MATERIAL SAFETY DATA SHEET

Prepared to OSHA, ACC, ANSI, WHMIS, NOHSC & 2001/58 EC Standards | MSDS Revision: 2.1 | MSDS Revision Date: 02/14/2011

1. PRODUCT IDENTIFICATION

1.1	Product Name:	**DeoxIT® D100L, D-SERIES**
1.2	Chemical Name:	See ingredients listed in section 3
1.3	Synonyms:	DeoxIT® D100L
1.4	Trade Names:	DeoxIT® D100L (see list below)
1.5	Product Use:	Clean, deoxidize & improve electrical contacts & connectors
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® D100L, 2 ml (Part No. D100L-2C, D100L-2CP) DeoxIT® D100L, 2.3 ml (Part No. D100L-58D) DeoxIT® D100L, 7.4 ml (Part No. D100L-2DB) DeoxIT® D100L, 12 ml (Part No. D100L-12C) DeoxIT® D100L, 25 ml (Part No. D100L-25C) DeoxIT® D100L, 59 ml (Part No. D100L-2) DeoxIT® D100L, 236 ml (Part No. D100L-8) DeoxIT® D100L, 354 ml (Part No. D100L-12) DeoxIT® D100L, 472 ml (Part No. D100L-16) DeoxIT® D100L, 944 ml (Part No. D100L-32) DeoxIT® D100L, 30 L (Part No. D100L-8G)

CHEMICAL RESPONSE CARD:	03
RESPONSE TEAM PPE:	
WHMIS:	
HEALTH:	0
FLAMMABILITY:	0
PHYSICAL HAZARDS:	0
PERSONAL PROTECTION:	

2. HAZARD IDENTIFICATION

2.1 Hazard Identification:

This product is NOT classified as a HAZARDOUS SUBSTANCE or as DANGEROUS GOODS according to the classification criteria of [NOHSC: 1088 (2004)] and ADG Code (Australia). DeoxIT® D100L is non-volatile, non-hazardous and non-flammable.

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

2.3 Effects of Exposure:

EYES: Non-irritating when used as directed. Can cause irritation, tearing, and temporary blurred vision.
SKIN: Non-irritating when used as directed. Prolonged or repeated contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amounts if swallowed may cause temporary gastrointestinal irritation.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause temporary headaches and dizziness.

2.4 Symptoms of Overexposure:

EYES: Non-irritating when used as directed. Can cause temporary irritation, tearing, and blurred vision.
SKIN: Non-irritating when used as directed. Prolonged or repeated contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amounts if swallowed may cause temporary gastrointestinal irritation.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause headaches and dizziness.

2.5 Acute Health Effects:

EYES: None reported when used as directed. Mild to moderate temporary irritation.
SKIN: Unlikely when used as directed. Repeated exposure at site of contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amount may cause temporary gastrointestinal irritation and central nervous system depression.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause headaches and dizziness.

2.6 Chronic Health Effects:

None reported by the manufacturer.

2.7 Target Organs:

Eyes and skin.

NA = Not Available; ND = Not Determined; NE = Not Established;NF = Not found; 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 Z400.1-1998 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
DeoxIT® D100L	Trade Secret	NA	NA	100	NE	NE	NE	NE	NE	

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: Do not induce vomiting! Drink plenty of water. If irritation persists, contact a physician.

INHALATION: Remove victim to fresh air at once. If breathing is difficult, administer supplemental oxygen and seek immediate medical attention. If breathing stops, perform artificial respiration.

4.2 Medical Conditions Aggravated by Exposure:

None reported by the manufacturer.

HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARDS	0
PROTECTIVE EQUIPMENT	A

EYES

5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

> 250 °C (482 °F)

5.2 Autoignition Temperature:

NA

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

5.4 Fire & Explosion Hazards:

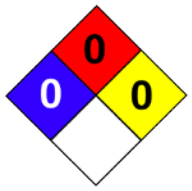
Carbon dioxide, carbon monoxide, hydrocarbons.

5.5 Extinguishing Methods:

CO_2, Alcohol foam, Dry Chemical, Water Fog

5.6 Firefighting Procedures:

Wear NIOSH/MSHA approved self-contained breathing apparatus and protective clothing. Use a water spray to cool containers involved in fire. Do not use direct water stream. Container storage areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Keep containers cool until well after the fire is out to prevent rupture. 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:

Ventilate if in enclosed area. Secure spill area, remove or minimize all sources of ignition, and maximize ventilation. Wipe and rinse with water. Deny entry to all unprotected individuals. Individuals involved in the cleanup must wear appropriate personal protective equipment.

7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices: **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: **Use and store in a cool, dry, well-ventilated area. Do not store near or with any incompatible materials listed in section 10. Open containers may change concentrations, keep tightly closed when not in use. Normal shelf life 2-3 years.**
7.3	Special Precautions: **Empty containers may contain product residues.**

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls: **Use with adequate ventilation (e.g., open doors and windows, local exhaust ventilation). Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).**
8.2	Respiratory Protection: **None required, when used with adequate ventilation.**
8.3	Eye Protection: **Wear safety glasses with side shields (ANSI Z87) under normal use conditions.**
8.4	Hand Protection: **None required under normal conditions of use. However, may cause skin irritation in some sensitive individuals. In such cases, wear rubber or impervious plastic gloves.**
8.5	Body Protection: **Use as necessary to prevent skin contact.**

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	**0.72**
9.2	Boiling Point:	**> 220 °C (428 °F)**
9.3	Melting Point:	**NA**
9.4	Evaporation Rate:	**NA**
9.5	Vapor Pressure:	**< 0.01 mm Hg @ 20 °C (68 °F)**
9.6	Molecular Weight:	**NA**
9.7	Appearance & Color:	**Light red**
9.8	Odor Threshold:	**Ethereal/hydrocarbon odor**
9.9	Solubility:	**Not soluble in water**
9.10	Ph	**NA**
9.11	Viscosity:	**5.4 – 7.5 cSt @ 104 °F**
9.12	VOC (g/L):	**None**
9.13	Other Information:	**NA**

10. STABILITY & REACTIVITY

10.1	Stability:	**Stable under normal conditions of use (see section 7).**
10.2	Hazardous Decomposition Products:	**Change in color signifies exposure to ultraviolet light or exceeding shelf life. Will not degrade to unstable products. Discard solution.**
10.3	Hazardous Polymerization:	**Will not occur.**
10.4	Conditions to Avoid:	**Use or storage near open flames, sparks, high heat (>100 °F) or other heat sources, and proximity to incompatible substances and heavily trafficked areas.**
10.5	Incompatible Substances:	**Strong oxidizers.**

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data:	**This product has not been tested on animals to obtain toxicological 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 3.5**
11.3	Chronic Toxicity:	**See section 3.6**
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 3.3**
11.7	Biological Exposure Indices:	**NE**
11.8	Physician Recommendations:	**Treat symptomatically.**

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	**This product will slowly volatile from soil. Components of this product will slowly decompose into organic compounds.**
12.2	Effects on Plants & Animals:	**There is no specific data available for this product.**
12.3	Effects on Aquatic Life:	**Releases of large volumes of this product are expected to be harmful or fatal to overexposed aquatic life.**

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal: **Dispose of in accordance with federal, state or local regulations.**
13.2	Special Considerations: **NA**

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND): **NOT REGULATED**
14.2	IATA (AIR): **NOT REGULATED**
14.3	IMDG (OCN): **NOT REGULATED**
14.4	TDGR (Canadian GND): **NOT REGULATED**
14.5	ADR/RID (EU): **NOT REGULATED**
14.6	SCT (MEXICO): **NO REGULADO**
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): **NA**
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 component of this product is not listed on the following state lists: California OSHA; California Proposition 65; Massachusetts Right to Know List of Chemicals; New Jersey Right to Know List 8:59 Appendix A; Pennsylvania Hazardous Substances List 34 323 Appendix A; Wisconsin Hazardous Substances List NR 605.09; Minnesota Hazardous Substances List; and Florida Toxic Substances List.**
15.8	67/548/EEC (European Union) Requirements: **The primary component of this product is not listed in Annex I of EU Directive 67/548/EEC.** 

16. OTHER INFORMATION

16.1	Other Information: **NA**
16.2	Terms & Definitions: **See page 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/**
16.5	Prepared by: **ShipMate, Inc.** **P.O. Box 787** **Sisters, OR. 97759-0787** **+1 (310) 370-3600 phone** **+1 (310) 370-5700 fax** **http://www.shipmate.com/**

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

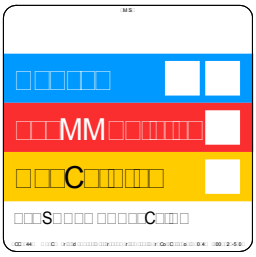
FIRST AID MEASURES:

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.

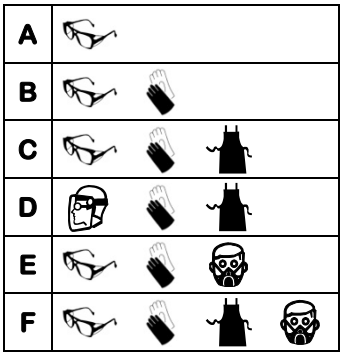
HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

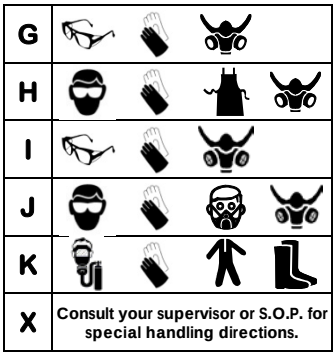
HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

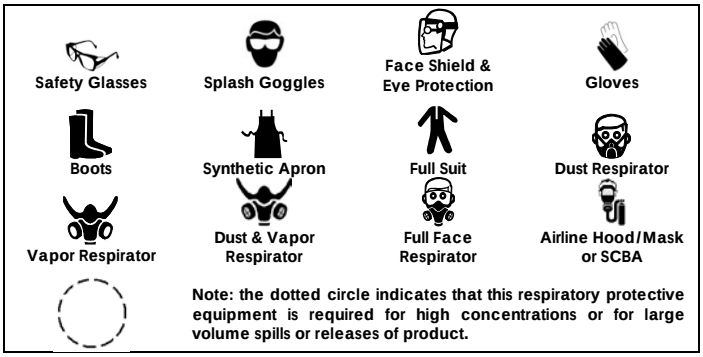
0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard



PERSONAL PROTECTION RATINGS:







OTHER STANDARD ABBREVIATIONS:

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

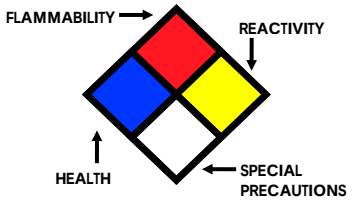
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

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

MATERIAL SAFETY DATA SHEET

MSDS-E-D100L-WIPES

Prepared to OSHA, ACC, ANSI, WHMIS, NOHSC & 2001/58 EC Standards | MSDS Revision: 2.1 | MSDS Revision Date: 02/14/2011

1. PRODUCT IDENTIFICATION

1.1	Product Name:	**DeoxIT® Wipes, D-SERIES**
1.2	Chemical Name:	See ingredients listed in section 3
1.3	Synonyms:	DeoxIT® D100L
1.4	Trade Names:	DeoxIT® D100L (see list below)
1.5	Product Use:	Clean, deoxidize & improve electrical contacts & connectors
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® WIPES, (Part Nos. D50W, K-D1W-25, K-D1W-50, D1W)

CHEMICAL RESPONSE CARD: 03

RESPONSE TEAM PPE:	
WHMIS:	
HEALTH:	0
FLAMMABILITY:	0
PHYSICAL HAZARDS:	0
PERSONAL PROTECTION:	

2. HAZARD IDENTIFICATION

2.1 Hazard Identification:

This product is NOT classified as a HAZARDOUS SUBSTANCE or as DANGEROUS GOODS according to the classification criteria of [NOHSC: 1088 (2004)] and ADG Code (Australia). DeoxIT® D100L is non-volatile, non-hazardous and non-flammable.

