

Hazard Identification:

Business Phone / Fax:

19

SAFETY DATA SHEET

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Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards SDS Revision Date: 3/14/2018 1. PRODUCT & COMPANY IDENTIFICATION 1.1 Product Name: FIBER CLEANING FLUID, Pump Spray, (P/N FCF100PS-2), 50 mL 12 Chemical Name: **Aqueous Solution** 1.3 Synonyms: NA 1.4 Trade Names: Fiber Cleaning Fluid; PN FCF100PS-2 and PN FCF100PS-4 1.5 Product Uses & Restrictions: Cleaner for fiber optics 1.6 Distributor's Name: CAIG Laboratories, Inc. 1.7 Distributor's Address: 12200 Thatcher Court, Poway, CA 92064-6876 USA CHEMTREC: +1 (703) 527-3887 / +1 (800) 424-9300 (CCN205206) 1.8 Emergency Phone: 19 Business Phone / Fax:

2. HAZARDS IDENTIFICATION

This product is classified as a HAZARDOUS SUBSTANCE but NOT as DANGEROUS GOODS according to the

WARNING! CAUSES EYE IRRITATION. MAY CAUSE AN ALLERGIC SKIN REACTION. Classification: Eye Irrit 2; Skin Irrit. 1B Hazard Statements (H): H220 – Causes eye irritation. H317 – May cause an allergic skin reaction. Emergency Phone: Precautionary Statements (P): P261 - Avoid breathing dust. P264 - Wash thoroughly after handling. P280 – Wear protective gloves. P302+P352 – IF ON SKIN: Wash with plenty of water. P333+P313 - If skin irritation or rash occurs get medical advice/attention. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P321 - Specific treatment see this container label. P362+P364 -Take off contaminated clothing and was it before reuse. P337+P313 - If eye irritation persists: Get medical advice/attention. P501 - Dispose of contents/container to licenses treatment, storage and disposal facility (TSDF).

KEEP OUT OF REACH OF CHILDREN

classification criteria of NOHSC: 1088 (2004) and ADG Code (Australia).



3. COMPOSITION & INGREDIENT INFORMATION

| | | | | | | | | EXPO | SURE L | IMITS IN | I AIR (m | g/m³) | |
|--------------------|-------------|-----------|------------|-------|-----|------|-----|-------|--------|----------|----------|-------|-------|
| | | | | | AC | GIH | | NOHSC | | | OSHA | | |
| | | | | | pp | m | | ppm | | | ppm | | |
| | | | | | | | ES- | ES- | ES- | | | | |
| CHEMICAL NAME(S) | CAS No. | RTECS No. | EINECS No. | % | TLV | STEL | TWA | STEL | PEAK | PEL | STEL | IDLH | OTHER |
| METHYL NONAFLUORO- | 163702-07-6 | NA | NA | 20-80 | 750 | NA | NF | NF | NF | NA | NA | NA | |
| BUTYL ETHER | | | | | | | | | | | | | |
| METHYL NONAFLUORO- | 163702-08-7 | NA | NA | 20-80 | 750 | NA | NF | NF | NF | NA | NA | NA | |
| ISOBUTYL ETHER | | | | | | | | | | | | | |

