

CHEMTRONICS[®]

Technical Data Sheet

TDS # CTSR

Konform[®] SR

PRODUCT DESCRIPTION

Konform[®] SR provides maximum flexibility for extreme temperatures. This transparent coating provides ideal protection for both rigid and flexible printed circuit boards. Cured coatings are hydrolytically stable and retain their physical electrical properties after high temperature and humidity exposure. Konform[®] SR will not stress delicate circuit components.

- Extends component life by protecting against adverse environments
- Good insulation properties, excellent flexibility
- Resists moisture, salt, fungus, corrosive vapors, and severe environments
- Engineered to withstand heat generated by electronic circuitry as well as climatic temperatures
- Contains a UV indicator for Quality Control inspection using medium intensity light at 265-335 nm
- UL Recognized, File E76307

TYPICAL APPLICATIONS

Konform[®] SR is ideal for applications in:

- Aerospace
- Data Communications
- Instrumentation
- Automotive Manufacturing
- Marine Manufacturing
- Process Control

TYPICAL PRODUCT DATA AND PHYSICAL PROPERTIES

| | |
|--|--|
| Usable Temp. Range of Cured Coatings | (-85°F to 390°F) (-65°C to 200°C) |
| Tack Free Time | 15 min. |
| Curing Conditions: Full Cure (@ 80% R.H.) | 24 Hours @ 77°F (25°C) or 8 Hours @ 170° (77°C) |
| Quick Cure | 10 min. @RT followed by 10 min @ 80°C |
| Specific Gravity (Water=1) @ 68°F | 0.74 (Liquid only) |
| Viscosity (cps @ 77°F) | 40 ± 5 cps |
| Flash Point (TCC) | 60°F |
| Volume Resistivity (ohm/cm) | 1.5 x 10 ¹⁶ |
| Dielectric Breakdown (volts/mil) | 1100 |
| Thermal Conductivity (Cal-cm/sec-cm²-°C) | 2.9 x 10 ⁻⁴ |
| Coefficient of Thermal Expansion (in/in/°C) | 2.1 x 10 ⁻⁴ |
| Coverage (1 mil/ft²) | CTSR-1 250.9 CTSR-12 21.0 |
| Shelflife | 1 year from manufacture |
| Comparative Tracking Index (CTI) | 225 V; PLC3 |

COMPATIBILITY

Konform[®] SR is generally compatible with most materials found on printed circuit boards. As with any chemical product, product/component compatibility must be determined on a non-critical area prior to use.

Performance

| | |
|---------------------|-----------|
| Moisture Resistance | Excellent |
| Removability | Excellent |
| Ease of Repair | Excellent |
| Flexibility | Excellent |
| Adhesion | Excellent |
| Abrasion Resistance | Fair |
| Solvent Resistance | Good |

USAGE INSTRUCTIONS

For industrial use only.

Read MSDS carefully prior to use.

Before applying Konform[®] SR conformal coatings, clean circuit boards to remove contamination and allow to dry. Cleaning may be performed with Chemtronics[®] Electro-Wash[®] NX or High Purity Acetone.

SPRAY APPLICATION: Apply top to bottom, allowing coating to flow evenly around components. Rotate PCB 90° and repeat application. Rotate and apply coating two additional times, then allow board to cure. If additional thickness is desired, apply additional coatings. When using liquid spray with automatic dispensing equipment, adjustments may be required in application rate and viscosity.

DIP APPLICATION: Using automatic equipment or hand immersion technique, slowly immerse PCB into the coating and remove slowly. Use an average rate of approximately 1 foot per minute. After allowing the board to cure, process may be repeated to achieve desired thickness.

BRUSH APPLICATIONS: Evenly apply coating to areas desired at thickness required. Allow time for curing before reapplying to achieve a thick coating. Use Chemask[®] to protect components during conformal coating process. After application, cured Konform[®] SR may be removed by soaking in Chemtronics[®] Electro-Wash[®] Two Step, or an aromatic solvent (such as xylene), or a short chain ketone (such as acetone).

AVAILABILITY

CTSR-12 11 oz. Aerosol

CTSR1 1 Gal. Liquid CTSR5 5 Gal. Liquid

ENVIRONMENTAL IMPACT DATA

(For Aerosol Product)

| ENVIRONMENTAL IMPACT DATA | | | |
|---------------------------|------|-----|-------|
| CFC | 0.0% | VOC | 88.0% |
| HCFC | 0.0% | HFC | 0.0% |
| Cl. Solv. | 0.0% | ODP | 0.00 |

CFC, HCFC, CL. SOLV., VOC, and HFC numbers shown are the content by weight. Ozone depletion potential (ODP) is determined in accordance with the Montreal Protocol and U.S. Clean Air Act of 1990. The ODP of this product is 0.0. It is the sum of the ODP of the substances that may contribute to the depletion of stratospheric ozone, based upon the weight of each substance in the product's formulation.

