

## Electronics



## CircuitWorks® Lead-Free Flux

*The non-corrosive, halide-free flux designed specifically for lead-free soldering*

The quart-sized container offers a convenient package size for small OEM's and board repair shops. The Lead-Free Flux applies a non-corrosive, halide-free No Clean flux, that meets the Bellcore Standard TR-NWT-000078 and passes the IPC specification SF-818 for surface insulation resistance (SIR). The instant wetting action of the Lead-Free Flux provides thorough deoxidation of metal surfaces, leaving the best possible surface for solder to metal bonding.

### Lead-Free Flux Features

- Flux is non-corrosive and halide-free
- Can be used for soldering with lead-free or tin/lead solders
- Excellent material compatibility
- Fast drying
- RoHS Compliant
- High thermal stability



### Typical Applications

CircuitWorks® Lead-Free Flux can be used in all soldering operations, including:

- Printed Circuit Boards
- Chip Carriers
- Surface mount Device Pads
- Switches and Sockets

### Availability

CW3220 32 fl. oz. (1 quart) liquid



# CHEMTRONICS®

## Technical Data Sheet

TDS # CW3220

### CircuitWorks® Lead-Free Flux

#### PRODUCT DESCRIPTION

CircuitWorks® Lead-Free Flux is designed specifically for all lead-free soldering. The convenient quart size containers offers a more convenient package small OEM's and board shops. The Lead-Free Flux quickly applies a noncorrosive, halide-free, No Clean flux which meets Bellcore TR-NWT-000078 and passes IPC SF-818 for surface insulation resistance. Instant wetting action provides thorough deoxidation of metallic surfaces providing the best possible surfaces for lead-free soldering.

- Flux is noncorrosive and halide-free
- Can be used for soldering with lead-free or Tin/Lead solders
- Excellent material compatibility
- Fast drying
- RoHS compliant
- High thermal stability

#### TYPICAL APPLICATIONS

CircuitWorks® Lead-Free Flux can be used in all soldering applications including:

- Printed Circuit Boards
- Chip Carriers
- Surface Mount Device Pads
- Switches and Sockets

#### TYPICAL PRODUCT DATA AND PHYSICAL PROPERTIES

Solids Content, wt/wt	12.0
Flux Type	No Clean Flux ROLO
Flash Point (TCC)	63 °F (17 °C)
Vapor Density (air=1)	> 1
Appearance	Clear Liquid
Acid Number (mg KOH/g)	27.0
Odor	Alcohol
Shelflife	2 years

#### COMPATIBILITY

CircuitWorks® Lead-Free Flux is generally compatible with most materials used in the electronics industry. As with any fluxing agent, material compatibility should be determined on a non-critical area prior to use.

Performance	
Test	Results
Silver Chromate Method IPC-TM 650 Test Method 2.3.33	PASS
Copper Corrosion Test IPC-TM 650 Test Method 2.6.15	PASS
Copper Mirror Test IPC-TM 650 Test Method 2.3.32	No Evidence of Corrosion
J-STD-004 Surface Insulation Resistance Testing IPC-TM 650 Test Method 2.6.3.3	PASS

**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.

ITW CHEMTRONICS® does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.

## USAGE INSTRUCTIONS

For industrial use only.

Read MSDS carefully prior to use.

Can be sprayed or hand applied to the surface being soldered. After soldering, wipe area around solder joint using a ControlWipe™ to remove unreacted flux.

No Clean flux residues are designed to be left on the board, however, they can be easily removed with Chemtronics Flux-Off® Lead-Free Flux Remover (ES897B or ES1697) or CircuitWorks® Lead-Free Flux Remover Pen (CW9400).

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## AVAILABILITY

**CW3220**                      32 ounces (1 quart)

Also available:

**CircuitWorks® Lead-Free Flux Dispensing Pen**

CW8400                      9 gm (0.32 oz)

**CircuitWorks® No Clean Flux Dispensing Pen**

CW8100                      9 gm (0.32 oz)

**CircuitWorks® Rosin Flux Dispensing Pen**

CW8200                      9 gm (0.32 oz)

**SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION**

Product Information: 800-TECH-401

**Product Identification****CIRCUITWORKS® LEAD-FREE FLUX**

Product Code: CW3220

**SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS**

Product Ingredient Information	CAS#	Wt. % Range
Isopropanol	67-63-0	60.0-80.0
Rosin	8050-09-7	15.0-25.0
Tripropylene glycol butyl ether	55934-93-5	1.0-3.0
Mineral Spirits	64742-88-7	1.0-3.0

**SECTION 3: HAZARD IDENTIFICATION**

**Emergency Overview:** Clear, yellow liquid with strong alcohol odor. This product is 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 and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation. Vapors released from the soldering process may cause eye irritation.

