Safety Data Sheet

This safety data sheet complies with the requirements of: 2012 OSHA Hazard Communication Standard (29CFR 1910.1200)

Product name 3M™ Novec™ 1230 Fire Protection Fluid [FK-5-1-12]

1. Identification

1.1. Product Identifier
Product name 3M™ Novec™ 1230 Fire Protection Fluid [FK-5-1-12]

1.2. Other means of identification
Product code 553449
UN/ID no UN1066
Synonyms None
Chemical Family No information available

1.3. Recommended use of the chemical and restrictions on use
Recommended use No information available
Uses advised against Consumer use

1.4. Details of the Supplier of the Safety Data Sheet
Company Name Tyco Fire Protection Products
One Stanton Street
Marinette, WI 54143-2542
Telephone: 715-735-7411

Contact point Product Stewardship at 1-715-735-7411
E-mail address psra@tycofp.com

1.5. Emergency Telephone Number
Emergency telephone CHEMTREC 800-424-9300 or 703-527-3887

2. Hazards Identification

Classification
OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Gases Under Pressure - Compressed Gas
Simple asphyxiants - Yes

2.2. Label Elements
Signal Word WARNING

hazard statements
Contains gas under pressure; may explode if heated
May displace oxygen and cause rapid suffocation
Precautionary Statements

Storage
Protect from sunlight. Store in a well-ventilated place.

2.3. Hazards Not Otherwise Classified (HNOC)

Contact with product may cause frostbite. Simple asphyxiants.

2.4. OTHER INFORMATION

Unknown Acute Toxicity 100% of the mixture consists of ingredient(s) of unknown toxicity

3. Composition/information on Ingredients

3.1. Substance

The following component(s) in this product are considered hazardous under applicable OSHA(USA)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>756-13-8</td>
<td>60 - 100</td>
</tr>
</tbody>
</table>

4. First aid measures

4.1. Description of first aid measures

General Advice Call 911 or emergency medical service. Remove and isolate contaminated clothing and shoes.

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water. Get medical attention if irritation develops and persists.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. (Get medical attention immediately if symptoms occur.).
Ingestion
Rinse mouth. Do not induce vomiting without medical advice. If swallowed, call a poison control center or physician immediately.

Self-Protection of the First Aider
Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

4.2. Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms
Unconsciousness.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed
Note to physicians
Treat symptomatically.

5. Fire-fighting measures

5.1. Suitable Extinguishing Media
Product is extinguishing agent. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2. Unsuitable Extinguishing Media
None.

5.3. Specific Hazards Arising from the Chemical
None known.

- Hazardous Combustion Products
  Carbon oxides, Fluorinated oxides, Nitrogen oxides (NOx), Oxides of sulfur

5.4. Explosion Data
- Sensitivity to Mechanical Impact
  None.
- Sensitivity to Static Discharge
  None.

5.5. Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal Precautions
Ensure adequate ventilation, especially in confined areas.

OTHER INFORMATION
Ventilate the area.

For emergency responders
Use personal protection recommended in Section 8.

6.2. Environmental Precautions

Environmental Precautions
Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so.
7. Handling and Storage

7.1. Precautions for Safe Handling

Advice on safe handling
Avoid contact with skin and eyes. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible Materials

8. Exposure Controls/Personal Protection

8.1. Control Parameters

Exposure guidelines

8.2. Appropriate Engineering Controls

Engineering controls
Showers
Eyewash stations
Ventilation systems.

8.3. Individual protection measures, such as personal protective equipment

Eye/Face Protection
Avoid contact with eyes. Tight sealing safety goggles.

Skin and Body Protection
Wear protective gloves and protective clothing.

Respiratory Protection
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Ventilation
Use local exhaust or general dilution ventilation to control exposure with applicable limits.

