MATERIAL SAFETY DATA SHEET

MSDS-E-RSF-R80

Prepared to OSHA, ACC, ANSI, WHMIS & 2001/58 EC Standards | MSDS Revision: 1.1 | MSDS Revision Date: 02/20/2011

1. PRODUCT IDENTIFICATION

1.1	Product Name:	**DeoxIT® Brand Soldering Flux, RSF-R80**
1.2	Chemical Name:	See ingredients listed in section 3
1.3	Synonyms:	NA
1.4	Trade Names:	NA
1.5	Product Use:	Soldering Flux
1.6	Manufacturer's Name:	CAIG Laboratories, Inc.
1.7	Manufacturer's Address:	12200 Thatcher Court, Poway, CA 92064-6876
1.8	Business Phone:	+1 (800)-224-4123
1.9	Emergency Phone:	**CHEMTREC +1 (703) 527-3887/+1 (800) 424-9300**
1.10	Other Product Names:	DeoxIT®, Rosin Soldering Flux, Part No. RSF-R80-2, jar, 56 grams DeoxIT®, Rosin Soldering Flux, Part No. RSF-R80-8, jar, 226 grams

CHEMICAL RESPONSE CARD:	04
RESPONSE TEAM PPE:	
WHMIS:	
HEALTH:	1
FLAMMABILITY:	1
PHYSICAL HAZARDS:	1
PERSONAL PROTECTION:	G

2. HAZARD IDENTIFICATION

2.1 Hazard Identification:

This product is classified as a HAZARDOUS SUBSTANCE but NOT as DANGEROUS GOODS according to the classification criteria of NOHSC: 1008 (2004) and ADG Code (Australia). WARNING! Keep away from heat, sparks and flame. Will burn with high heat. Avoid prolonged contact with eyes, skin, and clothing. Avoid contact with eyes DO NOT ingest. Do not breathe vapor or mist. Avoid prolonged or repeated contact with skin. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Breathing high concentrations of product above permissible exposure limits may result in severe or permanent toxic effects.

2.2 Routes of Entry:	Inhalation:	**YES**	Absorption:	**YES**	Ingestion:	**YES**

2.3 Effects of Exposure:

EYES: **May cause severe eye irritation, burning, blurred vision.**
SKIN: **Prolonged or repeated contact can cause moderate irritation.**
INGESTION: **May cause slight irritation to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.**
INHALATION: **May result in moderate irritation, dizziness, weakness, fatigue, nausea and headache. Can cause severe or permanent toxic effects.**

2.4 Symptoms of Overexposure:

EYES: **May cause severe eye irritation, burning, blurred vision.**
SKIN: **Prolonged or repeated contact can cause moderate irritation, defatting, dermatitis.**
INGESTION: **Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea. May result in severe or permanent toxic effects.**
INHALATION: **Repeated inhalation of concentration above permissible exposure limits may result in severe or permanent toxic effects.**

2.5 Acute Health Effects:

EYES: **May cause severe eye irritation, burning, blurred vision.**
SKIN: **Prolonged or repeated contact can cause moderate irritation, defatting, dermatitis.**
INGESTION: **Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea. May result in severe or permanent toxic effects.**
INHALATION: **Repeated inhalation of concentration above permissible exposure limits may result in severe or permanent toxic effects.**

2.6 Chronic Health Effects:

EYES: **May cause severe eye irritation, burning, blurred vision.**
SKIN: **Prolonged or repeated contact can cause moderate irritation, defatting, dermatitis.**
INGESTION: **Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea. May result in severe or permanent toxic effects.**
INHALATION: **Repeated inhalation of concentration above permissible exposure limits may result in severe or permanent toxic effects.**

2.7 Target Organs:

Liver, kidneys and respiratory system.

NA = Not Available; ND = Not Determined; NE = Not Established; C = Ceiling Limit; See Section 16 for Additional Definitions of Terms Used
NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-2010 format.