| | | | 4. FIRST AID MEASURES |
|-----|---------------------------|----------------|--|
| 4.1 | First Aid: | Ingestion: | If ingested, do not induce vomiting. If product has been swallowed, drink plenty of water or milk IMMEDIATELY. If the patient is vomiting, continue to offer water or milk. Never give water or milk to an unconscious person. Contact the nearest Poison Control Center or local emergency number. Provide an estimate of the time at which the material was ingested and the amount of the substance that was swallowed. |
| | | Eyes: | Splashes are not likely; however, if product gets in the eyes, flush with copious amounts of lukewarm water for at least 15 minutes lifting upper and lower lids, occasionally. |
| | | Skin: | Wash thoroughly with soap and water. In case of contact, immediately flush skin with plenty of water for at least 15 minutes. |
| | | Inhalation: | Remove victim to fresh air at once. If breathing difficult, administer oxygen. If breathing stops give artificial respiration. Keep person warm, quiet and get medical attention. |
| 4.2 | Effects of Exposure: | Ingestion: | If product is swallowed, may cause nausea, vomiting and/or diarrhea. |
| | | Eyes: | Moderately irritating to the eyes. Symptoms of overexposure may include redness, itching, irritation and watering. |
| | | Skin: | May be irritating to skin. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) in some sensitive individuals. |
| | | Inhalation: | None expected. |
| 4.3 | Symptoms of Overexposure: | Ingestion: | Nausea, intestinal discomfort, vomiting and/or diarrhea. |
| | | Eyes: | Overexposure in eyes may cause redness, itching and watering. |
| | | Skin: | Symptoms of skin overexposure may include redness, itching, and irritation of affected areas. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) in some individuals. |
| 4.4 | Acute Health Effects: | Non-irritating | g when used as directed. Moderate irritation to eyes and skin near affected areas. Additionally, high |
| | | concentratio | ns of vapors can cause drowsiness, dizziness, headaches and nausea. |
| 4.5 | Chronic Health Effects: | , | g when used as directed. Overexposure may trigger asthma-like symptoms in some sensitive individuals. duce skin sensitization and respiratory hypersensitivity. Possible allergic dermatitis. |
| | • | | |



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Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards SDS Revision Date: 3/14/2018 4. FIRST AID MEASURES - cont'd 4.6 Target Organs: Eyes 47 Medical Conditions Pre-existing dermatitis, other skin conditions, and disorders of the HEALTH 1 Aggravated by Exposure: target organs (eyes). **FLAMMABILITY** 1 PHYSICAL HAZARDS 0 PROTECTIVE EQUIPMENT Α EYES 5. FIREFIGHTING MEASURES 5.1 Fire & Explosion Hazards: This product is not flammable. However, if involved in a fire, this product may decompose at high temperatures to form toxic gases and decomposition products (e.g., CO, CO₂, extreme conditions of heat: hydrogen fluoride; perfluoroisobutylene (PFIB); toxic vapor, gas, particulates) Extinguishing Methods: 5.2 Water, Foam, CO₂, Dry Chemical. Use water spray to cool unopened containers 5.3 Firefighting Procedures: Fight fires as for surrounding materials. As in any fire, wear MSHA/NIOSH approved self-contained breathing apparatus (pressure-demand) and full protective gear. Keep containers cool until well after the fire is out. Use water spray to cool fire-exposed surfaces and to protect personal. Fight fire upwind. Avoid spraying water directly into storage containers because of danger of boil-over. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway. Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. 6. ACCIDENTAL RELEASE MEASURES Before cleaning any spill or leak, individuals involved in spill cleanup must wear appropriate Personal Protective 6.1 Spills Equipment. For small spills (e.g., < 1 gallon (3.8 L)) wear appropriate personal protective equipment (e.g., goggles, gloves). Maximize ventilation (open doors and windows). Remove spilled material with absorbent material and place into appropriate closed container(s) for disposal. Dispose of properly in accordance with local, state and federal regulations. Wash all affected areas and outside of container with plenty of warm water and soap. Remove any contaminated clothing and wash thoroughly before reuse. For <u>large spills</u> (e.g., ≥ 1 gallon (3.8 L)), deny entry to all unprotected individuals. Dike and contain spill with inert material (e.g., sand or earth). Transfer product to containers for recovery or disposal and solid diking material to separate containers for proper disposal. Remove contaminated clothing promptly and wash affected skin areas with soap and water. Keep spills and cleaning runoffs out of municipal sewers and open bodies of water. 7. HANDLING & STORAGE INFORMATION Work & Hygiene Practices: Do not eat, drink, or smoke while handling this product. Wash thoroughly after handling. Avoid contact with flammable or combustible materials. Avoid contamination from any source, including metals, dust and organic materials. Keep bulk covered. Wash unintentional residues with soap and warm water. 7.2 Storage & Handling: Use and store in a cool, dry, well-ventilated location (e.g., local exhaust ventilation, fans). Keep away from excessive heat and open flames. Avoid temperatures above 120 °F. Keep away from incompatible substances. Protect containers from physical damage. Special Precautions: 7.3 Spilled material may present a slipping hazard if left unattended. Clean all spills promptly. 8. EXPOSURE CONTROLS & PERSONAL PROTECTION Exposure Limits: ACGIH NOHSC OSHA OTHER 8.1 ppm (mg/m³) CHEMICAL NAME(S) STEL ES-TWA ES-STEL **ES-PEAK** PEL STFI IDLH TLV METHYL NONAFLUORO-750 NA NE NF NA NA NA **BUTYL ETHER** METHYL NONAFLUORO-750 NA NF NA NA ISOBUTYL ETHER Ventilation & Engineering 8.2 When working with large quantities of product, provide adequate ventilation (e.g., local exhaust ventilation, fans). Ensure that an eyewash station, sink or washbasin is available in case of exposure to eyes. Respiratory Protection: 8.3 No special respiratory protection is required under typical circumstances of use or handling. necessary, use only respiratory protection authorized per U.S. OSHA's requirement in 29 CFR §1910.134, or applicable U.S. state regulations, or the appropriate standards of Canada, its provinces, E.C. member states, or Australia. 8.4 Eye Protection: Wear protective eyewear (e.g., safety glasses with side-shield) at all times when handling this product. Always use protective eyewear when cleaning spills or leaks. Contact lenses pose a special hazard; soft lenses may absorb and concentrate irritants. 8.5 Hand Protection: None required under normal conditions of use. However, may cause skin irritation in some sensitive individuals. When handling large quantities (e.g., ≥ 1 gallon (3.8 L)), wear rubber or impervious plastic gloves.



