



1801 Morgan Street  
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MSDS Number: 325  
Revision Date: 06/24/15  
Supersedes Date: 03/05/12

## SAFETY DATA SHEET

Complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

### Product Name: GC STATIC FREE FLUX REMOVER

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Type:** Flux Remover  
**Product Name:** Flux Remover and Cleaner  
**Part Number(s):** 22-271-B

**Emergency Contact:** Chemtrec  
**Phone:** (800) 424-9300

#### SECTION 2. HAZARDS IDENTIFICATION

##### Classification of the substance or mixture

OSHA HCS (29 CFR 1910.1200)

Flam. Aerosol 1; Compressed dissolved gas; Repr. 1B; Skin Irrit. 2; Eye Irrit. 2;  
STOT SE 3; STOT RE 2;

##### Label elements

Hazard Symbol



**DANGER**

Signal word(s)

Hazard Statement(s)

Extremely flammable aerosol.  
Contains gas under pressure; may explode if heated.  
May damage fertility or the unborn child.  
Causes skin irritation. Causes serious eye irritation.  
May cause drowsiness or dizziness.  
May cause respiratory irritation.  
May cause damage to organs through prolonged or repeated exposure: Liver,  
Central nervous system.

Precautionary Statement(s)

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition  
sources. No smoking.  
Do not pierce or burn, even after use.  
Use only outdoors or in a well-ventilated area.  
Avoid breathing mist/vapours/spray.  
Wear protective gloves/protective clothing/eye protection/face protection.



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#### SECTION 2. HAZARDS IDENTIFICATION

Wash hands and exposed skin after use.

Protect from sunlight. Do not expose to temperatures exceeding 50°C/ 122°F.

##### Other hazards

Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

#### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Hazardous Ingredient(s)    | % wt. | CAS No.  | Hazard classification  |
|----------------------------|-------|----------|--|
| Trans-1,2-Dichloroethylene | 58    | 106-94-5 | Flam. Liq. 1; H224<br>Acute Tox. 4; H302<br>Skin Irrit. 2; H315<br>Eye Irrit. 2; H319<br>STOT SE 3; H336<br>Aquatic Acute 3; H402<br>Aquatic Chronic 3; H412 |
| 1,1 Difluoroethane         | 25    | 75-37-6  | Flam. Gas 1; H220<br>Liquefied gas; H280   |
| Isopropanol                | 16    | 67-63-0  | Flam. Liq. 2; H225<br>Eye Irrit. 2; H319<br>STOT SE 3; H336  |
| Carbon Dioxide             | 2     | 124-38-9 | Compressed dissolved gas; H280   |

Additional Information –None.

#### SECTION 4. FIRST AID MEASURES



##### Description of first aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is labored, administer oxygen. If symptoms develop, obtain medical attention.

Skin Contact

Wash affected skin with soap and water. If irritation (redness, rash, blistering) develops, get medical attention. Take off contaminated clothing and wash it before reuse.

Eye Contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.



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#### SECTION 4. FIRST AID MEASURES (CONTINUED)

|  |   |
|--|---|
| Ingestion  | Immediately call a POISON CENTER or doctor/physician. Do not give anything by mouth to an unconscious person. |
| Most important symptoms and effects, both acute and delayed                | May cause drowsiness or dizziness.  |
| Indication of any immediate medical attention and special treatment needed | IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.   |

#### SECTION 5. FIRE-FIGHTING MEASURES

|  |  |
|--|--|
| <b>Extinguishing Media</b>                                   |  |
| -Suitable Extinguishing Media                                | Extinguish with carbon dioxide, dry chemical, foam or water spray.   |
| -Unsuitable Extinguishing Media                              | Do not use water jet.  |
| <b>Special hazards arising from the substance or mixture</b> | Pressurised container: May burst if heated   |
| <b>Advice for fire-fighters</b>                              | A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions. Keep containers cool by spraying with water if exposed to fire. |

#### SECTION 6. ACCIDENTAL RELEASE MEASURES

|  |  |
|--|--|
| <b>Personal precautions, protective equipment and emergency procedures</b> | Eliminate sources of ignition. Avoid contact with skin and eyes. Avoid breathing spray. Wear protective gloves/eye protection. |
| <b>Environmental precautions</b>   | Prevent liquid entering sewers, basements and work pits. Avoid release to the environment.                                     |
| <b>Methods and material for containment and cleaning up</b>                | Cover spills with inert absorbent material. Transfer to a container for disposal or recovery.                                  |
| <b>Reference to other sections</b>   | None   |
| <b>Additional Information</b>  | None   |



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#### SECTION 7. HANDLING AND STORAGE

##### Precautions for safe handling

Eliminate sources of ignition. Avoid contact with skin and eyes. Avoid breathing spray. Wear protective gloves/eye protection.