3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m³) ACGIH TLV ppm	ACGIH STEL ppm	OSHA PEL ppm	OSHA STEL ppm	OSHA IDLH ppm	OTHER
WW GUM ROSIN	8050-09-7	VL0480000	232-475-7	50-60	NA	NA	NA	NA	NA	SENSITIZER
DIETHYLENE GLYCOL DIBUTYL	112-73-2	KN0350000	204-001-9	15-25	NE	NE	NE	NE	NE	
DYMEREX ROSIN	65997-05-9	NA	NA	15-25	15	3	15	3	NA	RESPIRABLE
PROPRIETARY INGREDIENTS	NA	NA	NA	0-10	NA	NA	NA	NA	NA	
PROPRIETARY INGREDIENTS	NA	NA	NA	0-10	NA	NA	NA	NA	NA	

4. FIRST AID MEASURES

4.1 First Aid:

EYES: Flush eyes thoroughly with copious amounts of water for at least 15 minutes, holding eyelid(s) open to ensure complete flushing. If irritation persists, seek immediate medical attention.

SKIN: Remove contaminated clothing and wash affected areas with soap and water. If irritation persists, seek prompt medical attention. Do not wear contaminated clothing until after it has been properly cleaned.

INGESTION: Seek immediate medical attention.

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

4.2 Medical Conditions Aggravated by Exposure:

None reported by the manufacturer.

HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARDS	0
PROTECTIVE EQUIPMENT	G

EYES	SKIN	LUNGS	

5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

NA

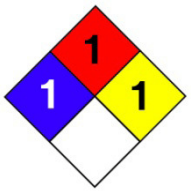
5.2 Autoignition Temperature:

NA

5.3 Flammability Limits: Lower Explosive Limit (LEL): **NA** Upper Explosive Limit (UEL): **NA**

5.4 Fire & Explosion Hazards:

Carbon monoxide (CO), Carbon Dioxide (CO_2) , Aliphatic aldehydes, and melted solder above 1000°F will liberate toxic lead and/or toxic fumes.



5.5 Extinguishing Methods:

CO_2, Alcohol foam, Dry Chemical

5.6 Firefighting Procedures:

Wear NIOSH/MSHA approved self-contained breathing apparatus and protective clothing. Do not use water. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway.

6. ACCIDENTAL RELEASE MEASURES

6.1 Spills:

Secure spill area and deny entry to all unprotected individuals. Individuals involved in the cleanup should wear appropriate personal protective equipment. Area may become slippery. Absorb product onto porous material, such as sand, clay, diatomaceous earth or commercial absorbent material. Place into leak-proof, U.S. DOT-approved containers. If necessary, cover all drains and dike well ahead of the spill to prevent runoff into sewers, drains, and all waterways. Contact appropriate local or provincial authorities for assistance and/or reporting requirements.

7. HANDLING & STORAGE INFORMATION

7.1 Work & Hygiene Practices:

Harmful or irritating material. Wash hands thoroughly after using this product and before eating, drinking, or smoking. Remove soiled clothing to prevent prolonged skin contact.

7.2 Storage & Handling:

Keep away from all sources of ignition and hot surfaces. Do not expose to sunlight or elevated temperatures.. Use and store in cool, dry, well ventilated areas away from heat, hot surfaces and all sources of ignition. Do not store with food stuffs. Protect containers from physical damage. Indoor storage should meet OSHA standards and appropriate codes. Keep container tightly closed when not in use. Keep out of reach of children. Avoid prolonged or repeated contact with skin; eyes or clothing. Avoid breathing product vapor for extended periods of time. Avoid activities that could cause splashing of the spilled material or create dust.

7.3 Special Precautions:

Ventilation is required to maintain operator exposure below published exposure limits. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits; explosion proof exhaust ventilation should be used. Facilities storing or using this material should be equipped with an eyewash and safety shower.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1 Ventilation & Engineering Controls:

Use with adequate ventilation (e.g., open doors and windows, local exhaust ventilation). Ventilation is required to maintain operator exposure below published exposure limits. Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).

8.2 Respiratory Protection:

Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms. Follow a respiratory protection program that meets the 29 CFR, 191.134 and ANZU Z88.2 requirements whenever workplace conditions warrant the use of a respirator. Wear a NIOSH approved respirator if any exposure is possible.

8.3 Eye Protection:

Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses. Wear goggles and a face shield.

8.4 Hand Protection:

Wear chemically resistant rubber gloves. Inspect gloves for chemical break-through and replace at regular intervals.

8.5 Body Protection:

None required for normal conditions of use. Wash hands and other exposed areas with mild soap and water before eating, drinking and when leaving work. Where contact is likely wear chemically resistant gloves, a chemical suit, rubber boots, and a chemical safety goggles plus a face shield.