2.2 Routes of Entry:

Inhalation:	YES	Absorption:	YES	Ingestion:	YES

2.3 Effects of Exposure:

EYES: Non-irritating when used as directed. Can cause irritation, tearing, and temporary blurred vision.
SKIN: Non-irritating when used as directed. Prolonged or repeated contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amounts if swallowed may cause temporary gastrointestinal irritation.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause temporary headaches and dizziness.

2.4 Symptoms of Overexposure:

EYES: Non-irritating when used as directed. Can cause temporary irritation, tearing, and blurred vision.
SKIN: Non-irritating when used as directed. Prolonged or repeated contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amounts if swallowed may cause temporary gastrointestinal irritation.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause headaches and dizziness.

2.5 Acute Health Effects:

EYES: None reported when used as directed. Mild to moderate temporary irritation.
SKIN: Unlikely when used as directed. Repeated exposure at site of contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amount may cause temporary gastrointestinal irritation and central nervous system depression.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause headaches and dizziness.

2.6 Chronic Health Effects:

None reported by the manufacturer.

2.7 Target Organs:

Eyes and skin.

NA = Not Available; ND = Not Determined; NE = Not Established;NF = Not found; 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 Z400.1-1998 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
DeoxIT® D100L	Trade Secret	NA	NA	100	NE	NE	NE	NE	NE	

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: Do not induce vomiting! Drink plenty of water. If irritation persists, contact a physician.

INHALATION: Remove victim to fresh air at once. If breathing is difficult, administer supplemental oxygen and seek immediate medical attention. If breathing stops, perform artificial respiration.

4.2 Medical Conditions Aggravated by Exposure:

None reported by the manufacturer.

HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARDS	0
PROTECTIVE EQUIPMENT	A

EYES

5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

> 250 °C (482 °F)

5.2 Autoignition Temperature:

NA

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

5.4 Fire & Explosion Hazards:

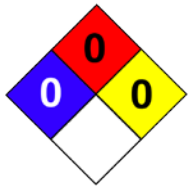
Carbon dioxide, carbon monoxide, hydrocarbons.

5.5 Extinguishing Methods:

CO_2, Alcohol foam, Dry Chemical, Water Fog

5.6 Firefighting Procedures:

Wear NIOSH/MSHA approved self-contained breathing apparatus and protective clothing. Use a water spray to cool containers involved in fire. Do not use direct water stream. Container storage areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Keep containers cool until well after the fire is out to prevent rupture. 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:

Ventilate if in enclosed area. Secure spill area, remove or minimize all sources of ignition, and maximize ventilation. Wipe and rinse with water. Deny entry to all unprotected individuals. Individuals involved in the cleanup must wear appropriate personal protective equipment.

7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices: **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: **Use and store in a cool, dry, well-ventilated area. Do not store near or with any incompatible materials listed in section 10. Open containers may change concentrations, keep tightly closed when not in use. Normal shelf life 2-3 years.**
7.3	Special Precautions: **Empty containers may contain product residues.**

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls: **Use with adequate ventilation (e.g., open doors and windows, local exhaust ventilation). Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).**
8.2	Respiratory Protection: **None required, when used with adequate ventilation.**
8.3	Eye Protection: **Wear safety glasses with side shields (ANSI Z87) under normal use conditions.**
8.4	Hand Protection: **None required under normal conditions of use. However, may cause skin irritation in some sensitive individuals. In such cases, wear rubber or impervious plastic gloves.**
8.5	Body Protection: **Use as necessary to prevent skin contact.**

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	**0.72**
9.2	Boiling Point:	**> 220 °C (428 °F)**
9.3	Melting Point:	**NA**
9.4	Evaporation Rate:	**NA**
9.5	Vapor Pressure:	**< 0.01 mm Hg @ 20 °C (68 °F)**
9.6	Molecular Weight:	**NA**
9.7	Appearance & Color:	**Light red**
9.8	Odor Threshold:	**Ethereal/hydrocarbon odor**
9.9	Solubility:	**Not soluble in water**
9.10	Ph	**NA**
9.11	Viscosity:	**5.4 – 7.5 cSt @ 104 °F**
9.12	VOC (g/L):	**None**
9.13	Other Information:	**NA**

10. STABILITY & REACTIVITY

10.1	Stability:	**Stable under normal conditions of use (see section 7).**
10.2	Hazardous Decomposition Products:	**Change in color signifies exposure to ultraviolet light or exceeding shelf life. Will not degrade to unstable products. Discard solution.**
10.3	Hazardous Polymerization:	**Will not occur.**
10.4	Conditions to Avoid:	**Use or storage near open flames, sparks, high heat (>100 °F) or other heat sources, and proximity to incompatible substances and heavily trafficked areas.**
10.5	Incompatible Substances:	**Strong oxidizers.**

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data:	**This product has not been tested on animals to obtain toxicological 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 3.5**
11.3	Chronic Toxicity:	**See section 3.6**
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 3.3**
11.7	Biological Exposure Indices:	**NE**
11.8	Physician Recommendations:	**Treat symptomatically.**

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	**This product will slowly volatile from soil. Components of this product will slowly decompose into organic compounds.**
12.2	Effects on Plants & Animals:	**There is no specific data available for this product.**
12.3	Effects on Aquatic Life:	**Releases of large volumes of this product are expected to be harmful or fatal to overexposed aquatic life.**

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal: **Dispose of in accordance with federal, state or local regulations.**
13.2	Special Considerations: **NA**

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND): **NOT REGULATED**
14.2	IATA (AIR): **NOT REGULATED**
14.3	IMDG (OCN): **NOT REGULATED**
14.4	TDGR (Canadian GND): **NOT REGULATED**
14.5	ADR/RID (EU): **NOT REGULATED**
14.6	SCT (MEXICO): **NO REGULADO**
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): **NA**
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 component of this product is not listed on the following state lists: California OSHA; California Proposition 65; Massachusetts Right to Know List of Chemicals; New Jersey Right to Know List 8:59 Appendix A; Pennsylvania Hazardous Substances List 34 323 Appendix A; Wisconsin Hazardous Substances List NR 605.09; Minnesota Hazardous Substances List; and Florida Toxic Substances List.**
15.8	67/548/EEC (European Union) Requirements: **The primary component of this product is not listed in Annex I of EU Directive 67/548/EEC.**

16. OTHER INFORMATION

16.1	Other Information: **NA**
16.2	Terms & Definitions: **See page 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/**
16.5	Prepared by: **ShipMate, Inc.** **P.O. Box 787** **Sisters, OR. 97759-0787** **+1 (310) 370-3600 phone** **+1 (310) 370-5700 fax** **http://www.shipmate.com/**

MATERIAL SAFETY DATA SHEET

MSDS-E-D100L-WIPES

Prepared to OSHA, ACC, ANSI, WHMIS, NOHSC & 2001/58 EC Standards | MSDS Revision: 2.1 | MSDS Revision Date: 02/14/2011

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

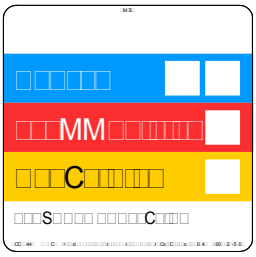
FIRST AID MEASURES:

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.

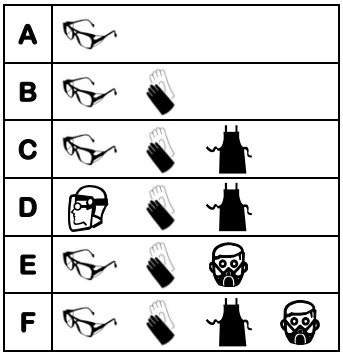
HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

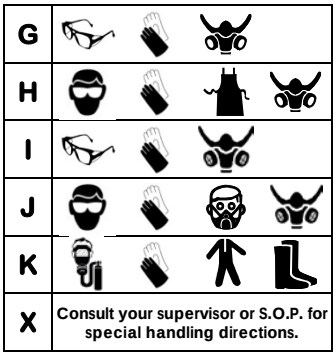
HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

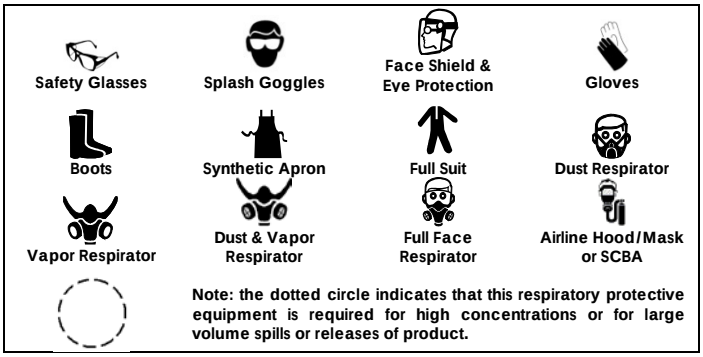
0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard



PERSONAL PROTECTION RATINGS:







OTHER STANDARD ABBREVIATIONS:

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

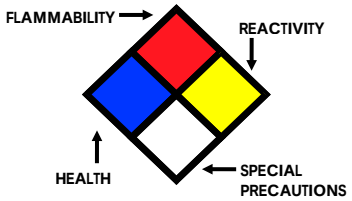
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

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

MATERIAL SAFETY DATA SHEET

MSDS-E-DN5MS-15

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards | MSDS Revision: 3.1 | MSDS Revision Date: 01/29/2011

1. PRODUCT IDENTIFICATION

1.1	Product Name:	**DeoxIT® D-Series, DN5MS-15, 5% Spray, 14 g**
1.2	Chemical Name:	See ingredients listed in section 2
1.3	Synonyms:	DeoxIT®, DN5MS-15, 5% Spray
1.4	Trade Names:	DeoxIT®, DN5MS-15, 5% Spray
1.5	Product Use:	Clean, deoxidize & improve electrical contacts & connectors
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 +1-800-424-9300/+1-703-527-3887**
1.10	Other Product Names:	NA

CHEMICAL RESPONSE CARD:	01
RESPONSE TEAM PPE:	
WHMIS:	
HEALTH:	1
FLAMMABILITY:	1
PHYSICAL HAZARDS:	0
PERSONAL PROTECTION:	B

2. HAZARD IDENTIFICATION

2.1 Hazard Identification:

This product is Classified as a HAZARDOUS SUBSTANCE and as DANGEROUS GOODS according to the classification criteria of NOHSC: 1008 (2004) and ADG Code (Australia). Colorless, volatile liquid with ethereal and faint sweetish odor. Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At high temperatures (>250°C), decomposition products may include Hydrofluoric Acid (HF) and carbonyl halides.

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

2.3 Effects of Exposure:

EYES: Mild to moderate irritation.
SKIN: Irritant and potential skin sensitizer. Prolonged or repeated contact may cause contact dermatitis (localized redness or rash).
INGESTION: Gastrointestinal irritation and central nervous system depression.
INHALATION: Central nervous system depressant. Irritating to the upper respiratory tract.

