



SAFETY DATA SHEET

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MSDS-E-SN5S-6N

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58/EC & 1272/2008/EC Standards

MSDS Revision: 4.1

MSDS Revision Date: 08/20/2013

1. PRODUCT IDENTIFICATION

1.1	Product Name: DeoxIT® Shield S-Series, 5% Spray, (P/N SN5S-6N), 163 g
1.2	Chemical Name: See ingredients listed in section 3
1.3	Synonyms: DeoxIT® Shield SN5S-6N, 5% Spray
1.4	Trade Names: DeoxIT® Shield SN5S-6N, 5% Spray
1.5	Product Use: Lubricant and Protectant for electronic contacts & connectors
1.6	Manufacturer's Name: CAIG Laboratories, Inc.
1.7	Manufacturer's Address: 12200 Thatcher Court, Poway, CA 92064-6876 USA
1.8	Emergency Phone: CHEMTREC: +1 (703) 527-3887 / +1 (800) 424-3887
1.9	Business Phone: +1 (800)-224-4123

2. HAZARD IDENTIFICATION

2.1	Hazard Identification: This product is classified as a HAZARDOUS SUBSTANCE but not as DANGEROUS GOODS according to the classification criteria of NOHSC: 1008(2004) and ADG Code (Australia). WARNING. Contains gas under pressure; may explode if heated. 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. Hazard Statements (H): H280 – Contains gas under pressure; may explode if heated. Precautionary Statements (P): P280 – Wear protective gloves and eye protection. P305+P351+P338 – IF IN EYES - Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. P410 + P403 – Protect from sunlight. Store in a well-ventilated place. P501 – Dispose of contents/container through licensed treatment, storage or disposal facility.							
2.2	Routes of Entry:	Inhalation:	YES	Absorption:	YES	Ingestion:	YES	
2.3	Effects of Exposure: EYES: "Frostbite-like" effects may occur if the liquid or escaping vapors contact the eyes. Mists may cause irritation. SKIN: "Frostbite-like" effects may occur if the liquid or escaping vapors contact the eyes. Mists may cause irritation. INGESTION: Not considered to be a potential route of exposure. INHALATION: Gross overexposure may cause central nervous system depression, dizziness, confusion, incoordination, drowsiness, irregular heartbeat accompanied by a strange feeling in the chest, "heart thumping," apprehension, light-headedness, weakness, fainting, loss of consciousness, and death.							
2.4	Symptoms of Exposure: EYES: No exposure symptoms are reported by the manufacturer. SKIN: No exposure symptoms are reported by the manufacturer. INGESTION: Not considered to be a potential route of exposure. INHALATION: Dizziness, confusion, incoordination, drowsiness, irregular heartbeat accompanied by a strange feeling in the chest, "heart thumping", apprehension, light-headedness, weakness, fainting, loss of consciousness, and death.							
2.5	Acute Health Effects: EYES: "Frostbite-like" effects may occur if the liquid or escaping vapors contact the eyes. Mists may cause irritation. SKIN: "Frostbite-like" effects may occur if the liquid or escaping vapors contact the eyes. Mists may cause irritation. INGESTION: Not considered to be a potential route of exposure. INHALATION: Gross overexposure may cause central nervous system depression, dizziness, confusion, incoordination, drowsiness, irregular heartbeat accompanied by a strange feeling in the chest, "heart thumping", apprehension, light-headedness, weakness, fainting, loss of consciousness, and death.							
2.6	Chronic Health Effects: The manufacturer has not reported any chronic health effects.							
2.7	Target Organs: None reported by the manufacturer.							
2.8	Toxicological Properties: None reported by the manufacturer.							

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



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6. ACCIDENTAL RELEASE MEASURES

- 6.1 Spills:
Secure spill area, remove or minimize all sources of ignition, and maximize ventilation. Stop spill or leak at source if safely possible. Deny entry to all unprotected individuals. Individuals involved in the cleanup must wear appropriate personal protective equipment. Recover free liquid or cover with inert absorbent material and place into appropriate container(s) for disposal. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers or any natural waterway or drinking supply. Contact appropriate local and/or provincial authorities for assistance and/or reporting requirements.

7. HANDLING & STORAGE INFORMATION

- 7.1 Work & Hygiene Practices:
Use normal hygiene practices. Avoid direct skin contact. Wash hands thoroughly after using this product and before eating, drinking, or smoking.
- 7.2 Storage & Handling:
Use and store in a cool, dry, well-ventilated area. Keep away from excessive heat, open flames, sparks, and other possible sources of ignition. Do not store near or with any incompatible materials listed in section 10. Do not store in unmarked or open containers. Protect cylinders from physical damage. Do not store in subsurface areas.
- 7.3 Special Precautions:
Readily available emergency fire, first aid, and spill response equipment and/or measures are highly recommended.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

- 8.1 Ventilation & Engineering Controls:
Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places. Refrigerant concentration monitors may be necessary to determine vapor concentrations in work areas prior to use of torches or other open flames, or if employees are entering enclosed areas.
- 8.2 Respiratory Protection:
A respiratory protection program that meets ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirators use.
- 8.3 Eye Protection:
Safety glasses with side shields should be used with this product. If splashing is anticipated, splash goggles and a faceshield are recommended.
- 8.4 Hand Protection:
Where contact is likely, impervious gloves are recommended. Do not wear rings, watches, or jewelry that could entrap the material against the skin.
- 8.5 Body Protection:
None required under normal conditions.

