

SF 188™ Engineered Fluid - Safety Data Sheet**Section 1: PRODUCT AND COMPANY IDENTIFICATION****Product Name:**

SF 188 Engineered Fluid

Product Numbers

SF188-00011	SF188-00005
SF188-00044	SF188-00020
SF188-00606	SF188-00275

Company Name:

Standard Fluids Corporation

Company Address:

Waterford Business Park,
5201 Blue Lagoon Drive, 8th & 9th Floor,
Miami, FL 33126

Web: www.standardfluids.com**Tel:** 888-322-1248**Recommended and Restricted Use of the Chemical:**

Industrial use. Cooling Liquid. Foam additive. Use for ingestion or medical use is prohibited.

Restrictions on use

Standard Fluids will not knowingly sample, support, or sell products to be incorporated in medical and pharmaceutical products and applications in which the product will be temporarily or permanently implanted into humans or animals. The customer is responsible for evaluating and determining that a Standard Fluids product is suitable and appropriate for its particular use and intended application. The conditions of evaluation, selection, and use of a Standard Fluids product can vary widely and affect the use and intended application. Because many of these conditions are uniquely within the user's knowledge and control, it is essential that the user evaluate and determine whether the Standard Fluids product is suitable and appropriate for a particular use and intended application and complies with local applicable laws, regulations, standards, and guidance.

SECTION 2: HAZARD IDENTIFICATION

Hazard Classification:

Not classified as hazardous according to OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Label Elements:

Not applicable.

Pictograms:

Not applicable.

Hazard Statement:

May be harmful if swallowed;
May be harmful in contact with the skin;
May be harmful if inhaled.

Precautionary Statement:

Users should control workplace exposures to observe the occupational exposure limit listed in Section 8 below.

Precaution

Keep away from fire, heat, strong oxidizers, acids, and alkalis, and avoid excessive heat, severe cold, and UV irradiation. No smoking.

Safe Storage:

Keep container tightly closed. Store in a well-ventilated place.

Disposal:

Disposal of this product and container should be carried out in accordance with local, regional, national, and international regulations.

SECTION 3: INGREDIENTS

Chemical Name: SF 188 Engineered Fluid		
Component	Mass concentration	CAS NO
Hexafluoropropene dimer	≥97.0	84650-68-0
Hexafluoropropene trimer	≤3.0	6792-31-0

SECTION 4: FIRST AID MEASURES

Inhalation:

If inhaled in small amounts, move the patient to fresh air; if a large amount of inhalation, and you feel unwell, seek immediate medical attention.

Ingestion:

Do not induce vomiting. Rinse mouth. If you feel unwell, seek medical attention.

Skin Contact:

Rinse the skin thoroughly with soap and water. If you feel unwell, seek medical attention.

Eye Contact:

Lift the eyelid and rinse with running water for at least 15 minutes. If wearing contact lenses, please take them off and then rinse. Seek medical attention if you feel unwell.

Most Important Symptoms and Health Effects:

No critical symptoms or effects. See Section 11.1, information on toxicological effects.

Advice for Protecting Rescuers:

Personal protective equipment should be used when entering the scene of the accident.
Special Note to Doctors: Treat symptomatically.

Section 5: FIRE-FIGHTING MEASURES

Extinguishing Agent:

Non-flammable. No special requirements for fire protection. Use a suitable fire extinguishing agent that can extinguish an adjacent fire.

Special Hazards:

Exposure to extreme heat can give rise to thermal decomposition products such as carbon monoxide, carbon dioxide and hydrogen fluoride.

Firefighting

Wear full protective clothing, including a helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal Protective Measures, Protective Equipment and Emergency Procedures:

Use personal protective equipment. Ensure adequate ventilation. Avoid inhaling large amounts of vapor. Cut off the source of leakage as much as possible. Ensure that people stay away from the leakage area or stay in the upwind direction of the leakage area. Unrelated persons are prohibited from entering. It is recommended that emergency responders wear air-carrying breathing apparatus and rubber oil-resistant gloves. Restrict the affected area of liquid flow and steam diffusion. Unnecessary personnel should evacuate to a safe area.