2.4 Symptoms of Overexposure:

EYES: Mild irritation, redness, and watering.
SKIN: Contact dermatitis, characterized by localized red or puffy dry skin and itching.
INGESTION: Nausea, vomiting, and diarrhea.
INHALATION: Mouth, nose, and throat irritation, dizziness, nausea, light-headedness, drunkenness, and loss of coordination.

2.5 Acute Health Effects:

EYES: Mild to moderate irritation.
SKIN: Irritant and potential skin sensitizer. Prolonged or repeated contact may cause contact dermatitis (localized redness or rash).
INGESTION: Gastrointestinal irritation and central nervous system depression.
INHALATION: Central nervous system depressant. Irritating to the upper respiratory tract.

2.6 Chronic Health Effects:

EYES: Mild to moderate irritation.
SKIN: Irritant and potential skin sensitizer. Prolonged or repeated contact may cause contact dermatitis (localized redness or rash).
INGESTION: Gastrointestinal irritation and central nervous system depression.
INHALATION: Central nervous system depressant. Irritating to the upper respiratory tract.

2.7 Target Organs:

Eyes, skin and respiratory system.

NA = Not Available; ND = Not Determined; NE = Not Established; NF; Not found; 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 Z400.1-2004 format.

MSDS for MCM: #200-455

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards | MSDS Revision: 3.1 | MSDS Revision Date: 01/29/2011

3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m³) ACGIH ppm TLV	ACGIH ppm STEL	NOHSC ppm ES-TWA	NOHSC ppm ES-STEL	NOHSC ppm ES-PEAK	OSHA ppm TLV	OSHA ppm STEL	OSHA ppm IDLH	OTHER
1,1,1,3,3-PENTAFLUOROPROPANE	460-73-1	UNK	419-170-6	≤ 75	300	NE	NF	NF	NF	300	NE	NE	
HYDROCARBON PROPELLANT:				≤ 20									
ISOBUTANE	75-28-5	TZ4300000	200-857-2	NA	NE	NE	NF	NF	NF	NE	NE	NE	
PROPANE	74-98-6	TX2275000	200-827-9	NA	NE	NE	NF	NF	NF	1000	NE	NE	
ISOPROPYL ALCOHOL	67-63-0	NT8050000	200-661-7	≤ 3	400	NE	983	500	1230	400	NE	2000	
DeoxIT® D100L	TRADE SECRET	NA	NA	≤ 5	NE	NE	NF	NF	NF	NE	NE	NE	

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: Drink plenty of water. If irritation persists, contact a physician.

INHALATION: Remove victim to fresh air at once. If breathing is difficult, administer supplemental oxygen and seek immediate medical attention. If breathing stops, perform artificial respiration.

4.2 Medical Conditions Aggravated by Exposure:

None reported by the manufacturer.

HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARDS	0
PROTECTIVE EQUIPMENT	B

EYES	SKIN		

5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

ND. Level 1 aerosol.

5.2 Autoignition Temperature:

412 °C (774 °F) – 1,1,1,3,3-Pentafluoropropane

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

5.4 Fire & Explosion Hazards:

Carbon dioxide, carbon monoxide, hydrocarbons.

5.5 Extinguishing Methods:

CO_2, Alcohol foam, Dry Chemical, Water Fog

5.6 Firefighting Procedures:

Wear NIOSH/MSHA approved self-contained breathing apparatus and protective clothing. Use a water spray to cool containers involved in fire. Do not use direct water stream. Container storage areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Keep containers cool until well after the fire is out to prevent rupture. 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: **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: **Store at temperatures between 59 °F and 95 °F (15 °C and 35 °C) in a dry, well-ventilated location. Keep away from heat, sparks, open flame, and other sources of ignition. Normal shelf-life: 2-3 years.**
7.3	Special Precautions: **Empty containers may contain product residues.**

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls: **Use with adequate ventilation (e.g., open doors and windows, local exhaust ventilation). Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).**
8.2	Respiratory Protection: **None required, when used with adequate ventilation.**
8.3	Eye Protection: **Wear safety glasses with side shields (ANSI Z87) under normal use conditions.**
8.4	Hand Protection: **None required under normal conditions of use. However, may cause skin irritation in some sensitive individuals. In such cases, wear rubber or impervious plastic gloves.**
8.5	Body Protection: **Use as necessary to prevent skin contact.**

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	**NA**
9.2	Boiling Point:	**15 °C (59 °F) - 1,1,1,3,3-Pentafluoropropane**
9.3	Melting Point:	**NA**
9.4	Evaporation Rate:	**NA**
9.5	Vapor Pressure:	**50 +/- 5 psig @ 20 °C**
9.6	Molecular Weight:	**NA**
9.7	Appearance & Color:	**Light red, aerosol**
9.8	Odor Threshold:	**Ethereal/hydrocarbon odor**
9.9	Solubility:	**Not soluble in water**
9.10	pH	**NA**
9.11	Viscosity:	**ND**
9.12	Other Information: VOC Content	**268 grams/liter**

10. STABILITY & REACTIVITY

10.1	Stability: **Stable under normal conditions of use (see section 7).**
10.2	Hazardous Decomposition Products: **Change in color signifies exposure to ultraviolet light or exceeding shelf life. Will not degrade to unstable products. Discard solution.**
10.3	Hazardous Polymerization: **Will not occur.**
10.4	Conditions to Avoid: **Use or storage near open flames, sparks, high heat (>100 °F) or other heat sources, and proximity to incompatible substances and heavily trafficked areas.**
10.5	Incompatible Substances: **Strong oxidizers.**

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data: **1,1,1,3,3-Pentafluoropropane: Acute Dermal (rabbit) – LD_{50} > 2,000 mg/kg; Cardiac Sensitization (dogs) – No effects noted at 35,000 ppm, the threshold for induction of cardiac arrhythmias in the presence of injected adrenalin was 44,000 ppm. Acute Inhalation (rat): 4-hr. LC_{50} > 200,000 ppm. No lethality at 200,000 ppm. Evidence of transient anesthetic effect. Acute Inhalation (mouse): 4-hr. LC50 > 100,000 ppm. No lethality at 100,000 ppm. Evidence of transient underactivity during exposure.**	
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.**	

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability: **This product will slowly volatile from soil. Components of this product will slowly decompose into organic compounds.**
12.2	Effects on Plants & Animals: **There is no specific data available for this product.**
12.3	Effects on Aquatic Life: **1,1,1,3,3-Pentafluoropropane: Partition Coefficient: Log P_{OW} = 1.35 @ 21.5°C; Acute toxicity to Daphnia magna (Limit Test): NOEC > 97.9 mg/L; 48 hr. EC_{50} > 97.9 mg/L. Acute toxicity to Rainbow Trout (Limit Test): NOEC > 10 mg/L; 96 hr. EC_{50} > 81.8 mg/L**

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal: **Dispose of in accordance with federal, state or local regulations.**
13.2	Special Considerations: **NA**

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG, SCT, ADGR and the CTDGR.

14.1	49 CFR (Ground): **CONSUMER COMMODITY, ORM-D**
14.2	IATA (Air): **ID8000, CONSUMER COMMODITY, 9 (≤ 820 ml)** **UN1950, AEROSOLS, 2.2 (> 820 ml)**
14.3	IMDG (Ocean): **UN1950, AEROSOLS, 2.2, LTD QTY (≤ 1.0 L)**
14.4	TDGR (Canada): **MARK PACKAGE "LIMITED QUANTITY" or "QUANTITÉ LIMITÉE" or "LTD QTY" or "QUANT LTÉE" (≤ 1.0 L)**
14.5	ADR/RID (EU): **UN1950, AEROSOLS, 2, 5 A, ADR, LTD QTY (X ≤ 1.0 L)**
14.6	SCT (Mexico): **UN1950, AEROSOLS, 2.2, CANTIDAD LIMITADA**
14.7	ADGR (Australia): **UN1950, AEROSOLS, 2.2, LTD QTY**

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): **NA**
15.5	Other Federal Requirements: **Contains HFC-245fa, a greenhouse gas, a substance which may contribute to global warming. Regulated under Section 612 (SNAP) of the Clean Air Act and 40 CFR Part 82, subpart G.**
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.**
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16. OTHER INFORMATION

16.1	Other Information: **NA**
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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/**
16.5	Prepared by: **ShipMate, Inc.** **P.O. Box 787** **Sisters, OR 97759-0787** **310-370-3600 phone** **310-370-5700 fax** **http://www.shipmate.com/**

MATERIAL SAFETY DATA SHEET

MSDS-E-DN5MS-15

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards | MSDS Revision: 3.1 | MSDS Revision Date: 01/29/2011

DEFINITION OF TERMS

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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

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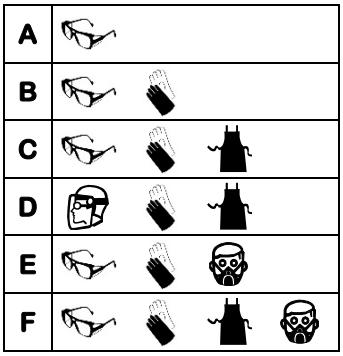

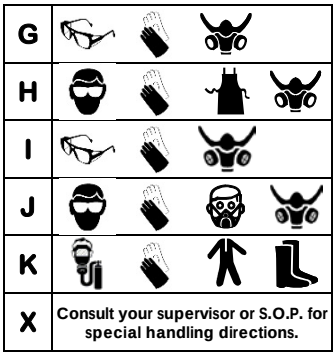

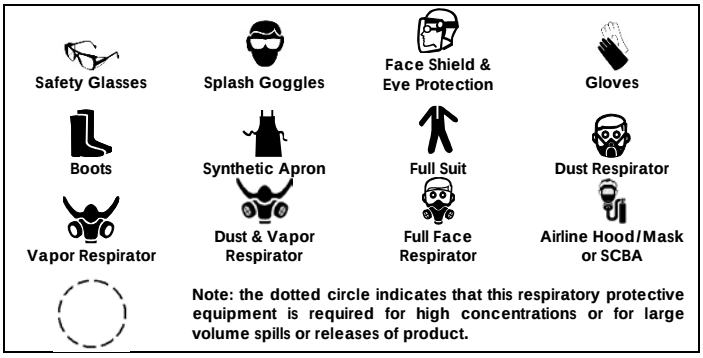

OTHER STANDARD ABBREVIATIONS:

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

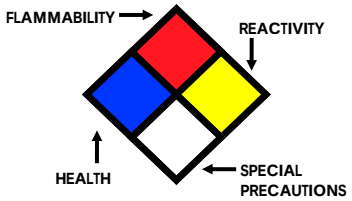
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

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

MATERIAL SAFETY DATA SHEET

MSDS-E-G100L

Prepared to OSHA, ACC, ANSI, WHMIS, NOHSC & 2001/58 EC Standards | MSDS Revision: 2.1 | MSDS Revision Date: 02/14/2011

1. PRODUCT IDENTIFICATION

1.1	Product Name:	**DeoxIT® G100L, G-SERIES (formerly ProGold)**
1.2	Chemical Name:	See ingredients listed in section 3
1.3	Synonyms:	DeoxIT® Gold G100L
1.4	Trade Names:	DeoxIT® Gold G100L (see list below)
1.5	Product Use:	Conditioner, enhancer & protector for contacts & connectors
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® GOLD G100L, 2 ml (Part No. G100L-2C, G100L-2CP) GOLD DeoxIT® GOLD G100L, 7.4 ml (Part No. G100L-2DB) DeoxIT® GOLD G100L, 12 ml (Part No. G100L-12C) DeoxIT® GOLD G100L, 25 ml (Part No. G100L-25C) DeoxIT® GOLD PEN, 7 ml (Part No. G100P) DeoxIT® GOLD WIPES, (Part Nos. G50W, K-G1W-25, K-G1W-50, G1W) DeoxIT® GOLD G100L, 59 ml (Part No. G100L-2) DeoxIT® GOLD G100L, 236 ml (Part No. G100L-8) DeoxIT® GOLD G100L, 472 ml (Part No. G100L-16) DeoxIT® GOLD G100L, 944 ml (Part No. G100L-32) DeoxIT® GOLD G100L, 30 L (Part No. G100L-8G)

CHEMICAL RESPONSE CARD:	03
RESPONSE TEAM PPE:	
WHMIS:	
HEALTH:	0
FLAMMABILITY:	0
PHYSCIAL HAZARDS:	0
PERSONAL PROTECTION:	

2. HAZARD IDENTIFICATION

2.1 Hazard Identification:

This product is NOT classified as a HAZARDOUS SUBSTANCE or as DANGEROUS GOODS according to the classification criteria of [NOHSC: 1088 (2004)] and ADG Code (Australia). DeoxIT® Gold G100L is non-volatile, non-hazardous and non-flammable.