##### Conditions for safe storage, including any incompatibilities

-Storage temperature

Store in a well-ventilated place. Protect from sunlight. Do not expose to temperatures exceeding 50°C/ 122°F. Keep container tightly closed.

-Incompatible materials

This product should be stored away from sources of strong heat, oxidizing agents, reducing agents, and strong acids. Do not mix with finely divided alkali or alkaline earth metals. May attack some plastics, rubbers, and coatings.

##### Specific end use(s)

Soldering Aid / Flux Releasing Agent

#### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

##### Occupational Exposure Limits

| SUBSTANCE.                 | CAS No.  | (8hr TWA)  |             | (STEL)     |             | Note: |
|----------------------------|----------|------------|-------------|------------|-------------|-------|
|                            |          | PEL (OSHA) | TLV (ACGIH) | PEL (OSHA) | TLV (ACGIH) |       |
| Trans-1,2-Dichloroethylene | 156-60-5 | 200 ppm    | 200 ppm     | ----       | -----       | ----- |
| Carbon dioxide             | 124-38-9 | -----      | 5000 ppm    | -----      | 30,000 ppm  | ----- |
| Isopropanol                | 67-63-0  | 400 ppm    | 200 ppm     | 500 ppm    | 400 ppm     | ----- |

\*Assure minimum oxygen content of work atmosphere.

##### Recommended monitoring method

NIOSH 1025 (Bromopropane); NIOSH 1400 (Alcohols)

##### Exposure controls

##### Appropriate engineering controls

Use only with adequate ventilation to keep exposures (airborne levels of dust, fume, vapour etc) below recommended exposure limits.

##### Personal protection equipment

Eye/face protection

Wear protective eyewear (goggles, face shield, or safety glasses).





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#### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

Skin protection (Hand protection/ Other)



Wear suitable gloves if prolonged skin contact is likely. Check with protective equipment manufacturer's data.

Respiratory protection



Normally no personal respiratory protection is necessary. In case of insufficient ventilation, wear suitable respiratory equipment. Check with protective equipment manufacturer's data.

Thermal hazards

Not normally required. Use gloves with insulation for thermal protection, when needed.

Environmental Exposure Controls

Avoid release to the environment.

#### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

##### Information on basic physical and chemical properties

|  |                                     |
|--|-------------------------------------|
| Appearance                               | Aerosol spray                       |
| Color                                    | Clear                               |
| Odor                                     | Sweet                               |
| Odor Threshold (ppm)                     | Not available                       |
| pH (Value)                               | Not available                       |
| Melting Point (°C) / Freezing Point (°C) | -129.5 (1-Bromopropane)             |
| Boiling point/boiling range (°C):        | 63.4 (1-Bromopropane)               |
| Flash Point (°C)                         | Flammable aerosol                   |
| Evaporation Rate                         | Not available                       |
| Flammability (solid, gas)                | Flammable aerosol                   |
| Explosive Limit Ranges                   | ~ 3 - 8%                            |
| Vapor pressure (Pascal)                  | $> 4.4 \times 10^4$ ( $> 331$ mmHg) |
| Vapor Density (Air=1)                    | $> 1$                               |
| Density (g/ml)                           | Not available                       |
| Solubility (Water)                       | Not available                       |
| Solubility (Other)                       | Not available                       |
| Partition Coefficient (n-Octanol/water)  | Not available                       |
| Auto Ignition Point (°C)                 | 370 (1-Bromopropane)                |
| Decomposition Temperature (°C)           | Not available                       |
| Kinematic Viscosity (cSt)                | $< 20.5$ @ 40 °C                    |
| Explosive properties                     | Not explosive.                      |
| Oxidizing properties                     | Not oxidizing.                      |

Other information

None



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### SECTION 10. STABILITY AND REACTIVITY

|                                    |   |
|------------------------------------|---|
| Reactivity                         | Stable under normal conditions.               |
| Chemical stability                 | Stable.                                       |
| Possibility of hazardous reactions | None anticipated.                             |
| Conditions to avoid                | Avoid contact with heat and ignition sources. |
| Incompatible materials             | Strong oxidising agents.                      |
| Hazardous decomposition product(s) | None known.                                   |