9. PHYSICAL & CHEMICAL PROPERTIES

- | | | |
|------|--------------------------------|--|
| 9.1 | Density: | 0.8 |
| 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 gms/L |



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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) – LD₅₀ > 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. LC₅₀ > 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 under activity 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. EC₅₀ > 97.9 mg/L. Acute toxicity to Rainbow Trout (Limit Test): NOEC > 10 mg/L; 96 hr. EC₅₀ > 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 (GND): CONSUMER COMMODITY, ORM-D (until 12/31/2020) UN1950, AEROSOLS, 2.2, LTD QTY (IP VOL ≤ 1.0 L)
14.2	IATA (AIR): UN1950, AEROSOLS, 2.2, LTD QTY (IP VOL ≤ 820 ml)
14.3	IMDG (OCN): UN1950, AEROSOLS, 2.2, LTD QTY (IP VOL ≤ 1.0 L)
14.4	TDGR (Canadian GND): MARK PACKAGE "LIMITED QUANTITY" or "QUANTITÉ LIMITÉE" or "LTD QTY" or "QUANT LTÉE" (IP VOL ≤ 1.0 L)
14.5	ADR/RID (EU): UN1950, AEROSOLS, 2.2, LTD QTY (IP VOL ≤ 1.0 L)
14.6	SCT (MEXICO): UN1950, AEROSOLS, 2.2, CANTIDAD LIMITADA (IP VOL ≤ 1.0 L)
14.7	ADGR (Australia): UN1950, AEROSOLS, 2.2, LTD QTY (IP VOL ≤ 1.0 L)



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/NDL. None of the components of this product are listed on the Priorities Substances List.
15.7	State Regulatory Information: The primary components of this product are not listed on any of the following state criteria 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. WARNING: Contains gas under pressure; may explode if heated. 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. Hazard Statements (H): H280 – Contains gas under pressure; may explode if heated. Precautionary Statements (P): P280 – Wear protective gloves and eye protection. P305+P351+P338 – IF IN EYES - Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. P410 + P403 – Protect from sunlight. Store in a well-ventilated place. P501 – Dispose of contents/container through licensed treatment, storage or disposal facility.





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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.

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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
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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.
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HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

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

HEALTH
FLAMMABILITY
PHYSICAL HAZARDS
PERSONAL PROTECTION

PERSONAL PROTECTION RATINGS:

A	
B	
C	
D	
E	
F	

G	
H	
I	
J	
K	
X	Consult your supervisor or SOPs for special handling directions.

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

OTHER STANDARD ABBREVIATIONS:

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

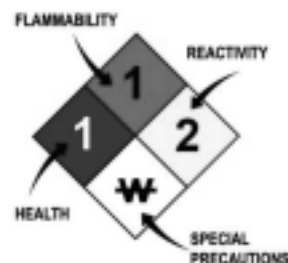
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

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
TRFOIL	Radioactive



TOXICOLOGICAL INFORMATION:

LD ₅₀	Lethal Dose (solids & liquids) which kills 50% of the exposed animals.
LC ₅₀	Lethal concentration (gases) which kills 50% of the exposed animal.
ppm	Concentration expressed in parts of material per million parts.
TD ₀₁	Lowest dose to cause a symptom.
TCLo	Lowest concentration to cause a symptom.
TD ₀₁ , LD ₀₁ , & LD ₅₀ or TC, TC ₀₁ , LC ₀₁ , & LC ₅₀	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 ₀₁	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)
WGK	Wassergefährdungsklassen (German Water Hazard Class)

WORKPLACE HAZARDOUS MATERIALS IDENTIFICATION (WHMIS) SYSTEM:

							
A	B	C	D1	D2	D3	E	F
Compressed	Flammable	Oxidizing	Toxic	Inhalation	Infection	Corrosive	Reactive

EC (67/548/EEC) INFORMATION:

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

CLP/GHS (1272/2008/EC) PICTOGRAMS:

								
GHS01	GHS02	GHS03	GHS04	GHS05	GHS06	GHS07	GHS08	GHS09
Explosive	Flammable	Oxidizing	Corrosive	Toxic	Hazardous to the environment	Health hazard	Hazardous to the environment	Hazardous to the environment