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

2.3 Effects of Exposure:

EYES: Non-irritating when used as directed. Can cause irritation, tearing, and temporary blurred vision.
SKIN: Non-irritating when used as directed. Prolonged or repeated contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amounts if swallowed may cause temporary gastrointestinal irritation.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause temporary headaches and dizziness.

2.4 Symptoms of Overexposure:

EYES: Non-irritating when used as directed. Can cause temporary irritation, tearing, and blurred vision.
SKIN: Non-irritating when used as directed. Prolonged or repeated contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amounts if swallowed may cause temporary gastrointestinal irritation.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause headaches and dizziness.

2.5 Acute Health Effects:

EYES: None reported when used as directed. Mild to moderate temporary irritation.
SKIN: Unlikely when used as directed. Repeated exposure at site of contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amount may cause temporary gastrointestinal irritation and central nervous system depression.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause headaches and dizziness.

2.6 Chronic Health Effects:

None reported by the manufacturer.

2.7 Target Organs:

Eyes and skin.

NA = Not Available; ND = Not Determined; NE = Not Established;NF = Not found; 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 Z400.1-1998 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
DeoxIT® Gold G100L	Trade Secret	NA	NA	100	NE	NE	NE	NE	NE	
(formerly ProGold)										

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: Do not induce vomiting! Drink plenty of water. If irritation persists, contact a physician.

INHALATION: Remove victim to fresh air at once. If breathing is difficult, administer supplemental oxygen and seek immediate medical attention. If breathing stops, perform artificial respiration.

4.2 Medical Conditions Aggravated by Exposure:

None reported by the manufacturer.

HEALTH	0
FLAMMABILITY	0
PHYSCIAL HAZARDS	0
PROTECTIVE EQUIPMENT	A

EYES			

5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

> 280 °C (536 °F)

5.2 Autoignition Temperature:

NA

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

5.4 Fire & Explosion Hazards:

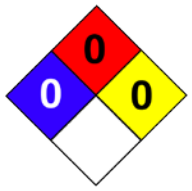
Carbon dioxide, carbon monoxide, hydrocarbons.

5.5 Extinguishing Methods:

CO_2, Alcohol foam, Dry Chemical, Water Fog

5.6 Firefighting Procedures:

Wear NIOSH/MSHA approved self-contained breathing apparatus and protective clothing. Use a water spray to cool containers involved in fire. Do not use direct water stream. Container storage areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Keep containers cool until well after the fire is out to prevent rupture. 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:

Ventilate if in enclosed area. Secure spill area, remove or minimize all sources of ignition, and maximize ventilation. Wipe and rinse with water. Deny entry to all unprotected individuals. Individuals involved in the cleanup must wear appropriate personal protective equipment.

7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices: **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: **Use and store in a cool, dry, well-ventilated area. Do not store near or with any incompatible materials listed in section 10. Open containers may change concentrations, keep tightly closed when not in use. Normal shelf life 2-3 years.**
7.3	Special Precautions: **Empty containers may contain product residues.**

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls: **Use with adequate ventilation (e.g., open doors and windows, local exhaust ventilation). Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).**
8.2	Respiratory Protection: **None required, when used with adequate ventilation.**
8.3	Eye Protection: **Wear safety glasses with side shields (ANSI Z87) under normal use conditions.**
8.4	Hand Protection: **None required under normal conditions of use. However, may cause skin irritation in some sensitive individuals. In such cases, wear rubber or impervious plastic gloves.**
8.5	Body Protection: **Use as necessary to prevent skin contact.**

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	**0.72**
9.2	Boiling Point:	**> 240 °C (464 °F)**
9.3	Melting Point:	**NA**
9.4	Evaporation Rate:	**NA**
9.5	Vapor Pressure:	**< 0.01 mm Hg @ 20 °C (68 °F)**
9.6	Molecular Weight:	**NA**
9.7	Appearance & Color:	**Light yellow/amber**
9.8	Odor Threshold:	**Ethereal/hydrocarbon odor**
9.9	Solubility:	**Not soluble in water**
9.10	Ph	**NA**
9.11	Viscosity:	**5.4 – 7.5 cSt @ 104 °F**
9.12	VOC (g/L):	**None**
9.13	Other Information:	**NA**

10. STABILITY & REACTIVITY

10.1	Stability:	**Stable under normal conditions of use (see section 7).**
10.2	Hazardous Decomposition Products:	**Change in color signifies exposure to ultraviolet light or exceeding shelf life. Will not degrade to unstable products. Discard solution.**
10.3	Hazardous Polymerization:	**Will not occur.**
10.4	Conditions to Avoid:	**Use or storage near open flames, sparks, high heat (>100 °F) or other heat sources, and proximity to incompatible substances and heavily trafficked areas.**
10.5	Incompatible Substances:	**Strong oxidizers.**

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data:	**This product has not been tested on animals to obtain toxicological 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 3.5**
11.3	Chronic Toxicity:	**See section 3.6**
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 3.3**
11.7	Biological Exposure Indices:	**NE**
11.8	Physician Recommendations:	**Treat symptomatically.**

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	**This product will slowly volatile from soil. Components of this product will slowly decompose into organic compounds.**
12.2	Effects on Plants & Animals:	**There is no specific data available for this product.**
12.3	Effects on Aquatic Life:	**Releases of large volumes of this product are expected to be harmful or fatal to overexposed aquatic life.**

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal: **Dispose of in accordance with federal, state or local regulations.**
13.2	Special Considerations: **NA**

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND): **NOT REGULATED**
14.2	IATA (AIR): **NOT REGULATED**
14.3	IMDG (OCN): **NOT REGULATED**
14.4	TDGR (Canadian GND): **NOT REGULATED**
14.5	ADR/RID (EU): **NOT REGULATED**
14.6	SCT (MEXICO): **NO REGULADO**
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): **NA**	
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 component of this product is not listed on the following state lists: California OSHA; California Proposition 65; Massachusetts Right to Know List of Chemicals; New Jersey Right to Know List 8:59 Appendix A; Pennsylvania Hazardous Substances List 34 323 Appendix A; Wisconsin Hazardous Substances List NR 605.09; Minnesota Hazardous Substances List; and Florida Toxic Substances List.**	
15.8	67/548/EEC (European Union) Requirements: **The primary component of this product is not listed in Annex I of EU Directive 67/548/EEC.**	

16. OTHER INFORMATION

16.1	Other Information: **NA**	
16.2	Terms & Definitions: **See page 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** **Sisters, OR. 97759-0787** **+1 (310) 370-3600 phone** **+1 (310) 370-5700 fax** **http://www.shipmate.com/**	ShipMate® Dangerous Goods Training & Consulting

MATERIAL SAFETY DATA SHEET

MSDS-E-G100L

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards | MSDS Revision: 1.1 | MSDS Revision Date: 01/05/2011

DEFINITIONS 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:

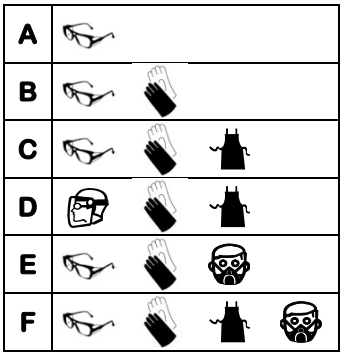
CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.

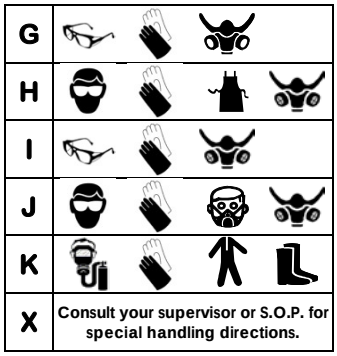
HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

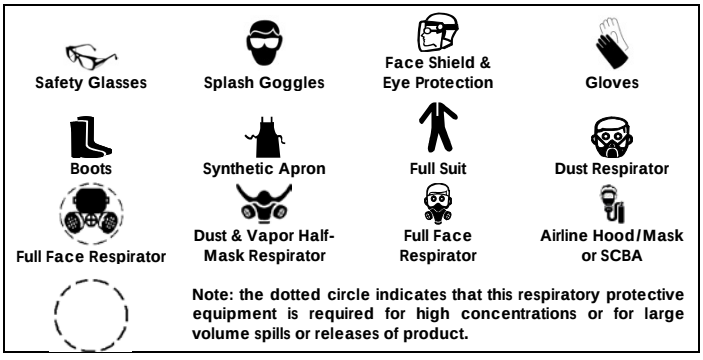
HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

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

PERSONAL PROTECTION RATINGS:







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

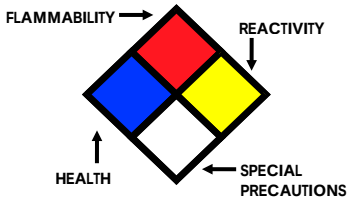
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

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

MATERIAL SAFETY DATA SHEET

MSDS-E-G100L-WIPES

Prepared to OSHA, ACC, ANSI, WHMIS, NOHSC & 2001/58 EC Standards | MSDS Revision: 2.1 | MSDS Revision Date: 02/14/2011

1. PRODUCT IDENTIFICATION

1.1	Product Name:	**DeoxIT® Gold G-SERIES, WIPES, (formerly ProGold)**
1.2	Chemical Name:	See ingredients listed in section 3
1.3	Synonyms:	DeoxIT® Gold G100L
1.4	Trade Names:	DeoxIT® Gold G100L (see list below)
1.5	Product Use:	Conditioner, enhancer & protector for contacts & connectors
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® Gold WIPES, (Part Nos. G50W, K-G1W-25, K-G1W-50, G1W)

CHEMICAL RESPONSE CARD:	03
RESPONSE TEAM PPE:	
WHMIS:	
HEALTH:	0
FLAMMABILITY:	0
PHYSICAL HAZARDS:	0
PERSONAL PROTECTION:	

2. HAZARD IDENTIFICATION

2.1 Hazard Identification:

This product is NOT classified as a HAZARDOUS SUBSTANCE or as DANGEROUS GOODS according to the classification criteria of [NOHSC: 1088 (2004)] and ADG Code (Australia). DeoxIT® Gold G100L is non-volatile, non-hazardous and non-flammable.