### SECTION 11. TOXICOLOGICAL INFORMATION

Exposure routes: Inhalation, Skin Contact, Eye Contact

#### Information on toxicological effects

|   |   |
|---|---|
| Acute toxicity (calculated / estimated) | Oral LD50 = 770 mg/kg (rat)<br>Dermal LD50 >5000 mg/kg (rabbit)<br>Inhalation LC50 2410 ppm (4 hour(s)) (rat) - Vapours may cause drowsiness and dizziness. |
| Irritation/Corrosivity                  | Causes skin irritation. Causes serious eye irritation. Repeated exposure may cause skin dryness or cracking.  |
| Sensitization                           | It is not a skin sensitizer.  |
| Repeated dose toxicity                  | Inhalation NOAEL 4000 ppm (rat) (90-days)   |
| Carcinogenicity                         | It is unlikely to present a carcinogenic hazard to man.   |

| NTP | IARC | ACGIH | OSHA | NIOSH |
|-----|------|-------|------|-------|
| No. | No.  | No.   | No.  | No.   |

|                       |             |
|-----------------------|-------------|
| Mutagenicity          | Negative    |
| Reproductive toxicity | Negative    |
| Other information     | None known. |

#### Isopropanol (CAS No. 67-63-0):

|                        |   |
|------------------------|---|
| Acute toxicity         | Oral: LD50 5840 = mg/kg (rat)<br>Inhalation: LC50 > 10000 ppm (6-hr, rat, Vapour) May cause drowsiness or dizziness.<br>Dermal: LD50 > 16.4 ml/kg |
| Irritation/Corrosivity | Causes serious eye irritation.  |
| Sensitization          | It is not a skin sensitiser.  |
| Repeated dose toxicity | NOEC: 500 ppm (104-week(s), rat)<br>NOAEC: 5000 ppm (104-week(s), rat, Systemic effects)  |
| Carcinogenicity        | No evidence of carcinogenicity. NOEL: 5000 ppm  |



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### SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

| NTP | IARC | ACGIH | OSHA | NIOSH |
|-----|------|-------|------|-------|
| No. | No.  | No.   | No.  | No.   |

**Mutagenicity**

There is no evidence of mutagenic potential.

**Reproductive toxicity**

None anticipated

### SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

Trans-1,2-dichloroethylene (CAS No. 156-60-5):

Short term

LC50 (96 hour): 74 - 290 mg/L (Fish)  
LC50 (48 hour): 79 mg/L (Daphnia magna)  
LC50 (96 hour): 798 mg/L (Algae)

Long Term

NOEC (28 days): <110 mg/L (Fish)

### SECTION 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

Disposal should be in accordance with local, state or national legislation.  
Consult an accredited waste disposal contractor or the local authority for advice.

### SECTION 14. TRANSPORT INFORMATION

|   | <u>U.S. DOT</u>     | <u>Sea transport (IMDG)</u> | <u>Air transport (ICAO/IATA)</u> |
|---|---------------------|-----------------------------|----------------------------------|
| UN number   | 1950                | 1950                        | 1950                             |
| Proper Shipping Name  | Aerosols, flammable | Aerosols, flammable         | Aerosols, flammable              |
| Transport hazard class(es)  | 2.1                 | 2.1                         | 2.1                              |
| Packing group   | Not applicable      | Not applicable              | Not applicable                   |
| Environmental hazards   | None assigned       | None assigned               | None assigned                    |
| Special precautions for user  | None assigned       | None assigned               | None assigned                    |
| Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable |                     |                             |                                  |



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### SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

TSCA (Toxic Substance Control Act) - Inventory Status: All components listed or polymer exempt.

Designated Hazardous Substances and Reportable Quantities (40 CFR 302.4):

| Chemical Name              | CAS No.  | Typical %wt. | RQ (Pounds) |
|----------------------------|----------|--------------|-------------|
| Trans-1,2-Dichloroethylene | 156-60-5 | 10           | 1000        |

SARA 311/312 - Hazard Categories:

☒ Fire ☒ Sudden Release ☐ Reactivity ☒ Immediate (acute) ☒ Chronic (delayed)

SARA 313 - Toxic Chemicals (40 CFR 372):

| Chemical Name | CAS No. | Typical %wt. |
|---------------|---------|--------------|
| Isopropanol   | 67-63-0 | 16           |

SARA 302 - Extremely Hazardous Substances (40 CFR 355):

| Chemical Name | CAS No. | Typical %wt. | TPQ (pounds) |
|---------------|---------|--------------|--------------|
| None          | ----    | ----         | ----         |

California Proposition 65 List:

| Chemical Name  | CAS No.  | Type of Toxicity            |
|----------------|----------|-----------------------------|
| 1-bromopropane | 106-94-5 | Developmental, female, male |

### SECTION 16. OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

Date of preparation: May 12, 2015

Hazard Statement(s) and Risk Phrases Listed in: SECTION 2:/ SECTION 3:

Hazard Statement(s)

- H220: Extremely flammable gas.
- H225: Highly flammable liquid and vapour.
- H280: Contains gas under pressure; may explode if heated.
- H315: Causes skin irritation.
- H319: Causes serious eye irritation.
- H335: May cause respiratory irritation.
- H336: May cause drowsiness or dizziness.
- H360: May damage fertility or the unborn child.
- H373: May cause damage to organs through prolonged or repeated exposure.
- H402: Harmful to aquatic life.
- H412: Harmful to aquatic life with long lasting effects.