**Skin:** Prolonged contact may cause skin irritation and/or sensitization.

**Ingestion:** Harmful if swallowed. Irritating to mouth, throat and stomach. May cause vomiting.

**Inhalation:** Harmful if inhaled. High concentrations of vapors in immediate area can displace oxygen and can cause dizziness and unconsciousness, with longer exposure. Vapors from soldering processes may cause irritation of the nose and throat. Respiratory sensitization may result from inhalation of rosin fumes.

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

**SECTION 4: FIRST AID MEASURES**

**Eyes:** If eye irritation occurs 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 persists. Wash clothing separately before reuse.

**Ingestion:** Swallowing less than an ounce will not cause significant harm. For larger amounts, do not induce vomiting, but get immediate medical attention.

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and get immediate medical attention.

**SECTION 5: FIRE FIGHTING MEASURES**

**Flash Point:** 62°F (17C) (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, OSHA/NIOSH approved or equivalent) and full protective gear.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**Spills:** 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.

**SECTION 7: HANDLING AND STORAGE**

Avoid prolonged or repeated contact with eyes and skin. Wash hands before eating. Use with adequate ventilation. Avoid breathing product vapor or mist. Avoid breathing vapors given off by the soldering process. 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
Isopropanol	200 ppm	400 ppm	400 ppm
Tripropylene glycol butyl ether	NA	NA	NA
Mineral Spirits	200 ppm	NA	NA

**Work/Hygienic Practices:** Ventilation is recommended to control airborne levels of soldering process vapors. Wear safety glasses with side shields (or goggles) and chemical resistant gloves when handling this material.

**NFPA and HMIS Codes:**

	NFPA	HMIS
Health	1	1
Flammability	3	3
Reactivity	0	0
Personal Protection	- B	

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

**Physical State:** Yellow liquid

**Odor:** Alcohol

**pH:** NA

**Vapor Pressure:** 33 mm Hg @ 68°F

**Vapor Density:** 2.0

(Air =1)

**Boiling Point:** 180°F (82C)

**Solubility in Water:** Soluble

**Specific Gravity:** (Water =1) 0.85

**Evaporation Rate:** > 1

(Butyl acetate =1)

**Viscosity:** 1 (Approx.)

(Water = 1)

**Percent Volatile:** 75%

**SECTION 10: STABILITY AND REACTIVITY**

Stability - This product is stable.

Conditions to Avoid: Do not use near open flames, red hot surfaces or other sources of ignition.

Incompatibility: Do not mix with strong acids or strong oxidizing agents.

Products of Decomposition: Thermal decomposition may release carbon monoxide, carbon dioxide and incompletely burned hydrocarbons.

Hazardous Polymerization: Will not occur.

**SECTION 11: TOXICOLOGICAL INFORMATION****Toxicological Information**Inhalation:

Isopropanol	LC50/rats	12,000 ppm/8hr	<u>Ingestion</u> :	Isopropanol	LD50 rats	5,045 mg/kg
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<u>Skin</u> :	Isopropanol	Rabbit LD50	12,800 mg/kg	<u>Eye</u> :	Isopropanol	rabbit	MLD-MOD
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Cancer Information: No ingredients listed as human carcinogens by NTP or IARC

Reproductive effects: none      Teratogenic effects: none      Mutagenic effects: none

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

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

**REPORTING**

US 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**

	<u>Proper Shipping Name</u>	<u>UN Number</u>	<u>Class</u>	<u>Sub. Risk</u>	<u>Pkg. Group</u>	<u>Hazard Label</u>	<u>Pkg. Instr./Auth</u>	<u>Max. Quantity</u>
<u>Air</u> :	Flammable liquid n.o.s. (Isopropanol)	UN 1993	3	NA	II	Flammable liquid	305	1L
<u>Ground</u> :	Consumer Commodity ORM-D	NA	NA	--	NA	ORM-D	173.150	

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

This product contains no 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).

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.

WHMIS: Class B2; 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 should be used only with adequate ventilation. Mechanical ventilation is recommended on all soldering stations. If such ventilation is not available, personnel should wear NIOSH approved organic vapor respirators equipped with particulate dust filters specified for use during welding or soldering.

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.