NOTE: This information is believed to be accurate. It is intended for professional end users having the skills to evaluate and use the data properly. CHEMTRONICS[®] does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.

Chemtronics[®], Electro-Wash[®], Chemask[®], and Konform[®] are registered trademarks of ITW Chemtronics. All rights reserved.

SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Information: 800-TECH-401

Product Identification

KONFORM[®] SR
(Formerly Konform SR 2000)

Product Code: CTSR-12, CTSR-12C

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS# | Wt. % Range |
|---------------------------------------|------------|-------------|
| Isohexane, a mixture of: | | |
| 3-methylpentane | 96-14-0 | 5.0 -10.0 |
| 2,3-dimethylbutane | 79-29-8 | 5.0- 10.0 |
| 2,2-dimethylbutane | 75-83-2 | 5.0 -10.0 |
| 2-methylpentane | 107-83-5 | 15.0-20.0 |
| n-hexane | 110-54-3 | 0.1 -1.0 |
| Acetone | 67-64-1 | 5.0-10.0 |
| Silicone polymer | 68952-93-2 | 10.0-15.0 |
| Propane | 74-98-6 | 10.0-15.0 |
| Isobutane | 75-28-5 | 10.0-15.0 |
| Propylene glycol methyl ether acetate | 108-65-6 | 2.0 -5.0 |
| Toluene | 108-88-3 | 10.0-15.0 |

SECTION 3: HAZARD IDENTIFICATION

Emergency Overview: Translucent, slightly green liquid with hydrocarbon odor. This product is extremely flammable. Liquid will irritate eyes and skin under repeated or prolonged exposure. Breathing high concentrations of product vapor may produce drowsiness and a headache.

Potential Health Effects:

Eyes: Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation.

Skin: Contact causes skin irritation.

Ingestion: Harmful if swallowed. Irritating to mouth, throat and stomach. May cause optic nerve damage.

Inhalation: Harmful if inhaled. High concentrations of vapors in immediate area can displace oxygen and can cause dizziness, unconsciousness, and even death with longer exposure. Keep people away from such vapors without self-contained breathing apparatus.

Pre-Existing Medical Conditions Aggravated by Exposure: Heart, lung, skin, eye.

SECTION 4: FIRST AID MEASURES

Eyes: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Have eyes examined and tested by medical personnel if irritation develops or persists.

Skin: Wash skin with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persist. Wash clothing separately before reuse.

Ingestion: Do not induce vomiting. Get immediate medical attention.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: 60°F (16C) (liquid only TCC) **LEL/UEL:** Not established (% by volume in air)

Extinguishing Media: Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.

Fire Fighting Instructions: As in any fire wear self-contained breathing apparatus (pressure-demand, MSHA/NIOSH approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Large Spills: Shut off leak if possible and safe to do so. Wear self-contained breathing apparatus and appropriate personal protective equipment. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container for proper disposal. Do not flush to sewer. Avoid runoff into storm sewers and ditches which lead to waterways. **Small Spills:** Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container for proper disposal.

SECTION 7: HANDLING AND STORAGE

Avoid prolonged or repeated contact with eyes, skin, and clothing. Wash hands before eating. Use with adequate ventilation. Avoid breathing product vapor or mist. Do not reuse this container. Store in a cool dry place away from heat, sparks and flame. Keep container closed when not in use. Do not store in direct sunlight.

KEEP OUT OF REACH OF CHILDREN.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

| CHEMICAL NAME | ACGIH TLV | OSHA PEL | ACGIH STEL |
|---------------------------------------|-----------|----------|-----------------|
| Toluene | 20 ppm | 200 ppm | 300 ppm Ceiling |
| Acetone | 500 ppm | 1000 ppm | 750 ppm |
| Isohexanes | 500ppm | NA | 1000ppm |
| n-hexane | 50 ppm | 500 ppm | NA |
| Propylene glycol methyl ether acetate | NA | NA | NA |

Work/Hygienic Practices: Good general ventilation should be sufficient to control airborne levels. Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product. If vapor concentration exceeds TLV, use NIOSH approved organic vapor cartridge respirator. Wear safety glasses with side shields (or goggles) and rubber or other chemically resistant gloves when handling this material.