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

2.3 Effects of Exposure:

EYES: Non-irritating when used as directed. Can cause irritation, tearing, and temporary blurred vision.
SKIN: Non-irritating when used as directed. Prolonged or repeated contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amounts if swallowed may cause temporary gastrointestinal irritation.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause temporary headaches and dizziness.

2.4 Symptoms of Overexposure:

EYES: Non-irritating when used as directed. Can cause temporary irritation, tearing, and blurred vision.
SKIN: Non-irritating when used as directed. Prolonged or repeated contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amounts if swallowed may cause temporary gastrointestinal irritation.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause headaches and dizziness.

2.5 Acute Health Effects:

EYES: None reported when used as directed. Mild to moderate temporary irritation.
SKIN: Unlikely when used as directed. Repeated exposure at site of contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amount may cause temporary gastrointestinal irritation and central nervous system depression.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause headaches and dizziness.

2.6 Chronic Health Effects:

None reported by the manufacturer.

2.7 Target Organs:

Eyes and skin.

NA = Not Available; ND = Not Determined; NE = Not Established;NF = Not found; 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 Z400.1-1998 format.

MSDS for MCM: #200-455

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
DeoxIT® Gold G100L	Trade Secret	NA	NA	100	NE	NE	NE	NE	NE	
(formerly ProGold)										

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: Do not induce vomiting! Drink plenty of water. If irritation persists, contact a physician.

INHALATION: Remove victim to fresh air at once. If breathing is difficult, administer supplemental oxygen and seek immediate medical attention. If breathing stops, perform artificial respiration.

4.2 Medical Conditions Aggravated by Exposure:

None reported by the manufacturer.

HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARDS	0
PROTECTIVE EQUIPMENT	A

EYES

5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

> 280 °C (536 °F)

5.2 Autoignition Temperature:

NA

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

5.4 Fire & Explosion Hazards:

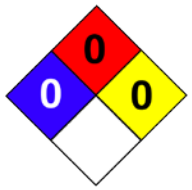
Carbon dioxide, carbon monoxide, hydrocarbons.

5.5 Extinguishing Methods:

CO_2, Alcohol foam, Dry Chemical, Water Fog

5.6 Firefighting Procedures:

Wear NIOSH/MSHA approved self-contained breathing apparatus and protective clothing. Use a water spray to cool containers involved in fire. Do not use direct water stream. Container storage areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Keep containers cool until well after the fire is out to prevent rupture. 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:

Ventilate if in enclosed area. Secure spill area, remove or minimize all sources of ignition, and maximize ventilation. Wipe and rinse with water. Deny entry to all unprotected individuals. Individuals involved in the cleanup must wear appropriate personal protective equipment.

7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices: **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: **Use and store in a cool, dry, well-ventilated area. Do not store near or with any incompatible materials listed in section 10. Open containers may change concentrations, keep tightly closed when not in use. Normal shelf life 2-3 years.**
7.3	Special Precautions: **Empty containers may contain product residues.**

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls: **Use with adequate ventilation (e.g., open doors and windows, local exhaust ventilation). Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).**
8.2	Respiratory Protection: **None required, when used with adequate ventilation.**
8.3	Eye Protection: **Wear safety glasses with side shields (ANSI Z87) under normal use conditions.**
8.4	Hand Protection: **None required under normal conditions of use. However, may cause skin irritation in some sensitive individuals. In such cases, wear rubber or impervious plastic gloves.**
8.5	Body Protection: **Use as necessary to prevent skin contact.**

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	**0.72**
9.2	Boiling Point:	**> 240 °C (464 °F)**
9.3	Melting Point:	**NA**
9.4	Evaporation Rate:	**NA**
9.5	Vapor Pressure:	**< 0.01 mm Hg @ 20 °C (68 °F)**
9.6	Molecular Weight:	**NA**
9.7	Appearance & Color:	**Light yellow/amber**
9.8	Odor Threshold:	**Ethereal/hydrocarbon odor**
9.9	Solubility:	**Not soluble in water**
9.10	Ph	**NA**
9.11	Viscosity:	**5.4 – 7.5 cSt @ 104 °F**
9.12	VOC (g/L):	**None**
9.13	Other Information:	**NA**

10. STABILITY & REACTIVITY

10.1	Stability:	**Stable under normal conditions of use (see section 7).**
10.2	Hazardous Decomposition Products:	**Change in color signifies exposure to ultraviolet light or exceeding shelf life. Will not degrade to unstable products. Discard solution.**
10.3	Hazardous Polymerization:	**Will not occur.**
10.4	Conditions to Avoid:	**Use or storage near open flames, sparks, high heat (>100 °F) or other heat sources, and proximity to incompatible substances and heavily trafficked areas.**
10.5	Incompatible Substances:	**Strong oxidizers.**

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data:	**This product has not been tested on animals to obtain toxicological 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 3.5**
11.3	Chronic Toxicity:	**See section 3.6**
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 3.3**
11.7	Biological Exposure Indices:	**NE**
11.8	Physician Recommendations:	**Treat symptomatically.**

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	**This product will slowly volatile from soil. Components of this product will slowly decompose into organic compounds.**
12.2	Effects on Plants & Animals:	**There is no specific data available for this product.**
12.3	Effects on Aquatic Life:	**Releases of large volumes of this product are expected to be harmful or fatal to overexposed aquatic life.**

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal: **Dispose of in accordance with federal, state or local regulations.**
13.2	Special Considerations: **NA**

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND): **NOT REGULATED**
14.2	IATA (AIR): **NOT REGULATED**
14.3	IMDG (OCN): **NOT REGULATED**
14.4	TDGR (Canadian GND): **NOT REGULATED**
14.5	ADR/RID (EU): **NOT REGULATED**
14.6	SCT (MEXICO): **NO REGULADO**
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): **NA**	
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 component of this product is not listed on the following state lists: California OSHA; California Proposition 65; Massachusetts Right to Know List of Chemicals; New Jersey Right to Know List 8:59 Appendix A; Pennsylvania Hazardous Substances List 34 323 Appendix A; Wisconsin Hazardous Substances List NR 605.09; Minnesota Hazardous Substances List; and Florida Toxic Substances List.**	
15.8	67/548/EEC (European Union) Requirements: **The primary component of this product is not listed in Annex I of EU Directive 67/548/EEC.**	

16. OTHER INFORMATION

16.1	Other Information: **NA**	
16.2	Terms & Definitions: **See page 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** **Sisters, OR. 97759-0787** **+1 (310) 370-3600 phone** **+1 (310) 370-5700 fax** **http://www.shipmate.com/**	ShipMate® Dangerous Goods Training & Consulting

DEFINITIONS 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:

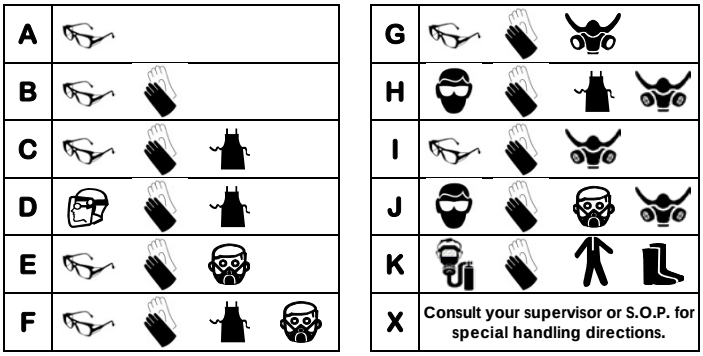
CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.

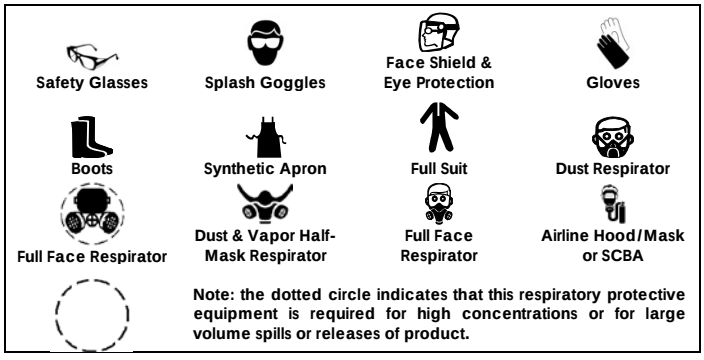
HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

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

PERSONAL PROTECTION RATINGS:





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

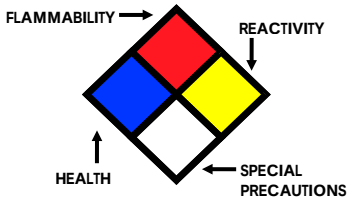
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

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

MATERIAL SAFETY DATA SHEET

MSDS-E-GN5MS-15

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards | MSDS Revision: 3.1 | MSDS Revision Date: 01/29/2011

1. PRODUCT IDENTIFICATION

1.1	Product Name:	**DeoxIT® G-Series, GN5MS-15, 5% Spray, 14 g**
1.2	Chemical Name:	See ingredients listed in section 2
1.3	Synonyms:	DeoxIT® Gold, GN5MS-15, 5% Spray
1.4	Trade Names:	DeoxIT® Gold, GN5MS-15, 5% Spray
1.5	Product Use:	Conditioner, enhancer for contacts & connectors
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 +1-800-424-9300/+1-703-527-3887**
1.10	Other Product Names:	NA

CHEMICAL RESPONSE CARD:	**01**
RESPONSE TEAM PPE:	
WHMIS:	
HEALTH:	1
FLAMMABILITY:	1
PHYSICAL HAZARDS:	0
PERSONAL PROTECTION:	B

2. HAZARD IDENTIFICATION

2.1 Hazard Identification:

This product is Classified as a HAZARDOUS SUBSTANCE and as DANGEROUS GOODS according to the classification criteria of NOHSC: 1008 (2004) and ADG Code (Australia). Colorless, volatile liquid with ethereal and faint sweetish odor. Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At high temperatures (>250°C), decomposition products may include Hydrofluoric Acid (HF) and carbonyl halides.

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

2.3 Effects of Exposure:

EYES: Mild to moderate irritation.
SKIN: Irritant and potential skin sensitizer. Prolonged or repeated contact may cause contact dermatitis (localized redness or rash).
INGESTION: Gastrointestinal irritation and central nervous system depression.
INHALATION: Central nervous system depressant. Irritating to the upper respiratory tract.

2.4 Symptoms of Overexposure:

EYES: Mild irritation, redness, and watering.
SKIN: Contact dermatitis, characterized by localized red or puffy dry skin and itching.
INGESTION: Nausea, vomiting, and diarrhea.
INHALATION: Mouth, nose, and throat irritation, dizziness, nausea, light-headedness, drunkenness, and loss of coordination.

2.5 Acute Health Effects:

EYES: Mild to moderate irritation.
SKIN: Irritant and potential skin sensitizer. Prolonged or repeated contact may cause contact dermatitis (localized redness or rash).
INGESTION: Gastrointestinal irritation and central nervous system depression.
INHALATION: Central nervous system depressant. Irritating to the upper respiratory tract.

2.6 Chronic Health Effects:

EYES: Mild to moderate irritation.
SKIN: Irritant and potential skin sensitizer. Prolonged or repeated contact may cause contact dermatitis (localized redness or rash).
INGESTION: Gastrointestinal irritation and central nervous system depression.
INHALATION: Central nervous system depressant. Irritating to the upper respiratory tract.