Training advice: None.





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## **SAFETY DATA SHEET**

Complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

**Product Name: GC STATIC FREE FLUX REMOVER**

### **SECTION 16. OTHER INFORMATION (CONTINUED)**

GC Electronics believes that the information contained herein is accurate and reliable as of the date of this material safety data sheet, but no representation guarantee or warranty, express or implied, is made as to the accuracy, reliability or completeness of the information. Persons receiving information are encouraged to make their own determination as to the information's suitability and completeness for their particular application. NO INFORMATION CONTAINED HEREIN CONSTITUTES A PRODUCT WARRANTY OF ANY KIND, WHETHER EXPRESS OR IMPLIED; AND ALL IMPLIED WARRANTIES OF MERCHANT ABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY GC ELECTRONICS.



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**Discontinued**

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changing to newer 22-271-B

## MATERIAL SAFETY DATA SHEET

Complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

**Product Name: FLUX REMOVER AND CLEANER**

### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

|                 |                          |                    |                |
|-----------------|--------------------------|--------------------|----------------|
| Product Type:   | Flux Remover             | Emergency Contact: | Chemtrec       |
| Product Name:   | Flux Remover and Cleaner | Phone:             | (800) 424-9300 |
| Part Number(s): | 22-271-A                 |                    |                |

COMMON NAME (used on label) (Trade Name & Synonyms): GC FLUX REMOVER 22-271

CAS NUMBER: See Section 2

CHEMICAL NAME: N-Propyl Bromide

CHEMICAL FAMILY: N/A

FORMULA: N/A

#### HMIS RATINGS

|                      |   |                         |   |
|----------------------|---|-------------------------|---|
| Health:              | 2 | Minimal Hazard:         | 0 |
| Flammability:        | 1 | Slight Hazard:          | 1 |
| Reactivity:          | 0 | Moderate Hazard:        | 2 |
| Personal Protection: | B | Serious Hazard:         | 3 |
|                      |   | Severe Hazard:          | 4 |
|                      |   | Gloves, Safety Glasses: | B |

### SECTION 2. HAZARDS IDENTIFICATION

#### Primary Hazardous Component(s)

| CHEMICAL AND<br>COMMON NAME(S) | CAS. #   | OSHA<br>PEL     | AGCIH<br>TLV | VAPOR<br>PRESSURE<br>@ DEG C | LEL | UEL  | FLASH<br>POINT °F | % BY<br>WT. |
|--------------------------------|----------|-----------------|--------------|------------------------------|-----|------|-------------------|-------------|
| **N-Propyl Bromide             | 106-94-5 | Not Established |              | 111mmHg                      | 4.0 | 7.8  | None              | 50-60       |
| 1,1 Difluorethane              | 75-37-6  | 1000ppm*        | 1000ppm*     | 62 psig                      | 3.9 | 16.9 | -58               | 20-30       |
| Isopropyl Alcohol              | 67-63-0  | 400ppm          | 400ppm       | 31mmHg                       | 2.2 | 12.0 | 53 (TCC)          | 1-10        |
| Carbon Dioxide                 | 124-38-9 | 5000ppm         |              | 1 atm                        |     | None | None              | 5           |

Warning: Contains Bromopropane (n-propyl bromide) which is known to the State of California to cause reproductive toxicity.

\*Limit established by the manufacturer is 220ppm.

\*\*NOTE: This product contains an ingredient subject to Section 313 SARA TITLE III.

N/A is not available or not applicable



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## Product Name: FLUX REMOVER AND CLEANER

### SECTION 3. PHYSICAL DATA

|                                     |  |
|-------------------------------------|--|
| Boiling Point (Deg. F):             | Concentrate Range: 170-200                           |
| Specific Gravity (Water =1):        | Concentrate: 1.1                                     |
| Vapor Pressure (mmHg):              | See Section 2  |
| Percent Volatile By Weight (%):     | 100%   |
| Percent Volatile Organic Compounds: | LESS THAN 75%  |
| Vapor Density (Air=1):              | >1   |
| Evaporation Rate (BA=1):            | >1   |
| Solubility in Water:                | Negligible   |
| Reactivity in Water:                | None   |
| Appearance and Odor:                |  |
| Concentrate:                        | Clear liquid, irritating odor at high concentrations |
| Propellant:                         | Colorless, odorless gas                              |
| Finished Package:                   | Pressurized containers                               |