Environmental Protection Measures:

Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

The Containment and Cleaning Methods of Leaked Chemicals and Disposal Materials Used:

Contain spill. Prevent leaks from entering sewers, surface water, and groundwater. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

Section 7: HANDLING AND STORAGE

Precautions for safe handling

Do not breathe thermal decomposition products. For industrial/occupational use only. Not for consumer sale or use.

Avoid breathing dust/fume/gas/mist/vapors/spray. after handling. Avoid release to the environment.

Do not eat, drink or smoke when using this product.
Wash thoroughly.

Conditions for safe storage, including any incompatibilities

Store away from heat. Store away from strong bases. Store away from amines.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit Type
Hexafluoropropene Dimer	84650-68-0	Manufacturer Determined	TWA (8 hours): 6 ppm

TWA: Time-Weighted-Average

Engineering Control:

Areas handling this material should be separated from other workplaces. Turn on the ventilation system and equipment during work. Avoid operating and using in confined spaces. Set up automatic alarm devices and accident ventilation facilities. Keep the concentration in the air below the occupational exposure limit. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits. If ventilation is not adequate, use respiratory protection equipment.

Personal Protective Equipment:

Respiratory Protection:

When the concentration in the air exceeds the standard, wear a filter gas mask (half mask). In case of emergency rescue or evacuation, a portable breathing apparatus should be worn.

Hand Protection:

It is recommended to wear suitable protective gloves.

Eye Protection:

None required but consider goggles.

Skin and Body Protection:

Wear protective clothing in case of emergency.

Other Measures:

Local regulations on normal protection of chemical handling and industrial hygiene must be followed, and thermal decomposition products must not be inhaled.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basical Physical and Chemical Properties	
Property	Value
Physical state	Liquid
Color	Colorless
Odor	Odorless
Odor threshold	No Data Available
pH	Not Applicable
Melting point	< -80 °C
Boiling point	47.3 °C (@ 760 torr)
Flash point	No flash point
Evaporation rate	No Data Available
Flammability (solid, gas)	Not Applicable
Flammable Limits (LEL)	None detected
Flammable Limits (UEL)	None detected
Vapor pressure	34.7 kPa (@ 20 °C)
Vapor density	No Data Available
Density	1.6454 g/cm ³ (@ 20 °C)
Specific gravity	1.6454 [Ref/Std: WATER=1]

Section 10: STABILITY AND REACTIVITY

Reactivity:

This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

Stability:

Stable.

Incompatible Materials:

Strong bases, amines and alcohols.

Conditions to Avoid:

Direct Heat / Sunlight.

Incompatible Materials:

Alcohols Amines Strong bases

Hazardous Decomposition Products:

Refer to Section 5, Special Hazards, for hazardous decomposition products during combustion. If the product is exposed to extreme condition of heat from misuse or equipment failure, toxic decomposition products that include hydrogen fluoride and perfluoroisobutylene can occur.

Section 11: TOXICOLOGICAL INFORMATION

Acute Toxicity:	Acute dermal toxicity, no lethal dose LD50>2000 mg·kg ⁻¹ (rat) Acute inhalation toxicity, LC50 (4 h): 22174 mg·m ⁻³ (mouse)
Skin Corrosion/Irritation:	No irritation.
Serious Eye Damage/Eye Irritation:	No irritation.
Respiratory Tract Sensitization:	For this product component, no reference data is known, or current data is insufficient for classification.
Skin Sensitization:	No sensitization.
Germ Cell Mutagenicity:	Not mutagenic (in vitro).
Bacterial Reverse Mutation Test:	There is no potential mutagenicity to histidine auxotrophic Salmonella typhimurium TA97a, TA98, TA100, TA102 and TA1535 in the concentration range of 0.312 µL/dish to 5.000 µL/dish.
In Vitro Mammalian Cell Chromosome Aberration Test:	In the concentration range of 0.50-2.00 µL·mL ⁻¹ , it has no teratogenic effect on the chromosomes of CHL cells.
Mammalian Erythrocyte Micronucleus Test:	Within the range of 50-200 mg·kg ⁻¹ , it has no effect on inducing polychromatic erythrocyte micronucleus in ICR mice.
In Vitro Mammalian Cell Gene Mutation Test:	Within the test concentration range (exposure concentration is 0.25-2.00 µL·mL ⁻¹), there is no effect of inducing gene mutation on L5178Y cells.