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	**1.1**
9.2	Boiling Point:	**56.2°C – 133°F**
9.3	Melting Point:	**NA**
9.4	Evaporation Rate:	**> 1**
9.5	Vapor Pressure:	**184 mm Hg**
9.6	Molecular Weight:	**NA**
9.7	Appearance & Color:	**Brown to amber colored paste**
9.8	Odor Threshold:	**Mild rosin odor**
9.9	Solubility:	**NA**
9.10	pH	**ND**
9.11	Viscosity:	**NA**
9.12	Other Information:	**Other physical and chemical properties depend on alloy composition.**

10. STABILITY & REACTIVITY

10.1	Stability: **Stable under normal conditions of use (see section 7)**
10.2	Hazardous Decomposition Products: **Toxic fume**
10.3	Hazardous Polymerization: **Will not occur.**
10.4	Conditions to Avoid: **High temperatures and high humidity**
10.5	Incompatible Substances: **Peroxides, metals, strong acids, strong oxidizing agents, strong reducing agents, acids, chlorine, moisture, strong alkilies.**

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data: **There are toxicology data for the components of this product, which are found in the scientific literature. These data have not been presented in this document.**	
11.2	Acute Toxicity: **See section 2.5**	
11.3	Chronic Toxicity: **See section 2.6**	
11.4	Suspected Carcinogen: **NE**	
11.5	Reproductive Toxicity: **This product is not reported to produce reproductive toxicity in humans.**	
	Mutagenicity:	**This product is not reported to produce mutagenic effects in humans.**
	Embryotoxicity:	**This product is not reported to produce embryotoxic effects in humans.**
	Teratogenicity:	**This product is not reported to produce teratogenic effects in humans.**
	Reproductive Toxicity:	**This product is not reported to produce reproductive effects in humans.**
11.6	Irritancy of Product: **See Section 2.3**	
11.7	Biological Exposure Indices: **NE**	
11.8	Physician Recommendations: **Treat symptomatically. Ingestion of fume must be avoided.**	

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability: **NA**
12.2	Effects on Plants & Animals: **NA**
12.3	Effects on Aquatic Life: **NA**

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal: **Dispose of in accordance with federal, state or local regulations. Do not dump into sewers, on the ground or into any body of water.**
13.2	Special Considerations: **EPA Waste Code: D001 (characteristic – ignitability)**

14. TRANSPORTATION INFORMATION

14.1	**TDGR (Canada GND):** **NOT REGULATED**
14.2	**IATA (AIR):** **NOT REGULATED**
14.3	**IMDG (OCN):** **NOT REGULATED**
14.4	**49 CFR (GND):** **NOT REGULATED**
14.5	**ADR/RID (EU):** **NOT REGULATED**
14.6	**Mexico (SCT):** **NOT REGULATED**
14.7	ADGR (AUS): **NOT REGULATED**

15. REGULATORY INFORMATION

15.1	SARA Reporting Requirements: **NA**
15.2	SARA Threshold Planning Quantity: **NA**
15.3	TSCA Inventory Status: **All chemical substances of this product are listed on the TSCA inventory or are otherwise exempt from inventory status.**
15.4	CERCLA Reportable Quantity (RQ): **Ethylene Oxide 10 lbs.**
15.5	Other Federal Requirements: **NA**
15.6	Other Canadian Regulations **This product has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDSL. None of the components of this product are listed on the Priorities Substances List.**
15.7	State Regulatory Information: **The primary components of this product is listed on the following state Right to Know lists: California, Massachusetts, New Jersey Pennsylvania, and Minnesota (Rosin). Ethylene Oxide is subject to California Proposition 65 cancer and/or reproductive toxicity warning and release requirements**

15. REGULATORY INFORMATION- continued

15.8	67/548/EEC (European Union) Requirements: **The primary component of this product is listed in Annex I of EU Directive 67/548/EEC:** **(X) Irritant** **R: 36/38 Irritation to eyes and skin.** **R: 42/43 May cause sensitization by inhalation ad skin contact.** **S: 2 Keep away from children** **S: 24/25 Avoid contact with skin and eyes** **S: 36/37 Wear safety gloves and glasses**	