2.7 Target Organs:

Eyes, skin and respiratory system.

NA = Not Available; ND = Not Determined; NE = Not Established; NF; Not found; 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 Z400.1-2004 format.

3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m³) ACGIH ppm TLV	ACGIH ppm STEL	NOHSC ppm ES-TWA	NOHSC ppm ES-STEL	NOHSC ppm ES-PEAK	OSHA ppm TLV	OSHA ppm STEL	OSHA ppm IDLH	OTHER
1,1,1,3,3-PENTAFLUOROPROPANE	460-73-1	UNK	419-170-6	≤ 75	300	NE	NF	NF	NF	300	NE	NE	
HYDROCARBON PROPELLANT:				≤ 20									
ISOBUTANE	75-28-5	TZ4300000	200-857-2	NA	NE	NE	NF	NF	NF	NE	NE	NE	
PROPANE	74-98-6	TX2275000	200-827-9	NA	NE	NE	NF	NF	NF	1000	NE	NE	
ISOPROPYL ALCOHOL	67-63-0	NT8050000	200-661-7	≤ 3	400	NE	983	500	1230	400	NE	2000	
DeoxIT® Gold G100L	TRADE SECRET	NA	NA	≤ 5	NE	NE	NF	NF	NF	NE	NE	NE	

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: Drink plenty of water. If irritation persists, contact a physician.

INHALATION: Remove victim to fresh air at once. If breathing is difficult, administer supplemental oxygen and seek immediate medical attention. If breathing stops, perform artificial respiration.

4.2 Medical Conditions Aggravated by Exposure:

None reported by the manufacturer.

HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARDS	0
PROTECTIVE EQUIPMENT	B

EYES | SKIN

5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

ND. Level 1 aerosol.

5.2 Autoignition Temperature:

412 °C (774 °F) – 1,1,1,3,3-Pentafluoropropane

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

5.4 Fire & Explosion Hazards:

Carbon dioxide, carbon monoxide, hydrocarbons.

5.5 Extinguishing Methods:

CO_2, Alcohol foam, Dry Chemical, Water Fog

5.6 Firefighting Procedures:

Wear NIOSH/MSHA approved self-contained breathing apparatus and protective clothing. Use a water spray to cool containers involved in fire. Do not use direct water stream. Container storage areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Keep containers cool until well after the fire is out to prevent rupture. 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: **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: **Store at temperatures between 59 °F and 95 °F (15 °C and 35 °C) in a dry, well-ventilated location. Keep away from heat, sparks, open flame, and other sources of ignition. Normal shelf-life: 2-3 years.**
7.3	Special Precautions: **Empty containers may contain product residues.**

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls: **Use with adequate ventilation (e.g., open doors and windows, local exhaust ventilation). Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).**
8.2	Respiratory Protection: **None required, when used with adequate ventilation.**
8.3	Eye Protection: **Wear safety glasses with side shields (ANSI Z87) under normal use conditions.**
8.4	Hand Protection: **None required under normal conditions of use. However, may cause skin irritation in some sensitive individuals. In such cases, wear rubber or impervious plastic gloves.**
8.5	Body Protection: **Use as necessary to prevent skin contact.**

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	**NA**
9.2	Boiling Point:	**15 °C (59 °F) - 1,1,1,3,3-Pentafluoropropane**
9.3	Melting Point:	**NA**
9.4	Evaporation Rate:	**NA**
9.5	Vapor Pressure:	**50 +/- 5 psig @ 20 °C**
9.6	Molecular Weight:	**NA**
9.7	Appearance & Color:	**Light yellow/amber, aerosol**
9.8	Odor Threshold:	**Ethereal/hydrocarbon odor**
9.9	Solubility:	**Not soluble in water**
9.10	pH	**NA**
9.11	Viscosity:	**ND**
9.12	Other Information: VOC Content	**268 grams/liter**

10. STABILITY & REACTIVITY

10.1	Stability: **Stable under normal conditions of use (see section 7).**
10.2	Hazardous Decomposition Products: **Change in color signifies exposure to ultraviolet light or exceeding shelf life. Will not degrade to unstable products. Discard solution.**
10.3	Hazardous Polymerization: **Will not occur.**
10.4	Conditions to Avoid: **Use or storage near open flames, sparks, high heat (>100 °F) or other heat sources, and proximity to incompatible substances and heavily trafficked areas.**
10.5	Incompatible Substances: **Strong oxidizers.**

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data: **1,1,1,3,3-Pentafluoropropane: Acute Dermal (rabbit) – LD_{50} > 2,000 mg/kg; Cardiac Sensitization (dogs) – No effects noted at 35,000 ppm, the threshold for induction of cardiac arrhythmias in the presence of injected adrenalin was 44,000 ppm. Acute Inhalation (rat): 4-hr. LC_{50} > 200,000 ppm. No lethality at 200,000 ppm. Evidence of transient anesthetic effect. Acute Inhalation (mouse): 4-hr. LC50 > 100,000 ppm. No lethality at 100,000 ppm. Evidence of transient underactivity during exposure.**	
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.**	

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability: **This product will slowly volatile from soil. Components of this product will slowly decompose into organic compounds.**
12.2	Effects on Plants & Animals: **There is no specific data available for this product.**
12.3	Effects on Aquatic Life: **1,1,1,3,3-Pentafluoropropane: Partition Coefficient: Log P_{OW} = 1.35 @ 21.5°C; Acute toxicity to Daphnia magna (Limit Test): NOEC > 97.9 mg/L; 48 hr. EC_{50} > 97.9 mg/L. Acute toxicity to Rainbow Trout (Limit Test): NOEC > 10 mg/L; 96 hr. EC_{50} > 81.8 mg/L**

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal: **Dispose of in accordance with federal, state or local regulations.**
13.2	Special Considerations: **NA**

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG, SCT, ADGR and the CTDGR.

14.1	49 CFR (Ground): **CONSUMER COMMODITY, ORM-D**
14.2	IATA (Air): **ID8000, CONSUMER COMMODITY, 9 (≤ 820 ml)** **UN1950, AEROSOLS, 2.2 (> 820 ml)**
14.3	IMDG (Ocean): **UN1950, AEROSOLS, 2.2, LTD QTY (≤ 1.0 L)**
14.4	TDGR (Canada): **MARK PACKAGE "LIMITED QUANTITY" or "QUANTITÉ LIMITÉE" or "LTD QTY" or "QUANT LTÉE" (≤ 1.0 L)**
14.5	ADR/RID (EU): **UN1950, AEROSOLS, 2, 5 A, ADR, LTD QTY (X ≤ 1.0 L)**
14.6	SCT (Mexico): **UN1950, AEROSOLS, 2.2, CANTIDAD LIMITADA**
14.7	ADGR (Australia): **UN1950, AEROSOLS, 2.2, LTD QTY**

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): **NA**
15.5	Other Federal Requirements: **Contains HFC-245fa, a greenhouse gas, a substance which may contribute to global warming. Regulated under Section 612 (SNAP) of the Clean Air Act and 40 CFR Part 82, subpart G.**
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 component of this product is not listed on the following state lists: California OSHA; California Proposition 65; Massachusetts Right to Know List of Chemicals; New Jersey Right to Know List 8:59 Appendix A; Pennsylvania Hazardous Substances List 34 323 Appendix A; Wisconsin Hazardous Substances List NR 605.09; Minnesota Hazardous Substances List; and Florida Toxic Substances List.**
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16. OTHER INFORMATION

16.1	Other Information: **NA**
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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/**
16.5	Prepared by: **ShipMate, Inc.** **P.O. Box 787** **Sisters, OR 97759-0787** **310-370-3600 phone** **310-370-5700 fax** **http://www.shipmate.com/**

MATERIAL SAFETY DATA SHEET

MSDS-E-GN5MS-15

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards | MSDS Revision: 3.1 | MSDS Revision Date: 01/29/2011

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OSHA	U.S. Occupational Safety and Health Administration
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IDLH	Immediately Dangerous to Life and Health

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HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

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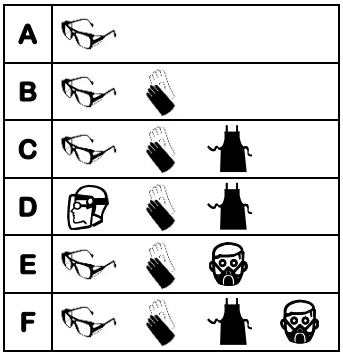
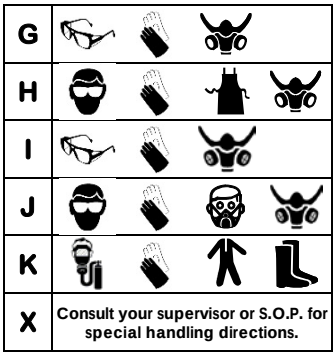
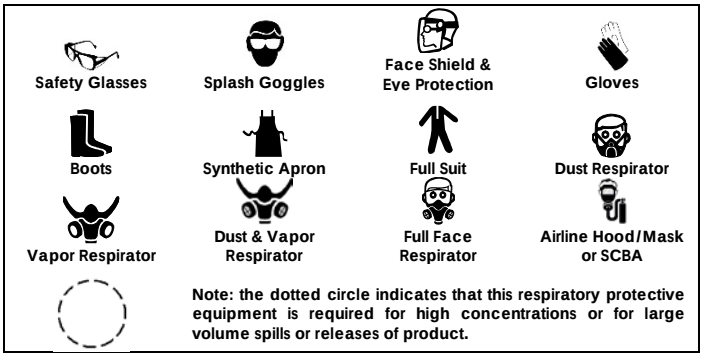
4	Extreme Hazard

PERSONAL PROTECTION RATINGS:







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

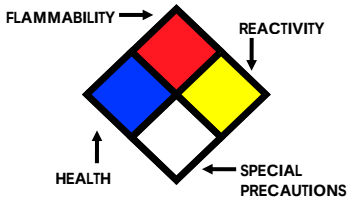
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

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

MATERIAL SAFETY DATA SHEET

MSDS-E-S100L

Prepared to OSHA, ACC, ANSI, WHMIS, NOHSC & 2001/58 EC Standards | MSDS Revision: 2.1 | MSDS Revision Date: 02/14/2011

1. PRODUCT IDENTIFICATION

1.1	Product Name:	**DeoxIT® Shield S100L, S-SERIES**
1.2	Chemical Name:	See ingredients listed in section 3
1.3	Synonyms:	DeoxIT® Shield S100L
1.4	Trade Names:	DeoxIT® Shield S100L (see list below)
1.5	Product Use:	Protect & lubricate electronic contacts & connectors
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® SHIELD S100L, 2 ml (Part No. S100L-2C, S100L-2CP) DeoxIT® SHIELD S100L, 7.4 ml (Part No. S100L-2DB) DeoxIT® SHIELD S100L, 12 ml (Part No. S100L-12C) DeoxIT® SHIELD S100L, 25 ml (Part No. S100L-25C) DeoxIT® SHIELD PEN, 7 ml (Part No. D100P) DeoxIT® SHIELD WIPES, (Part Nos. D50W, K-D1W-25, K-D1W-50, D1W) DeoxIT® SHIELD S100L, 59 ml (Part No. S100L-2) DeoxIT® SHIELD S100L, 236 ml (Part No. S100L-8) DeoxIT® SHIELD S100L, 472 ml (Part No. S100L-16) DeoxIT® SHIELD S100L, 944 ml (Part No. S100L-32) DeoxIT® SHIELD S100L, 30 L (Part No. S100L-8G)

CHEMICAL RESPONSE CARD:	03
RESPONSE TEAM PPE:	
WHMIS:	
HEALTH:	0
FLAMMABILITY:	0
PHYSICAL HAZARDS:	0
PERSONAL PROTECTION:	

2. HAZARD IDENTIFICATION

2.1 Hazard Identification:

This product is NOT classified as a HAZARDOUS SUBSTANCE or as DANGEROUS GOODS according to the classification criteria of [NOHSC: 1088 (2004)] and ADG Code (Australia). DeoxIT® Shield S100L is non-volatile, non-hazardous and non-flammable.