### SECTION 4. FIRE AND EXPLOSION HAZARD DATA

|  |  |
|--|--|
| Flash Point                              | : See Section 2  |
| Flammable Limits In Air<br>(% By Volume) | : See Section 2  |
| Extinguisher Media                       | : Water, fog, dry chemical, carbon dioxide   |
| Auto-ignition Temperature                | : Unknown  |
| Special Fire-Fighting<br>Procedures      | : Water may be used to cool closed containers to prevent pressure build-up and possible bursting when exposed to high temperatures. Firemen should wear self-contained, positive pressure, respiratory equipment   |
| Unusual Fire and Explosion<br>Hazards    | : Although aerosols are classified as nonflammable under ASTM D 3065-77 Flame Projection Test, this product should not be used or stored near any open flames or ignition sources. Contents under pressure. Self-pressurized aerosol containers. Keep temperature of containers below 120 Deg. F. to prevent bursting. Hazardous decomposition products. |

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### SECTION 5. HEALTH HAZARD DATA

Threshold Limit Value: See Section 2

#### Signs and Symptoms of Exposure:

|               |  |
|---------------|--|
| Eye Contact:  | Contact with liquid or mist may cause irritation. Vapors may irritate eyes   |
| Skin Contact: | Prolonged contact may cause irritation, defatting of skin  |
| Inhalation:   | Overexposure to vapor may cause dizziness, loss of concentration and irritation. With high exposure levels, effects can include central nervous system (CNS), depression (intoxication), cardiac arrhythmia and death. Product vapors displace air and can cause suffocation especially in a confined space. <b>INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS OF THE CAN MAY BE HARMFUL OR FATAL.</b> |
| Ingestion:    | Aspiration may cause rapid absorption through the lungs, which may result in systemic effects.   |

**IMPORTANT NOTICE: REPEATED AND PROLONGED OVEREXPOSURE TO SOLVENTS MAY LEAD TO PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. EYE WATERING, HEADACHES, NAUSEA, DIZZINESS AND LOSS OF COORDINATION ARE SIGNS THAT SOLVENT LEVELS ARE TOO HIGH. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.**

#### Emergency and First Aid Procedures:

|             |   |
|-------------|---|
| Inhalation: | Remove to fresh air. If not breathing, give mouth-to-mouth. If breathing is difficult, give oxygen. Do not give epinephrine or similar drugs. Call a physician. |
| Eyes:       | Flush with water for at least 15 minutes. Get medical assistance if irritation persists.  |
| Skin:       | Wash off in flowing water or shower. Remove contaminated clothing and wash before reuse.  |
| Ingestion:  | Do not induce vomiting. Call a physician immediately. Do not administer sympathomimetic drugs unless absolutely necessary. No specific antidote.                |

## **Product Name: FLUX REMOVER AND CLEANER**

### **SECTION 6. STABILITY AND REACTIVITY DATA**

|   |  |
|---|--|
| Stability                               | : Stable   |
| Conditions to Avoid                     | : Avoid any excessive heat, ignition sources, open flames, or other high temperatures which induce thermal decomposition. Gross contamination with water may cause hydrolysis which will produce small amounts of hydrochloric acid. |
| Incompatibility<br>(Materials to Avoid) | : Chemically Active Metals. Oxidizing agents. Sodium, Potassium, Calcium, etc. Alkali or alkaline earth metals. Powdered Aluminum, Zinc, Magnesium, Beryllium, etc.  |
| Hazardous Decomposition<br>Products     | : Hydrogen Bromide, Carbon Dioxide, and Carbon Monoxide. See SECTION 5- HEALTH HAZARD DATA: Signs and Symptoms of Exposure.  |
| Hazardous Polymerization                | : Will not occur.  |
| Conditions to Avoid                     | : Not Applicable   |

### **SECTION 7. SPILL OR LEAK PROCEDURES**

#### **STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:**

|                               |  |
|-------------------------------|--|
| <u>SMALL SPILLS</u>           | : Remove ignition sources. Mop up, wipe up, or soak up immediately. Use proper protective equipment.               |
| <u>LARGE SPILLS</u>           | Evacuate area. Remove ignition sources. Contain liquid; transfer to closed containers; keep out of water supplies. |
| <u>WASTE DISPOSAL METHODS</u> | Dispose in accordance with Federal, State, and Local regulations. Do not incinerate closed or empty containers.    |



**Discontinued**

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## Product Name: FLUX REMOVER AND CLEANER

### SECTION 8. SPECIAL PROTECTION INFORMATION

Respiratory Protection : NIOSH or Bureau of Mines approved organic vapor-type respirator is required in absence of proper environmental control.