NFPA and HMIS Codes:

| | NFPA | HMIS |
|---------------------|------|------|
| Health | 2 | 2 |
| Flammability | 3 | 3 |
| Reactivity | 1 | 1 |
| Personal Protection | - | B |

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIESPhysical State: Translucent, slightly green liquidOdor: hydrocarbonpH: NAVapor Pressure: not determinedVapor Density: >1

(Air = 1)

Solubility in Water: slightly solubleSpecific Gravity: 0.74 (liquid only) (Water =1)Evaporation Rate: >1

(Butyl acetate=1)

Percent Volatile: 88.6%Boiling Point: 130F liquid (54C); -43.7F (-42C) propellant**SECTION 10: STABILITY AND REACTIVITY**Stability: This product is stable. Conditions to Avoid: Do not spray near open flames, red hot surfaces or other sources of ignition.Incompatibility: Do not mix with powdered alkali and alkaline earth metals or strong oxidizing agents.Products of Decomposition: Thermal decomposition may release carbon monoxide, carbon dioxide and incompletely burned hydrocarbons.Hazardous Polymerization: Will not occur Conditions to Avoid: NA**SECTION 11: TOXICOLOGICAL INFORMATION**Inhalation:Acetone rat LC50 50100 mg/m³/8HToluene rat LC50 49000 mg/m³/4H

Propylene glycol methyl ether acetate LD50 8532 mg/kg

Skin:

Acetone Rabbit 500 mg/24H MLD

Toluene Rats LD50 14100 uL/kg

Propylene glycol methyl ether acetate rabbit LD50 >5000 mg/kg

Cancer Information: No ingredients listed as human carcinogens by NTP or IARCReproductive effects: TolueneTeratogenic effects: noneMutagenic effects: noneIngestion:

Acetone LD50 rat 5800 mg/kg

Toluene LD50 rat 636mg/kg

Eye:

Acetone rabbit 20 mg/24H MOD

Toluene rabbit 20 mg/24H MOD

SECTION 12: ECOLOGICAL INFORMATION**Environmental Impact Information**

Avoid runoff into storm sewers and ditches which lead to waterways. Water runoff can cause environmental damage.

REPORTINGUS regulations require reporting spills of this material that could reach any surface waters. The toll free number for the US Coast Guard National Response Center is: **1-800-424-8802****SECTION 13: DISPOSAL CONSIDERATIONS**

Dispose of in accordance with all federal, state and local regulations. Water runoff can cause environmental damage.

SECTION 14: TRANSPORTATION INFORMATION

| Proper Shipping Name | UN Number | Hazard Class | Sub. Risk | Pkg. Group | Hazard Label | Pkg. Instr. | Max. Quantity |
|--|-----------|--------------|-----------|------------|---------------|-----------------------|----------------|
| <u>Air:</u> Aerosols, Flammable | UN 1950 | 2.1 | NA | NA | Flammable Gas | 203 | 5L |
| <u>Ground:</u> Consumer Commodity ORM-D | NA | ORM-D | NA | NA | ORM-D | Y203 Pkg. Auth. | 60L 173.306 |

SECTION 15: REGULATORY INFORMATION**SECTION 313 SUPPLIER NOTIFICATION**

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372).

| Chemical Name | CAS# | Wt. % Range |
|---------------|----------|-------------|
| Toluene | 108-88-3 | 10.0-15.0 |
| n-hexane | 110-54-3 | 0.1 -1.0 |

This information should be included on all MSDSs copied and distributed for this material.

TOXIC SUBSTANCES CONTROL ACT (TSCA)

All ingredients of this product are listed on the TSCA Inventory.

CALIFORNIA PROPOSITION 65: This product contains Toluene, a chemical known to the state of California to cause birth defects or other reproductive harm.**WHMIS:** Class A; Class B5; Class D2B

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16: OTHER INFORMATION

Product is a Level 3 aerosol. Do not puncture or incinerate containers. Normal ventilation for standard manufacturing practices is usually adequate. Local exhaust should be used when large amounts are released.

To the best of our knowledge, the information contained herein is accurate. However, all materials may present unknown hazards and should be used with caution. In particular, improper use of our products and their inappropriate combination with other products and substances may produce harmful results which cannot be anticipated. Final determination of the suitability of any material is the sole responsibility of the user. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that may exist.