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| | 8. 1 | EXPOSURE CONTROLS & PERSONAL PROTECTION – cont'd |
|------|---|--|
| 3.6 | Body Protection: | No apron required when handling small quantities. When handling large quantities (e.g., ≥ 1 gallon), eye wash stations and deluge showers should be available. Upon completion of work activities involving large quantities of this product, wash any exposed areas thoroughly with soap and water. |
| | | 9. PHYSICAL & CHEMICAL PROPERTIES |
| 9.1 | Appearance: | Clear colorless liquid |
| 9.2 | Odor: | Slight ether odor |
| .3 | Odor Threshold: | NA NA |
| .4 | pH: | NA NA |
| 1.5 | Melting Point/Freezing Point: | -135 °C |
| 0.6 | Initial Boiling Point/Boiling Range: | 61 °C |
| .7 | Flashpoint: | NA NA |
| .8 | Upper/Lower Flammability Limits: | ND |
| .9 | Vapor Pressure: | 202 mm Hg |
| .10 | Vapor Density: | 8.6 |
|).11 | Relative Density: | 1.5 g/mL |
| 1.12 | Solubility: | < 12 ppm |
| 0.13 | Partition Coefficient (log Pow): Autoignition Temperature: | 3.9 |
| 1.14 | Decomposition Temperature: | 405 °C |
| .16 | Viscosity: | NA 0.6 cPs |
| .17 | Other Information: | VOC: 100% |
| | | |
| | | 10. STABILITY & REACTIVITY |
| 0.1 | Stability: | |
| 0.2 | Hazardous Decomposition Products: | This product is stable. At elevated temperatures – extreme conditions of heat: hydrogen fluoride; perfluoroisobutylene (PFIB); toxic vapor, gas, |
| 10.3 | Hazardous Polymerization: | particulates. Will not occur. |
| 0.4 | Conditions to Avoid: | Open flames, sparks and high heat, direct sunlight. |
| 10.5 | Incompatible Substances: | Strong acids, strong bases, strong oxidizing agents. Avoid extreme heat and ignition sources. Store away from oxidizer |
| | , | Total gradus, strong bases, strong existing agents. Avoid existing float and ignition sections. Stone away from existing |
| | | 11. TOXICOLOGICAL INFORMATION |
| 1.1 | Routes of Entry: | Inhalation: YES Absorption: YES Ingestion: YES |
| 1.2 | Toxicity Data: | This product has NOT been tested on animals to obtain toxicology data. Toxicology data, found in scientific literature, available for some of the components of the product and is not presented in this document. |
| 1.3 | Acute Toxicity: | Moderate irritation to eyes and skin near affected areas. |
| 1.4 | Chronic Toxicity: | This material may aggravate any pre-existing skin condition (e.g., dermatitis). |
| 1.5 | Suspected Carcinogen: | This product does not contain any chemicals known to the State of California to cause cancer or other reproductive harr For more information go to www.P65Warnings.ca.gov . |
| 1.6 | 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 cause teratogenic effects in humans. |
| | Reproductive Toxicity: | This product is not reported to cause reproductive effects in humans. |
| 1.7 | Irritancy of Product: | The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) upon prolonged or repeated exposure. |
| 1.8 | Biological Exposure Indices: | NE NE |
| 1.9 | Physician Recommendations: | Treat symptomatically. |
| | | 12. ECOLOGICAL INFORMATION |
| 2.1 | Environmental Stability: | There is no specific data available for this product. |
| | Effects on Plants & Animals: | There are no specific data available for this product. There are no specific data available for this product. |
| 12.2 | | |