16. OTHER INFORMATION

16.1	Other Information: **NA**	
16.2	Terms & Definitions: **See last page of this MSDS**.	
16.3	Disclaimer: This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate's & CAIG Laboratories, Inc.'s knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.	
16.4	Prepared for: **CAIG Laboratories, Inc.** **12200 Thatcher Court** **Poway, CA 92064-6876** **+1 (800) CAIG-123 (244-4123) phone** **+1 (858) 486-8398 fax** **http://www.caig.com/**	CAIG LABORATORIES, INC.
16.5	Prepared by: **ShipMate, Inc.** **P.O. Box 787** **780 Buckaroo Trail Suite D** **Sisters, OR 97759** **+1 (310) 370-3600 phone** **+1 (310) 370-5700 fax** **http://www.shipmate.com**	ShipMate® Dangerous Goods Training & Consulting

DEFINITION OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these that are commonly used include the following:

GENERAL INFORMATION:

CAS No.	Chemical Abstract Service Number

EXPOSURE LIMITS IN AIR:

ACGIH	American Conference on Governmental Industrial Hygienists
TLV	Threshold Limit Value
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
IDLH	Immediately Dangerous to Life and Health

FIRST AID MEASURES:

CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.

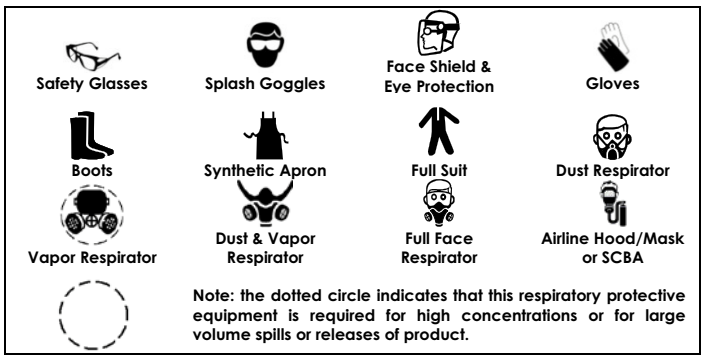
HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard

PERSONAL PROTECTION RATINGS:

A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
X	**Consult your supervisor or S.O.P. for special handling directions.**



Note: the dotted circle indicates that this respiratory protective equipment is required for high concentrations or for large volume spills or releases of product.

OTHER STANDARD ABBREVIATIONS:

NA	Not Available
NR	No Results
NE	Not Established
NF	Not Found
ND	Not Determined
ML	Maximum Limit
SCBA	Self-Contained Breathing Apparatus

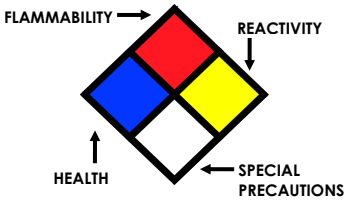
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

FLAMMABILITY LIMITS IN AIR:

Autoignition Temperature	Minimum temperature required to initiate combustion in air with no other source of ignition
LEL	Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source
UEL	Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source

HAZARD RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard
ACD	Acidic
ALK	Alkaline
COR	Corrosive
W —	Use No Water
OX	Oxidizer



TOXICOLOGICAL INFORMATION:

LD_{50}	Lethal Dose (solids & liquids) which kills 50% of the exposed animals s
LC_{50}	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD_{lo}	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD_{lo}, LD_{lo}, & LD_o or TC, TC_o, LC_{lo}, & LC_o	Lowest dose (or concentration) to cause lethal or toxic effects
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances
BCF	Bioconcentration Factor
TL_m	Median threshold limit
log K_{OW} or log K_{OC}	Coefficient of Oil/Water Distribution

REGULATORY INFORMATION:

WHMIS	Canadian Workplace Hazardous Material Information System
DOT	U.S. Department of Transportation
TC	Transport Canada
EPA	U.S. Environmental Protection Agency
DSL	Canadian Domestic Substance List
NDSL	Canadian Non-Domestic Substance List
PSL	Canadian Priority Substances List
TSCA	U.S. Toxic Substance Control Act
EU	European Union (European Union Directive 67/548/EEC)

EC INFORMATION:

							
C	**E**	**F**	**N**	**O**	**T+**	**Xi**	**Xn**
Corrosive	Explosive	Flammable	Harmful	Oxidizing	Toxic	Irritant	Harmful