8.4. General hygiene considerations

Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>VALUES</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic</td>
<td></td>
</tr>
<tr>
<td>odor threshold</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
<td></td>
</tr>
</tbody>
</table>

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Version 25
10. Stability and Reactivity

10.1. Chemical Stability
Stable under recommended storage conditions.

10.2. Reactivity
No data available

10.3. Possibility of hazardous reactions
None under normal processing.

Hazardous polymerization does not occur.

10.4. Conditions to Avoid
Extremes of temperature and direct sunlight.

10.5. Incompatible Materials

10.6. Hazardous decomposition products

11. Toxicological Information

11.1. Information on Likely Routes of Exposure
Product information
INHALATION
In high concentration the gas may cause a suffocation. Victim may not be aware of asphyxiation. In confined or poorly ventilated areas, vapors can readily accumulate and can cause unconsciousness and death.

Eye Contact
Contact with product may cause frostbite.

Skin contact
Contact with product may cause frostbite.

INGESTION
Not an expected route of exposure.

Acute Toxicity

11.2. Information on Toxicological Effects
Symptoms
No information available.

11.3. Delayed and immediate effects as well as chronic effects from short and long-term exposure
sensitization
No information available.
Germ Cell Mutagenicity
No information available.
carcinogenicity
No information available.
Reproductive Toxicity
Lack of oxygen during pregnancy has produced developmental abnormalities in humans and experimental animals.

STOT - Single Exposure
No information available.

STOT - Repeated Exposure
No information available.

Target organ effects
Respiratory System.

Aspiration Hazard
No information available.

11.4. Numerical Measures of Toxicity - No information available

12. Ecological Information

12.1. ecotoxicity
Not classified

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment

12.2. Persistence and Degradability
No information available.

12.3. Bioaccumulation
No information available.

12.4. Other Adverse Effects
No information available

13. Disposal Considerations
13.1. Waste Treatment Methods
Disposal of wastes
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging
Do not reuse container.

14. Transport Information

DOT
- UN/ID no: UN1066
- Description: UN1066, Nitrogen, compressed, 2.2
- Proper Shipping Name: Nitrogen, compressed
- Hazard class: 2.2
- Emergency Response Guide Number: 121

TDG
- UN/ID no: UN1066
- Description: UN1066, Nitrogen, compressed, 2.2
- Proper Shipping Name: Nitrogen, compressed
- Hazard class: 2.2

MEX
- UN/ID no: UN1066
- Description: UN1066, Nitrogen, compressed, 2.2
- Proper Shipping Name: Nitrogen, compressed
- Hazard class: 2.2

ICAO (air)
- UN/ID no: UN1066
- Description: UN1066, Nitrogen, compressed, 2.2
- Proper Shipping Name: Nitrogen, compressed
- Hazard class: 2.2
- Special Provisions: A69

IATA
- UN/ID no: UN1066
- Description: UN1066, Nitrogen, compressed, 2.2
- Proper Shipping Name: Nitrogen, compressed
- Hazard class: 2.2
- ERG Code: 2L
- Special Provisions: A69

IMDG
- UN/ID no: UN1066
- Description: UN1066, Nitrogen, compressed, 2.2
- Proper Shipping Name: Nitrogen, compressed
- Hazard class: 2.2
- EmS-No: F-C, S-V

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Version 25
15. Regulatory Information

15.1. International Inventories

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>Complies</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Complies</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Does not comply</td>
</tr>
<tr>
<td>PICCS</td>
<td>Does not comply</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

Legend:
- TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
- ENCS - Japan Existing and New Chemical Substances
- IECSC - China Inventory of Existing Chemical Substances
- KECL - Korean Existing and Evaluated Chemical Substances
- PICCS - Philippines Inventory of Chemicals and Chemical Substances
- AICS - Australian Inventory of Chemical Substances

15.2. US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Chronic health hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden Release of Pressure Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

15.3. US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations
This product does not contain any substances regulated by state right-to-know regulations

16. Other information, including date of preparation of the last revision

Revision date 25-May-2015
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet