300 USA |
| Houston, Texas 77055 USA | 001-527-3887 |
| International | |
| DATE OF VALIDATION | TECHNICAL SERVICE |
| TELEPHONE NO. | |
| July 25, 2012 | (800)231-3345 or |
| (713)263-8001 | |
| DATE OF PREPARATION | |
| July 25, 2012 | |

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Section 2 -- HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

OSHA Hazards

Irritant

GHS CLASSIFICATION

PHYSICAL HAZARDS: None

HEALTH HAZARDS

Acute Toxicity:

Oral: Not Classified

Dermal: Not Classified

Inhalation: Not Classified

Skin Corrosion/Irritation: Not Classified

Serious Eye Damage/Eye Irritation: Not Classified

Respiratory or Skin Sensitization: Not Classified

Germ Cell Mutagenicity: Not Classified

Carcinogenicity: Not Classified

Reproductive Toxicology: Not Classified

Target Organ Systemic Toxicity - Single Exposure: Not Classified

Target Organ Systemic Toxicity - Repeated Exposure: Not Classified

Aspiration Toxicity: Not Classified

ENVIRONMENTAL HAZARDS

Hazardous to the Aquatic Environment: Not Classified
Acute aquatic toxicity: Not Classified
Chronic aquatic toxicity: Not Classified
Bioaccumulation potential: Not Classified
Rapid degradability: Not Classified

GHS Label elements, including precautionary statements

Pictogram: Irritant
Signal Word: Warning
Hazard Statements:
H302 - Harmful if swallowed.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
Precautionary Statements:
P102 - Keep out of reach of children.
P262 - Do not get in eyes, on skin, or on clothing.
P264 - Wash hands thoroughly after handling.
P281 Use personal protective equipment as required.

SUMMARY OF ACUTE HAZARDS

Irritation to respiratory system from fumes evolved during soldering.

Eye contact may cause intense irritation and injury.

ROUTE OF EXPOSURE, SIGNS AND SYMPTOMS

INHALATION

Irritation to respiratory system from fumes evolved during soldering.

EYE CONTACT

Contact may cause intense irritation and injury.

SKIN CONTACT

May cause skin irritation.

INGESTION

Nausea, vomiting, irritation to digestive system.

SUMMARY OF CHRONIC HAZARDS

Short term effects to liver and kidneys can occur. Chemical irritation from continued skin contact can occur. Continuous industrial use in small unventilated areas may result in sufficient inhalation of solder and flux fumes to cause lung damage and irritation of respiratory tract.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Individuals with pre-existing or chronic diseases of the eyes, skin, respiratory system, cardiovascular system, gastrointestinal system, liver, or kidneys may have increased susceptibility to excessive exposure.

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Section 2 -- COMPOSITION/INFORMATION ON INGREDIENTS

| % by WT | CAS No. | INGREDIENT | UNITS |
|---------|------------|-------------------|-----------|
| <20 | 7646-85-7 | Zinc Chloride | |
| | | ACGIH TLV | 1 mg/m3 |
| | | OSHA PEL | 1 mg/m3 |
| <1 | 12125-02-9 | Ammonium Chloride | |
| | | ACGIH TLV | 10 mg/m3 |
| | | OSHA PEL | 10 mg/m3 |
| <10 | 1314-13-2 | Zinc Oxide | |
| | | ACGIH TLV | 5 mg/m3 |
| | | OSHA PEL | 5 mg/m3 |
| - | 7440-31-5 | Tin | |
| | | ACGIH TLV | 2 mg/m3 |
| | | OSHA PEL | 2 mg/m3 |
| <1 | 7440-36-0 | Antimony | |
| | | ACGIH TLV | 0.5 mg/m3 |
| | | OSHA PEL | 0.5 mg/m3 |

Section 3 -- COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT: Zinc Chloride
PERCENTAGE BY WEIGHT: 10-25
CAS#: 7646-85-7
EC#: 231-592-0

INGREDIENT: Ammonium Chloride
PERCENTAGE BY WEIGHT: 10-25
CAS#: 12125-02-9
EC#: 235-186-4

INGREDIENT: Zinc Oxide
PERCENTAGE BY WEIGHT: <10
CAS#: 1314-13-2
EC#: 215-222-5

INGREDIENT: Tin
PERCENTAGE BY WEIGHT: -
CAS#: 7440-31-5
EC#: 231-141-8

INGREDIENT: Antimony
PERCENTAGE BY WEIGHT: <1
CAS#: 7440-31-5
EC#: 231-146-5

Section 3 -- HAZARDS IDENTIFICATION

SUMMARY OF ACUTE HAZARDS

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ROUTE OF EXPOSURE, SIGNS AND SYMPTOMS

INHALATION

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EYE CONTACT

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SKIN CONTACT

May cause skin irritation.

INGESTION

Nausea, vomiting, irritation to digestive system.

SUMMARY OF CHRONIC HAZARDS

Short term effects to liver and kidneys can occur. Chemical irritation from continued skin contact can occur. Continuous industrial use in small unventilated areas may result in sufficient inhalation of solder and flux fumes to cause lung damage and irritation of respiratory tract.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

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Section 4 -- FIRST AID MEASURES

If INHALED: If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.
If on SKIN: Immediately wash with soap and water. Remove and wash any contaminated clothing.
If in EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention if irritation persists.
If SWALLOWED: If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.
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Section 5 -- FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Foam, dry chemical, carbon dioxide or water fog.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained full face piece breathing apparatus and other protective clothing. Hazardous decomposition products possible (see Section 10). May release ZnO and HCl fumes.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Heat may build up pressure and rupture closed containers.

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Section 6 -- ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wipe up spills to prevent footing hazard. Avoid flushing into sewers, drains, waterways and soil. Wear protective clothing during clean up.

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Section 7 -- HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Keep container closed and upright when not in use. Store flux at ambient conditions. Wash thoroughly after handling to remove all residue.
OTHER PRECAUTIONS: Avoid prolonged or repeated contact with skin or clothing.
Empty containers may contain residues; treat as if full and observe all products precautions. Do not reuse empty containers.

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Section 8 -- EXPOSURE CONTROLS/PERSONAL PROTECTION

| INGREDIENT | UNITS |
|-------------------|-----------|
| Zinc Chloride | |
| ACGIH TLV | 1 mg/m3 |
| OSHA PEL | 1 mg/m3 |
| Ammonium Chloride | |
| ACGIH TLV | 10 mg/m3 |
| OSHA PEL | 10 mg/m3 |
| Zinc Oxide | |
| ACGIH TLV | 5 mg/m3 |
| OSHA PEL | 5 mg/m3 |
| Tin | |
| ACGIH TLV | 2 mg/m3 |
| OSHA PEL | 2 mg/m3 |
| Antimony | |
| ACGIH TLV | 0.5 mg/m3 |
| OSHA PEL | 0.5 mg/m3 |

RESPIRATORY PROTECTION (SPECIFY TYPE): In confined, poorly ventilated areas, use NIOSH/MSHA approved air purifying or supplied air respirators during soldering operations until fumes have dissipated.
VENTILATION - LOCAL EXHAUST: Acceptable
SPECIAL: N/A
MECHANICAL (GENERAL): Acceptable

OTHER: N/A
PROTECTIVE GLOVES: Wear rubber gloves.
EYE PROTECTION: Safety glasses (ANSI Z-87.1 or equivalent)
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Coveralls recommended.
WORK/HYGIENIC PRACTICES: Where use can result in skin contact, wash exposed areas thoroughly before eating, drinking, smoking, or leaving work area.
Launder contaminated clothing before reuse.