Ventilation:

Local Exhaust: : To keep below TLV

Mechanical (General): : To keep below TLV

Special: : None

Other: : None

Protective Gloves: : Solvent resistant gloves- impervious gloves

Eye Protection: : Safety glasses or goggles

Other Protective Clothing or Equipment : : None reasonably foreseeable

### SECTION 9. SPECIAL PRECAUTIONS

Precaution to be Taken in Handling and Storage : Do not store above 110 Deg. F. Do not use or store near any open flames or ignition sources. Avoid repeated contact with skin.

Other Precautions : Contents under pressure. Do not puncture or incinerate. Exposure to temperatures above 120 Deg. F. may cause can to burst in violence and cause injury. Vapors are heavier than air and will collect in low areas.

### SECTION 10. REGULATORY INFORMATION

Subject to Section 313 of SARA TITLE III : Yes. N-Propyl Bromide

California Prop 65 Notice : THIS PRODUCT CONTAINS BROMOPROPANE (N-PROPYL BROMIDE) WHICH IS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE REPRODUCTIVE TOXICITY.

ALL CHEMICAL COMPONENTS ARE LISTED IN THE TSCA INVENTORY.

Chemicals Listed as Carcinogen or Potential Carcinogen : NATIONAL TOXICOLOGY PROGRAM: No.

I.A.R.C. Monographs: : No

OSHA: : No

OSHA Permissible Exposure Limit : See Section 2

AGCIH Threshold Limit Value : See Section 2

Other Exposure Limited Used : None



**Discontinued**

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MSDS Number: 313  
Revision Date: 3/05/12  
Supersedes Date: New

## **Product Name: FLUX REMOVER AND CLEANER**

### **SECTION 11. OTHER INFORMATION**

Transportation Information- Domestic Ground

Shipping Name : Consumer Commodity

Hazard Class : ORM-D

UN Number : N/A

Packing Group : N/A

Hazard Label : None

Carton Making : Consumer Commodity, ORM-D

### **SECTION 12. OTHER INFORMATION**

GC Electronics believes that the information contained herein is accurate and reliable as of the date of this material safety data sheet, but no representation guarantee or warranty, express or implied, is made as to the accuracy, reliability or completeness of the information. Persons receiving information are encouraged to make their own determination as to the information's suitability and completeness for their particular application. NO INFORMATION CONTAINED HEREIN CONSTITUTES A PRODUCT WARRANTY OF ANY KIND, WHETHER EXPRESS OR IMPLIED; AND ALL IMPLIED WARRANTIES OF MERCHANT ABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY GC ELECTRONICS.

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**Product Name: GC FLUX REMOVER & CLEANER<sup>2</sup>**

MSDS Number: 176  
Revision Date: 2/10/2010  
Supersedes Date: 2/6/07

**Discontinued**

## **MATERIAL SAFETY DATA SHEET**

Complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Product Type: **Flux Remover**  
Product Name: **GC FLUX REMOVER & CLEANER<sup>2</sup>**  
Part Number(s): **22-271**

Emergency Contact: **Chemtrec**  
Phone (24 hours): **(800) 424-9300**

### **Section 1 - Identification of Product**

COMMON NAME (used on label)(Trade Name & Synonyms): **GC FLUX REMOVER & CLEANER**

CAS. NUMBER: See Section 2

CHEMICAL NAME: Trichloroethylene & Isopropanol

CHEMICAL FAMILY: N/A

FORMULA: N/A

#### **HMIS RATINGS**

|                        |                        |   |
|------------------------|------------------------|---|
|                        | Minimal Hazard         | 0 |
|                        | Slight Hazard          | 1 |
| Health: 2              | Moderate Hazard        | 2 |
| Flammability: 1        | Serious Hazard         | 3 |
| Reactivity: 0          | Severe Hazard          | 4 |
| Personal Protection: B | Gloves, Safety Glasses | B |

### **Section 2 - Hazardous Ingredients**

Principal Hazardous Component(s)

| CHEMICAL AND<br>COMMON NAME(S) | CAS. #   | OSHA<br>PEL | ACGIH<br>TLV | VAPOR<br>PRESSURE<br>@ 25 DEG. C. | LEL | UEL  | FLASH<br>POINTDEG. F | % BY WT. |
|--------------------------------|----------|-------------|--------------|-----------------------------------|-----|------|----------------------|----------|
| Isopropyl Alcohol**            | 67-63-0  | 400ppm      | 400ppm       | 31 mmHg                           | 2.2 | 12.0 | 53(TCC)              | 15 - 20  |
| Trichloroethylene**            | 79-01-6  | 50 ppm      | 50ppm        | 60 mmHg                           | 8.0 | 44.8 | None                 | 80 - 85  |
| Carbon Dioxide                 | 124-38-9 | 5000ppm     |              | 1 atm.                            |     | None | None                 | 5        |

**\*\*NOTE:** This product contains an ingredient subject to Section 313 of SARA Title III.

**WARNING:** This product contains Trichloroethylene which is known to the state of California to cause cancer, birth defects or other reproductive harm.