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

2.3 Effects of Exposure:

EYES: Non-irritating when used as directed. Can cause irritation, tearing, and temporary blurred vision.
SKIN: Non-irritating when used as directed. Prolonged or repeated contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amounts if swallowed may cause temporary gastrointestinal irritation.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause temporary headaches and dizziness.

2.4 Symptoms of Overexposure:

EYES: Non-irritating when used as directed. Can cause temporary irritation, tearing, and blurred vision.
SKIN: Non-irritating when used as directed. Prolonged or repeated contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amounts if swallowed may cause temporary gastrointestinal irritation.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause headaches and dizziness.

2.5 Acute Health Effects:

EYES: None reported when used as directed. Mild to moderate temporary irritation.
SKIN: Unlikely when used as directed. Repeated exposure at site of contact may cause temporary contact dermatitis (localized redness or rash).
INGESTION: Not probable. Small amount may cause temporary gastrointestinal irritation and central nervous system depression.
INHALATION: Unlikely route of exposure. Should vapor concentrations exceed recommended exposure levels, they are temporary irritating to the eyes, nose, throat, and the respiratory tract; may cause headaches and dizziness.

2.6 Chronic Health Effects:

None reported by the manufacturer.

2.7 Target Organs:

Eyes and skin.

NA = Not Available; ND = Not Determined; NE = Not Established;NF = Not found; 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 Z400.1-1998 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
DeoxIT® Shield S100L	Trade Secret	NA	NA	100	NE	NE	NE	NE	NE	

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: Do not induce vomiting! Drink plenty of water. If irritation persists, contact a physician.

INHALATION: Remove victim to fresh air at once. If breathing is difficult, administer supplemental oxygen and seek immediate medical attention. If breathing stops, perform artificial respiration.

4.2 Medical Conditions Aggravated by Exposure:

None reported by the manufacturer.

HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARDS	0
PROTECTIVE EQUIPMENT	A

EYES

5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

> 250 °C (482 °F)

5.2 Autoignition Temperature:

NA

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

5.4 Fire & Explosion Hazards:

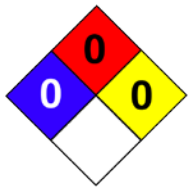
Carbon dioxide, carbon monoxide, hydrocarbons.

5.5 Extinguishing Methods:

CO_2, Alcohol foam, Dry Chemical, Water Fog

5.6 Firefighting Procedures:

Wear NIOSH/MSHA approved self-contained breathing apparatus and protective clothing. Use a water spray to cool containers involved in fire. Do not use direct water stream. Container storage areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Keep containers cool until well after the fire is out to prevent rupture. 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:

Ventilate if in enclosed area. Secure spill area, remove or minimize all sources of ignition, and maximize ventilation. Wipe and rinse with water. Deny entry to all unprotected individuals. Individuals involved in the cleanup must wear appropriate personal protective equipment.

7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices: **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: **Use and store in a cool, dry, well-ventilated area. Do not store near or with any incompatible materials listed in section 10. Open containers may change concentrations, keep tightly closed when not in use. Normal shelf life 2-3 years.**
7.3	Special Precautions: **Empty containers may contain product residues.**

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls: **Use with adequate ventilation (e.g., open doors and windows, local exhaust ventilation). Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).**
8.2	Respiratory Protection: **None required, when used with adequate ventilation.**
8.3	Eye Protection: **Wear safety glasses with side shields (ANSI Z87) under normal use conditions.**
8.4	Hand Protection: **None required under normal conditions of use. However, may cause skin irritation in some sensitive individuals. In such cases, wear rubber or impervious plastic gloves.**
8.5	Body Protection: **Use as necessary to prevent skin contact.**

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	**0.72**
9.2	Boiling Point:	**> 220 °C (428 °F)**
9.3	Melting Point:	**NA**
9.4	Evaporation Rate:	**NA**
9.5	Vapor Pressure:	**< 0.01 mm Hg @ 20 °C (68 °F)**
9.6	Molecular Weight:	**NA**
9.7	Appearance & Color:	**Light blue**
9.8	Odor Threshold:	**Ethereal/hydrocarbon odor**
9.9	Solubility:	**Not soluble in water**
9.10	Ph	**NA**
9.11	Viscosity:	**5.4 – 7.5 cSt @ 104 °F**
9.12	VOC (g/L):	**None**
9.13	Other Information:	**NA**

10. STABILITY & REACTIVITY

10.1	Stability:	**Stable under normal conditions of use (see section 7).**
10.2	Hazardous Decomposition Products:	**Change in color signifies exposure to ultraviolet light or exceeding shelf life. Will not degrade to unstable products. Discard solution.**
10.3	Hazardous Polymerization:	**Will not occur.**
10.4	Conditions to Avoid:	**Use or storage near open flames, sparks, high heat (>100 °F) or other heat sources, and proximity to incompatible substances and heavily trafficked areas.**
10.5	Incompatible Substances:	**Strong oxidizers.**

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data:	**This product has not been tested on animals to obtain toxicological 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 3.5**
11.3	Chronic Toxicity:	**See section 3.6**
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 3.3**
11.7	Biological Exposure Indices:	**NE**
11.8	Physician Recommendations:	**Treat symptomatically.**

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	**This product will slowly volatile from soil. Components of this product will slowly decompose into organic compounds.**
12.2	Effects on Plants & Animals:	**There is no specific data available for this product.**
12.3	Effects on Aquatic Life:	**Releases of large volumes of this product are expected to be harmful or fatal to overexposed aquatic life.**

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal: **Dispose of in accordance with federal, state or local regulations.**
13.2	Special Considerations: **NA**

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND): **NOT REGULATED**
14.2	IATA (AIR): **NOT REGULATED**
14.3	IMDG (OCN): **NOT REGULATED**
14.4	TDGR (Canadian GND): **NOT REGULATED**
14.5	ADR/RID (EU): **NOT REGULATED**
14.6	SCT (MEXICO): **NO REGULADO**
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): **NA**
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 component of this product is not listed on the following state lists: California OSHA; California Proposition 65; Massachusetts Right to Know List of Chemicals; New Jersey Right to Know List 8:59 Appendix A; Pennsylvania Hazardous Substances List 34 323 Appendix A; Wisconsin Hazardous Substances List NR 605.09; Minnesota Hazardous Substances List; and Florida Toxic Substances List.**
15.8	67/548/EEC (European Union) Requirements: **The primary component of this product is not listed in Annex I of EU Directive 67/548/EEC.** 

16. OTHER INFORMATION

16.1	Other Information: **NA**
16.2	Terms & Definitions: **See page 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/**
16.5	Prepared by: **ShipMate, Inc.** **P.O. Box 787** **Sisters, OR. 97759-0787** **+1 (310) 370-3600 phone** **+1 (310) 370-5700 fax** **http://www.shipmate.com/**

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

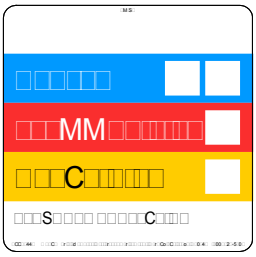
EXPOSURE LIMITS IN AIR:

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:

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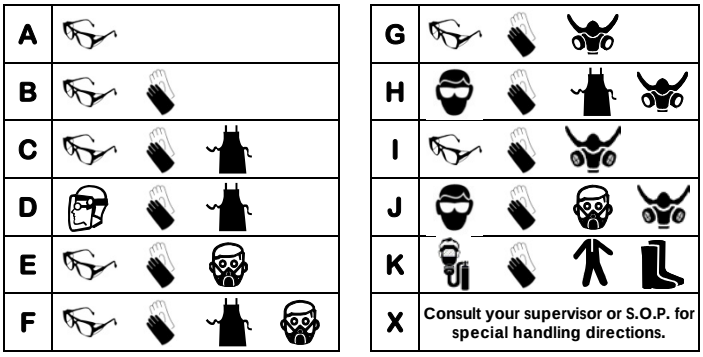
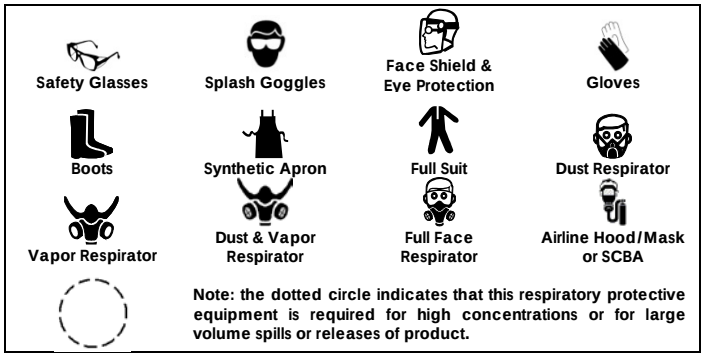
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard

PERSONAL PROTECTION RATINGS:





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HAZARD RATINGS:

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2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard
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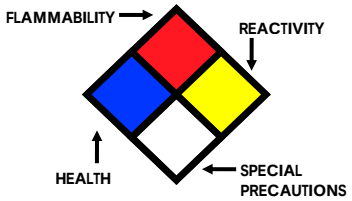
ALK	Alkaline
COR	Corrosive
W ——	Use No Water
OX	Oxidizer



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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
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REGULATORY INFORMATION:

WHMIS	Canadian Workplace Hazardous Material Information System
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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

MATERIAL SAFETY DATA SHEET

MSDS-E-SN5MS-15

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards | MSDS Revision: 3.1 | MSDS Revision Date: 01/29/2011

1. PRODUCT IDENTIFICATION

1.1	Product Name:	**DeoxIT® Shield S-Series, SN5MS-15, 5% Spray, 14 g**
1.2	Chemical Name:	See ingredients listed in section 2
1.3	Synonyms:	DeoxIT® Shield, SN5MS-15, 5% Spray
1.4	Trade Names:	DeoxIT® Shield, SN5MS-15, 5% Spray
1.5	Product Use:	Lubricates and protects electrical contacts & connectors
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 +1-800-424-9300/+1-703-527-3887**
1.10	Other Product Names:	NA

CHEMICAL RESPONSE CARD:	01
RESPONSE TEAM PPE:	
WHMIS:	
HEALTH:	1
FLAMMABILITY:	1
PHYSICAL HAZARDS:	0
PERSONAL PROTECTION:	B

2. HAZARD IDENTIFICATION

2.1 Hazard Identification:

This product is Classified as a HAZARDOUS SUBSTANCE and as DANGEROUS GOODS according to the classification criteria of NOHSC: 1008 (2004) and ADG Code (Australia). Colorless, volatile liquid with ethereal and faint sweetish odor. Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At high temperatures (>250°C), decomposition products may include Hydrofluoric Acid (HF) and carbonyl halides.