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Section 9 -- PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: N/A
SPECIFIC GRAVITY (H2O = 1): 1.59
VAPOR PRESSURE (mm Hg): < 0.01 @ 68 F (20 C)
MELTING POINT: 120-150 F (52-66 C)
VAPOR DENSITY (AIR = 1): N/A
EVAPORATION RATE (ETHYL ACETATE = 1): N/A
APPEARANCE/ODOR: Gray / Petroleum Odor
SOLUBILITY IN WATER: Insoluble
FLASH POINT: >230 F (110 C) SETA CC
LOWER EXPLOSION LIMIT: N/D
UPPER EXPLOSION LIMIT: N/D
VOLATILE ORGANIC COMPOUNDS (VOC) Content
(Theoretical Percentage By Weight): 0% or (0 g/L)
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Section 10 -- STABILITY AND REACTIVITY

STABILITY: Stable
CONDITIONS TO AVOID: None
INCOMPATIBILITY (MATERIALS TO AVOID): None known
HAZARDOUS DECOMPOSITION PRODUCTS: Toxic fumes of zinc, chlorine, and HCL may be evolved during soldering.
HAZARDOUS POLYMERIZATION: Will not occur.
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Section 11 -- TOXICOLOGY INFORMATION

CHRONIC HEALTH HAZARDS
No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

TOXICOLOGY DATA
Ingredient Name

Zinc Chloride
Oral-Rat LD50:350 mg/kg
Inhalation-Rat LCLo:1960 mg/m3/10M
Ammonium Chloride

Oral-Rat LD50:1650 mg/kg
 Inhalation-Rat LC50:N/D
 Zinc Oxide
 Oral-Rat TDLo:6846 mg/kg
 Inhalation-Mouse LC50:2500 mg/m3
 Tin
 Oral-Rat LD50:N/D
 Inhalation-Rat LC50:N/D
 Antimony
 Oral-Rat LD50:7 g/kg
 Inhalation-Rat TClO:50 mg/m3/7H/52W-I

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 Section 12 -- Ecological Information

 ECOLOGICAL DATA
 Ingredient Name

| | | |
|-------------------|------------------------------------|-----------------------------------|
| Zinc Chloride | Food Chain Concentration Potential | None |
| | WATERFOWL TOXICITY | N/A |
| | BOD | None |
| | AQUATIC TOXICITY | 7.2 ppm/96 hr/medium bluegill/TLm |
| Ammonium Chloride | Food Chain Concentration Potential | None |
| | WATERFOWL TOXICITY | N/A |
| | BOD | N/A |
| | AQUATIC TOXICITY | 6 ppm/96 hr/sunfish TLm |
| Zinc Oxide | Food Chain Concentration Potential | N/D |
| | WATERFOWL TOXICITY | N/D |
| | BOD | N/D |
| | AQUATIC TOXICITY | N/D |
| Tin | Food Chain Concentration Potential | N/D |
| | WATERFOWL TOXICITY | N/D |
| | BOD | N/D |
| | AQUATIC TOXICITY: | N/D |
| Antimony | Food Chain Concentration Potential | N/D |
| | WATERFOWL TOXICITY | N/D |
| | BOD | N/D |
| | AQUATIC TOXICITY | N/D |

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 Section 13 -- DISPOSAL CONSIDERATIONS

Waste Classification: Non-regulated solid waste
 Disposal Method: Approved landfill
 Waste from this product is not considered hazardous as defined under
 the
 Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of
 in

accordance with Federal, State, and Local regulation regarding pollution.

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Section 14 -- TRANSPORTATION INFORMATION

DOT: Non-Regulated
OCEAN (IMDG): Non-Regulated
AIR (IATA): Non-Regulated
WHMIS (CANADA): Non-Regulated
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Section 15 -- REGULATORY INFORMATION

REGULATORY DATA
Ingredient Name

Zinc Chloride
SARA 313 Yes
TSCA Inventory Yes
CERCLA RQ 1000 lbs.
RCRA Code N/A
Ammonium Chloride
SARA 313 No
TSCA Inventory Yes
CERCLA RQ N/A
RCRA Code N/A
Zinc Oxide
SARA 313 Yes
TSCA Inventory Yes
CERCLA RQ N/A
RCRA Code N/A
Tin
SARA 313 No
TSCA Inventory Yes
CERCLA RQ N/A
RCRA Code N/A
Antimony
SARA 313 Yes
TSCA Inventory Yes
CERCLA RQ 5000 lbs.
RCRA Code N/A
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Section 16 -- OTHER INFORMATION

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). The information herein is given in good faith, but no warranty, expressed or implied is made. Consult RectorSeal for further information: (713) 263-8001