Rodent 28-day Repeated Dose Oral Toxicity:	Not classified, NOAEL 450 mg/kg/day
Sub-chronic (90 days) Inhalation Toxicity Test:	Not classified, NOAEL 6.76 mg/l (rat)
Inhalation Hazard:	May cause respiratory irritation, LOAEL 55.78 mg/l (4 day exposure in rat)

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity:

For this product component, no reference data are known or current data are insufficient for classification.

Persistence and Degradability:

For this product component, no reference data are known or current data are insufficient for classification.

Potential Bioaccumulation:

For this product component, no reference data is known, or current data are insufficient for classification.

Mobility in Soil:

For this product component, no reference data are known, or current data are insufficient for classification.

Life cycle of environmental impacts:

For this product component, no reference data are known, or current data are insufficient for classification.

Section 13: DISPOSAL CONSIDERATIONS

Waste Chemicals:

Recycle when possible. If it can't be recycled, it is recommended to use incineration methods for disposal under supervision. Do not dispose of this product by discharging it into the sewer. Refer to relevant national and local regulations before disposal. See section 8 for security precautions for waste disposal personnel.

Section 14: TRANSPORT INFORMATION

International Regulations:

RID/ADR (2019 Version):

It can be handled in accordance with non-restrictive cargo conditions.

IATA DGR (Version 62):

It can be handled in accordance with non-restrictive cargo conditions.

IMO IMDG CODE (2018 Edition):

It can be handled in accordance with non-restrictive cargo conditions.

Transportation precautions:

Do not mix and transport strong oxidants, strong acids, alkalis, and food. During transportation, ensure that the container does not leak, collapse, fall, be damaged, be inverted or shaken violently. Avoid exposure to sunlight, rain, and high temperatures during transportation. Stay away from fire, heat sources, and high-temperature areas during stopovers.

Section 15: REGULATORY INFORMATION

The following laws, regulations, rules, and standards have made corresponding provisions on the management of this product:

EPCRA 311/312 Hazard Classifications: Not Applicable

International Convention: Stockholm Convention: Not listed.

Rotterdam Convention: Not listed.

Montreal Protocol: Not listed.

Chemical Inventories

The components of this material are in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

Section 16: OTHER INFORMATION

NFPA Hazard Classification

Health: 3 Flammability: 1 Instability: 0 Special Hazards: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

The NFPA Health code of 3 is due to emergency situations where the material may thermally decompose and release Hydrogen Fluoride. During normal use conditions, please reference Section 2 and Section 11 of the SDS for additional health hazard information.

HMIS Hazard Classification

Health: 2 Flammability: 1 Physical Hazard: 0 Personal Protection: X - See PPE section.

Hazardous Material Identification System (HMIS® IV) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® IV ratings are to be used with a fully implemented HMIS® IV program. HMIS® is a registered mark of the American Coatings Association (ACA).

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Standards:

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Abbreviations and Acronyms:

CAS: American Chemical Abstracts Service, LD50: Lethal dose to 50% of animal models, LC50: Lethal concentration to 50% of animal models, RID: International Rail Transport Dangerous Goods Regulations, TWA: Time-weighted Average.

Other Information:

This SDS is compiled based on the ingredient content and other information provided by the applicant and our company's existing knowledge and is only used as a guide. Users of this SDS must make independent judgments on the correctness and completeness of the content, determine its applicability based on the actual situation, and bear relevant legal responsibilities for the consequences of use.

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