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

2.3 Effects of Exposure:

EYES: Mild to moderate irritation.
SKIN: Irritant and potential skin sensitizer. Prolonged or repeated contact may cause contact dermatitis (localized redness or rash).
INGESTION: Gastrointestinal irritation and central nervous system depression.
INHALATION: Central nervous system depressant. Irritating to the upper respiratory tract.

2.4 Symptoms of Overexposure:

EYES: Mild irritation, redness, and watering.
SKIN: Contact dermatitis, characterized by localized red or puffy dry skin and itching.
INGESTION: Nausea, vomiting, and diarrhea.
INHALATION: Mouth, nose, and throat irritation, dizziness, nausea, light-headedness, drunkenness, and loss of coordination.

2.5 Acute Health Effects:

EYES: Mild to moderate irritation.
SKIN: Irritant and potential skin sensitizer. Prolonged or repeated contact may cause contact dermatitis (localized redness or rash).
INGESTION: Gastrointestinal irritation and central nervous system depression.
INHALATION: Central nervous system depressant. Irritating to the upper respiratory tract.

2.6 Chronic Health Effects:

EYES: Mild to moderate irritation.
SKIN: Irritant and potential skin sensitizer. Prolonged or repeated contact may cause contact dermatitis (localized redness or rash).
INGESTION: Gastrointestinal irritation and central nervous system depression.
INHALATION: Central nervous system depressant. Irritating to the upper respiratory tract.

2.7 Target Organs:

Eyes, skin and respiratory system.

NA = Not Available; ND = Not Determined; NE = Not Established; NF; Not found; 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 Z400.1-2004 format.

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards | MSDS Revision: 3.1 | MSDS Revision Date: 01/29/2011

3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m³) ACGIH ppm TLV	ACGIH ppm STEL	NOHSC ppm ES-TWA	NOHSC ppm ES-STEL	NOHSC ppm ES-PEAK	OSHA ppm TLV	OSHA ppm STEL	OSHA ppm IDLH	OTHER
1,1,1,3,3-PENTAFLUOROPROPANE	460-73-1	UNK	419-170-6	≤ 75	300	NE	NF	NF	NF	300	NE	NE	
HYDROCARBON PROPELLANT:				≤ 20									
ISOBUTANE	75-28-5	TZ4300000	200-857-2	NA	NE	NE	NF	NF	NF	NE	NE	NE	
PROPANE	74-98-6	TX2275000	200-827-9	NA	NE	NE	NF	NF	NF	1000	NE	NE	
ISOPROPYL ALCOHOL	67-63-0	NT8050000	200-661-7	≤ 3	400	NE	983	500	1230	400	NE	2000	
DeoxIT® Shield S100L	TRADE SECRET	NA	NA	≤ 5	NE	NE	NF	NF	NF	NE	NE	NE	

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: Drink plenty of water. If irritation persists, contact a physician.

INHALATION: Remove victim to fresh air at once. If breathing is difficult, administer supplemental oxygen and seek immediate medical attention. If breathing stops, perform artificial respiration.

4.2 Medical Conditions Aggravated by Exposure:

None reported by the manufacturer.

HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARDS	0
PROTECTIVE EQUIPMENT	B

EYES | SKIN

5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

ND. Level 1 aerosol.

5.2 Autoignition Temperature:

412 °C (774 °F) – 1,1,1,3,3-Pentafluoropropane

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

5.4 Fire & Explosion Hazards:

Carbon dioxide, carbon monoxide, hydrocarbons.

5.5 Extinguishing Methods:

CO_2, Alcohol foam, Dry Chemical, Water Fog

5.6 Firefighting Procedures:

Wear NIOSH/MSHA approved self-contained breathing apparatus and protective clothing. Use a water spray to cool containers involved in fire. Do not use direct water stream. Container storage areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Keep containers cool until well after the fire is out to prevent rupture. 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: **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: **Store at temperatures between 59 °F and 95 °F (15 °C and 35 °C) in a dry, well-ventilated location. Keep away from heat, sparks, open flame, and other sources of ignition. Normal shelf-life: 2-3 years.**
7.3	Special Precautions: **Empty containers may contain product residues.**

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls: **Use with adequate ventilation (e.g., open doors and windows, local exhaust ventilation). Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).**
8.2	Respiratory Protection: **None required, when used with adequate ventilation.**
8.3	Eye Protection: **Wear safety glasses with side shields (ANSI Z87) under normal use conditions.**
8.4	Hand Protection: **None required under normal conditions of use. However, may cause skin irritation in some sensitive individuals. In such cases, wear rubber or impervious plastic gloves.**
8.5	Body Protection: **Use as necessary to prevent skin contact.**

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	**NA**
9.2	Boiling Point:	**15 °C (59 °F) - 1,1,1,3,3-Pentafluoropropane**
9.3	Melting Point:	**NA**
9.4	Evaporation Rate:	**NA**
9.5	Vapor Pressure:	**50 +/- 5 psig @ 20 °C**
9.6	Molecular Weight:	**NA**
9.7	Appearance & Color:	**Light blue, aerosol**
9.8	Odor Threshold:	**Ethereal/hydrocarbon odor**
9.9	Solubility:	**Not soluble in water**
9.10	pH	**NA**
9.11	Viscosity:	**ND**
9.12	Other Information: VOC Content	**268 grams/liter**

10. STABILITY & REACTIVITY

10.1	Stability: **Stable under normal conditions of use (see section 7).**
10.2	Hazardous Decomposition Products: **Change in color signifies exposure to ultraviolet light or exceeding shelf life. Will not degrade to unstable products. Discard solution.**
10.3	Hazardous Polymerization: **Will not occur.**
10.4	Conditions to Avoid: **Use or storage near open flames, sparks, high heat (>100 °F) or other heat sources, and proximity to incompatible substances and heavily trafficked areas.**
10.5	Incompatible Substances: **Strong oxidizers.**

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data: **1,1,1,3,3-Pentafluoropropane: Acute Dermal (rabbit) – LD_{50} > 2,000 mg/kg; Cardiac Sensitization (dogs) – No effects noted at 35,000 ppm, the threshold for induction of cardiac arrhythmias in the presence of injected adrenalin was 44,000 ppm. Acute Inhalation (rat): 4-hr. LC_{50} > 200,000 ppm. No lethality at 200,000 ppm. Evidence of transient anesthetic effect. Acute Inhalation (mouse): 4-hr. LC50 > 100,000 ppm. No lethality at 100,000 ppm. Evidence of transient underactivity during exposure.**	
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.**	

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability: **This product will slowly volatile from soil. Components of this product will slowly decompose into organic compounds.**
12.2	Effects on Plants & Animals: **There is no specific data available for this product.**
12.3	Effects on Aquatic Life: **1,1,1,3,3-Pentafluoropropane: Partition Coefficient: Log P_{OW} = 1.35 @ 21.5°C; Acute toxicity to Daphnia magna (Limit Test): NOEC > 97.9 mg/L; 48 hr. EC_{50} > 97.9 mg/L. Acute toxicity to Rainbow Trout (Limit Test): NOEC > 10 mg/L; 96 hr. EC_{50} > 81.8 mg/L**

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal: **Dispose of in accordance with federal, state or local regulations.**
13.2	Special Considerations: **NA**

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG, SCT, ADGR and the CTDGR.

14.1	49 CFR (Ground): **CONSUMER COMMODITY, ORM-D**
14.2	IATA (Air): **ID8000, CONSUMER COMMODITY, 9 (≤ 820 ml)** **UN1950, AEROSOLS, 2.2 (> 820 ml)**
14.3	IMDG (Ocean): **UN1950, AEROSOLS, 2.2, LTD QTY (≤ 1.0 L)**
14.4	TDGR (Canada): **MARK PACKAGE "LIMITED QUANTITY" or "QUANTITÉ LIMITÉE" or "LTD QTY" or "QUANT LTÉE" (≤ 1.0 L)**
14.5	ADR/RID (EU): **UN1950, AEROSOLS, 2, 5 A, ADR, LTD QTY (X ≤ 1.0 L)**
14.6	SCT (Mexico): **UN1950, AEROSOLS, 2.2, CANTIDAD LIMITADA**
14.7	ADGR (Australia): **UN1950, AEROSOLS, 2.2, LTD QTY**

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): **NA**
15.5	Other Federal Requirements: **Contains HFC-245fa, a greenhouse gas, a substance which may contribute to global warming. Regulated under Section 612 (SNAP) of the Clean Air Act and 40 CFR Part 82, subpart G.**
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 component of this product is not listed on the following state lists: California OSHA; California Proposition 65; Massachusetts Right to Know List of Chemicals; New Jersey Right to Know List 8:59 Appendix A; Pennsylvania Hazardous Substances List 34 323 Appendix A; Wisconsin Hazardous Substances List NR 605.09; Minnesota Hazardous Substances List; and Florida Toxic Substances List.**
15.8	67/548/EEC (European Union) Requirements: **The primary components of this product are not listed in Annex I of EU Directive 67/548/EEC.**

16. OTHER INFORMATION

16.1	Other Information: **NA**	
16.2	Terms & Definitions: **See page 7 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** **Sisters, OR 97759-0787** **310-370-3600 phone** **310-370-5700 fax** **http://www.shipmate.com/**	ShipMate® *Dangerous Goods Training & Consulting*

MATERIAL SAFETY DATA SHEET

MSDS-E-SN5MS-15

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards | MSDS Revision: 3.1 | MSDS Revision Date: 01/29/2011

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:

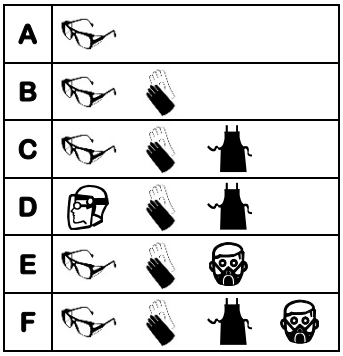
CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.

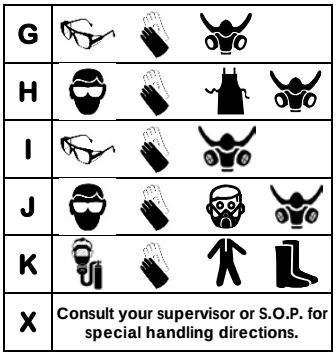
HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

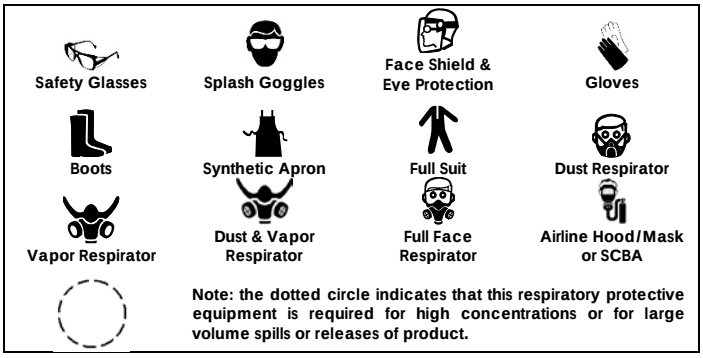
HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

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

PERSONAL PROTECTION RATINGS:







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

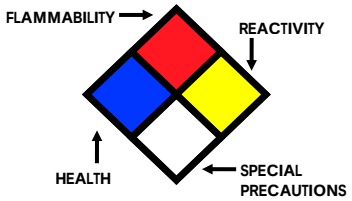
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

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