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SDS-E-FCF100PS Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, GHS & 1272/2008/EC Standards SDS Revision: 1.1 SDS Revision Date: 3/14/2018 13. DISPOSAL CONSIDERATIONS Waste Disposal: 13.1 Products covered by this SDS, in their original form, when disposed as waste, are considered non-hazardous waste according to Federal RCRA regulations (40 CFR 261). Disposal should be in accordance with local, state and federal regulations. Dispose of in accordance with federal, state and 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. 49 CFR (GND): **NOT REGULATED** IATA (AIR) NOT REGULATED IMDG (OCN): 14.3 NOT REGULATED 14.4 TDGR (Canadian GND): NOT REGULATED 14.5 ADR/RID (EU): NOT REGULATED 14.6 SCT (MEXICO): **NOT REGULATED** ADGR (AUS): 14.7 **NOT REGULATED** 15. REGULATORY INFORMATION 15.1 SARA Reporting This product does not contain any substances subject to SARA Title III, section 313 reporting requirements. Requirements 15.2 SARA Threshold Planning There are no specific Threshold Planning Quantities for the components of this product. Quantity: TSCA Inventory Status: 15.3 The components of this product are listed on the TSCA Inventory. CERCLA Reportable Quantity 15.4 NA (RQ): Other Federal Requirements: 15.5 NA 15.6 Other Canadian Regulations: This product has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the SDS 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. WHMIS D2B (Other Toxic Effects) 15.7 State Regulatory Information: No ingredients in this product, present in a concentration of 1.0% or greater, are listed on any of the following state criteria lists: California Proposition 65 (CA65), Delaware Air Quality Management List (DE), Florida Toxic Substances List (FL), Massachusetts Hazardous Substances List (MA), Michigan Critical Substances List (MI), Minnesota Hazardous Substances List (MN), New Jersey Right-to-Know List (NJ), New York Hazardous Substances List (NY), Pennsylvania Right-to-Know List (PA), Washington Permissible Exposures List (WA), Wisconsin Hazardous Substances List (WI). Other Requirements: This product does not contain any chemicals known to the State of California to cause cancer or other

| | | reproductive harm. For more information | n go to <u>www.P65Warnings.ca.gov</u> . | |
|------|----------------------|--|---|--|
| | | | | |
| | | 16. OTHER INFO | DRMATION | |
| 16.1 | Other Information: | WARNING! CAUSES EYE IRRITATION. MAY CAUSE AN ALLERGIC SKIN REACTION. Use only as directed. Keep out of reach of children. Avoid contact with skin. Avoid contact with eyes. After contact with skin wash with plenty of soap and water. In case of accident or if you feel unwell seek medical advice immediately (show the label where possible). KEEP LOCKED UP AND OUT OF REACH OF CHILDREN. | | |
| 16.2 | Terms & Definitions: | See last page of this Safety Data Sheet. | | |
| 16.3 | Disclaimer: | This 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 is 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 Tel: +1 (800) CAIG-123 (244-4123) Fax: +1 (858) 486-8398 fax http://www.caig.com/ | CALE LABORATORIES, INC. | |
| 16.5 | Prepared by: | ShipMate, Inc. | A | |