N/A is not available or not applicable



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MSDS Number: 176  
Revision Date: 2/10/2010  
Supersedes Date: 2/6/07

**Discontinued**

### Section 3 - Physical Data

**BOILING POINT (Deg. F):** Concentrate Range: 170 - 200

**SPECIFIC GRAVITY (Water = 1):** Concentrate: 1.1

**VAPOR PRESSURE (mmHg):** See Section 2

**PERCENT VOLATILE BY WEIGHT (%):** 95%

**PERCENT VOLATILE ORGANIC COMPOUNDS:** 16%

**VAPOR DENSITY (Air = 1):** >1

**EVAPORATION RATE (BA = 1):** >1

**SOLUBILITY IN WATER:** Negligible

**REACTIVITY IN WATER:** None

**APPEARANCE AND ODOR:** CONCENTRATE: Clear liquid, irritating odor at high concentrations; PROPELLANT: Colorless, odorless gas; FINISHED PACKAGE: Pressurized containers.

### Section 4 - Fire & Explosion Hazard Data

**FLASH POINT:** See Section 2

**FLAMMABLE LIMITS IN AIR - % BY VOLUME:** See Section 2

**EXTINGUISHER MEDIA:** Water fog, dry chemical, carbon dioxide

**AUTO-IGNITION TEMPERATURE:** Unknown

**SPECIAL FIRE FIGHTING PROCEDURES:** Water may be used to cool closed containers to prevent pressure build-up and possible bursting when exposed to high temperatures. Firemen should wear self-contained, positive pressure, respiratory equipment.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Although aerosols are classified as nonflammable under ASTM D 3065-77 Flame Projection Test, this product should not be used or stored near any open flames or ignition sources. Contents under pressure. Self-pressurized aerosol containers. Keep temperature of containers below 120 deg. F. to prevent bursting. Hazardous decomposition products.

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**Discontinued**

#### **Section 5 - Health Hazard Data**

THRESHOLD LIMIT VALUE: See Section 2

#### **SIGNS AND SYMPTOMS OF EXPOSURE:**

**EYE CONTACT:** Contact with liquid or mist may cause irritation. Vapors may irritate eyes;

**SKIN CONTACT:** Prolonged contact may cause irritation, defatting of skin;

**INHALATION:** Overexposure to vapor may cause dizziness, loss of concentration and irritation. With high exposure levels, effects can include central nervous system (CNS), depression (intoxication), cardiac arrhythmia, and death. Product vapors displace air and can cause suffocation especially in confined space. **INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS OF THE CAN MAY BE HARMFUL OR FATAL;**

**INGESTION:** Aspiration may cause rapid absorption through the lungs, which may result in systemic effects.

***IMPORTANT NOTICE: REPEATED AND PROLONGED OVEREXPOSURE TO SOLVENTS MAY LEAD TO PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. EYE WATERING, HEADACHES, NAUSEA, DIZZINESS AND LOSS OF COORDINATION ARE SIGNS THAT SOLVENT LEVELS ARE TOO HIGH. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.***

#### **EMERGENCY AND FIRST AID PROCEDURES**

**INHALATION:** Remove to fresh air. If not breathing, give mouth-to-mouth. If breathing is difficult, give oxygen. Do not give epinephrine or similar drugs. Call a physician.

**EYES:** Flush with water for at least 15 minutes. Get medical assistance if irritation persists.

**SKIN:** Wash off in flowing water or shower. Remove contaminated clothing and wash before reuse.

**INGESTION:** Do not induce vomiting. Call a physician immediately. Do not administer sympathomimetic drugs unless absolutely necessary. No specific antidote

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**NOTE TO PHYSICIANS:** BECAUSE OF POSSIBLE DISTURBANCES OF CARDIAC RHYTHM, CATECHOLAMINE DRUGS, SUCH AS EPINEPHRINE, SHOULD ONLY BE USED WITH SPECIAL CAUTION IN SITUATIONS OF EMERGENCY LIFE SUPPORT.

*NOTE TO PHYSICIAN: BECAUSE RAPID ABSORPTION MAY OCCUR THROUGH LUNGS IF ASPIRATED AND CAUSE SYSTEMIC EFFECTS, THE DECISION OF WHETHER TO INDUCE VOMITING OR NOT SHOULD BE MADE BY AN ATTENDING PHYSICIAN. IF LAVAGE IS PERFORMED, SUGGEST ENDOTRACHEAL AND/OR ESOPHAGEAL CONTROL. DANGER FROM LUNG ASPIRATION MUST BE WEIGHED AGAINST TOXICITY WHEN CONSIDERING EMPTYING THE STOMACH. EXPOSURE MAY INCREASE "MYOCARDIAL IRRITABILITY". DO NOT ADMINISTER SYMPATHOMIMETIC DRUGS UNLESS ABSOLUTELY NECESSARY. NO SPECIFIC ANTIDOTE. SUPPORTIVE CASE. TREATMENT BASED ON JUDGMENT OF THE PHYSICIAN IN RESPONSE TO REACTIONS OF THE PATIENT.*

|                                    |
|------------------------------------|
| <b>Section 6 - Reactivity Data</b> |
|------------------------------------|

**STABILITY:** Stable

**CONDITIONS TO AVOID:** Avoid any excessive heat, ignition sources, open flames, or other high temperatures which induce thermal decomposition. Gross contamination with water may cause hydrolysis which will produce small amounts of hydrochloric acid.

**INCOMPATIBILITY (Materials to Avoid):** Chemically Active Metals. Oxidizing agents. Sodium, Potassium, Calcium, etc. Alkali or alkaline earth metals. Powdered Aluminum, Zinc, Magnesium, Beryllium, etc.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Hydrogen chloride, small amounts of Phosgene and Chlorine.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Not Applicable

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#### **Section 7 - Spill or Leak Procedures**

##### **STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:**

###### **SMALL SPILLS:**

Remove ignition sources. Mop up, wipe up, or soak up immediately. Use proper protective equipment.

###### **LARGE SPILLS:**

Evacuate area. Remove ignition sources. Contain liquid; transfer to closed containers; keep out of water supplies.

**WASTE DISPOSAL METHODS:** Dispose in accordance with Federal, State, and Local regulations. Do not incinerate closed or empty containers.

#### **Section 8 - Special Protection Information**

**RESPIRATORY PROTECTION:** NIOSH or Bureau of Mines approved organic vapor-type respirator is required in absence of proper environmental control.

##### **VENTILATION:**

LOCAL EXHAUST: To keep below TLV

MECHANICAL (General): To keep below TLV

SPECIAL: None

OTHER: None

##### **PROTECTIVE GLOVES:**

Solvent resistant gloves - impervious gloves

##### **EYE PROTECTION:**

Safety glasses or goggles

##### **OTHER PROTECTIVE**

**CLOTHING OR EQUIPMENT:** None reasonably foreseeable.

#### **Section 9 - Special Precautions**

##### **PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:**

Do not store above 110 Deg. F. Do not use or store near any open flames or ignition sources. Avoid repeated contact with skin.

##### **OTHER PRECAUTIONS:**

Contents under pressure. Do not puncture or incinerate. Exposure to temperatures above 120 Deg. F may cause can to burst with violence and cause injury. Vapors are heavier than air and will collect in low areas.

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### Section 10 - Regulatory Information

SUBJECT TO SECTION 313 OF SARA TITLE III: Yes. Trichloroethylene = 80%, Isopropyl Alcohol = 16%

ALL CHEMICAL COMPONENTS ARE LISTED IN THE TSCA INVENTORY.

CHEMICAL LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN: NATIONAL TOXICOLOGY PROGRAM: No.

I.A.R.C. MONOGRAPHS: Yes - Trichloroethylene

OSHA: No.

**WARNING: This product contains Trichloroethylene which is known to the state of California to cause cancer, birth defects or other reproductive harm.**

CANCER INFORMATION: A positive carcinogenic response has occurred only in mice given large doses of trichloroethylene. Data suggest a nonmutagenic mechanism for tumor formation implying that nontoxic doses of trichloroethylene should pose little or no carcinogenic hazard for man. Trichloroethylene is listed as a potential carcinogen by IARC.

OSHA PERMISSIBLE EXPOSURE LIMIT: See Section 2

ACGIH THRESHOLD LIMIT VALUE: See Section 2

OTHER EXPOSURE LIMITED USED: None

### Section 11 - Other Information

#### TRANSPORTATION INFORMATION – DOMESTIC GROUND

|                 |                           |
|-----------------|---------------------------|
| Shipping Name:  | Consumer Commodity        |
| Hazard Class:   | ORM-D                     |
| UN Number:      | N/A                       |
| Packing Group:  | N/A                       |
| Hazard Label:   | None                      |
| Carton Marking: | Consumer Commodity, ORM-D |

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