P.O. Box 787

Sisters, Oregon 97759-0787 USA

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SDS Revision: 1.1

SDS Revision Date: 3/14/2018

DEFINITION OF TERMS

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

GENERAL INFORMATION:

| CAS No. | Chemical Abstract Service Number |
|------------|--|
| RTECS No. | Registry of Toxic Effects of Chemical Substances Number |
| EINECS No. | European Inventory of Existing Commercial Chemical Substances Number |

EXPOSURE LIMITS IN AIR:

| ACGIH | American Conference on Governmental Industrial Hygienists | |
|-------|--|--|
| IDLH | Immediately Dangerous to Life and Health | |
| NOHSC | National Occupational Health and Safety Commission (Australia) | |
| OSHA | U.S. Occupational Safety and Health Administration | |
| PEL | Permissible Exposure Limit | |
| STEL | Short Term Exposure Limit | |
| TLV | Threshold Limit Value | |
| TWA | Time Weighted Average | |

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

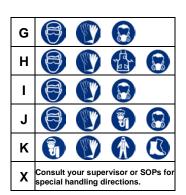
HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

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



PERSONAL PROTECTION RATINGS:

| Α | | | |
|---|--|--|--|
| В | | | |
| С | | THE STATE OF THE S | |
| D | | THE STATE OF THE S | |
| Е | | | |
| F | | H. | |





OTHER STANDARD ABBREVIATIONS:

| Carc | Carcinogenic |
|---------|--|
| Irrit | Irritant |
| NA | Not Available |
| NR | No Results |
| ND | Not Determined |
| NE | Not Established |
| NF | Not Found |
| SCBA | Self-Contained Breathing Apparatus |
| Sens | Sensitization |
| STOT RE | Specific Target Organ Toxicity – Repeat Exposure |
| STOT SE | Specific Target Organ Toxicity - Single Exposure |

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 | FLAMMABILITY |
|---------|-----------------|---------------------------|
| 1 | Slight Hazard | \ \ \ \ \ |
| 2 | Moderate Hazard | REACTIVITY |
| 3 | Severe Hazard | |
| 4 | Extreme Hazard | |
| ACD | Acidic | |
| ALK | Alkaline | |
| COR | Corrosive | / \ \ \ \ \ |
| ₩ | Use No Water | HEALTH |
| OX | Oxidizer | SPECIAL |
| TREFOIL | Radioactive | PRECAUTIONS |

TOXICOLOGICAL INFORMATION:

| Lethal Dose (solids & liquids) which kills 50% of the exposed animals | | |
|---|--|--|
| Lethal concentration (gases) which kills 50% of the exposed animal | | |
| Concentration expressed in parts of material per million parts | | |
| Lowest dose to cause a symptom | | |
| Lowest concentration to cause a symptom | | |
| D _{Io} , LD _{Io} , & LD _o or Lowest dose (or concentration) to cause lethal or toxic effects | | |
| | | |
| International Agency for Research on Cancer | | |
| National Toxicology Program | | |
| Registry of Toxic Effects of Chemical Substances | | |
| Bioconcentration Factor | | |
| Median threshold limit | | |
| 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:

| 0 | * | (2) | | \odot | (4) | | (R) |
|------------|-----------|------------|----------|------------|------------|-----------|----------|
| Class A | Class B | Class C | Class D1 | Class D2 | Class D3 | Class E | Class F |
| Compressed | Flammable | Oxidizing | Toxic | Irritation | Infectious | Corrosive | Reactive |

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

| | | | \diamondsuit | | | \Diamond | | * |
|-----------|-----------|----------|----------------|-----------|-------|-----------------------|------------------|-------------|
| GHS01 | GHS02 | GHS03 | GHS04 | GHS05 | GHS06 | GHS07 | GHS08 | GHS09 |
| Explosive | Flammable | Oxidizer | Pressurized | Corrosive | Toxic | Harmful Irritating | Health Hazard | Environment |