

SAFETY DATA SHEET:
NOVEC 1230 pressurized with Nitrogen
SECTION 1: Identification of the substance/mixture and of the company/undertaking
1.1. Product identifier

Product name	3M™ NOVEC™ 1230 Fire Protection Fluid (FK 5-1-12) pressurized with Nitrogen
Trade name	3M™ NOVEC™ 1230 Fire Protection Fluid
CAS-No.	not relevant (mixture)
REACH Registration No.	not relevant (mixture)

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Fire extinguishing agent
-----------------	--------------------------

1.3 Details of the supplier of the safety data sheet

Supplier	MedicAir Industry srl Via T. Tasso, 29 - 20010 Pogliano Milanese (Mi) Tel +39.02.93282361
E-mail	industry.info@medicair.it

1.4. Emergency telephone number

Emergency telephone number	+39 02 932821
----------------------------	---------------

SECTION 2: Hazards identification
2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP) as amended.

Hazard class	Hazard class and category	Hazard Statement
Gases under pressure	Press. Gas C	H280
Hazardous to the aquatic environment – chronic hazard	Aquatic Chronic 3	H412

For full text of abbreviations: see SECTION 16

Additional information

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
EIGA-0783: Contains fluorinated greenhouse gases covered by the Kyoto protocol.
EIGA-As: Asphyxiant in high concentrations.

2.2 Label Elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal Words	Warning
--------------	---------

Pictograms



GHS04

Hazard Statement(s)

H280: Contains gas under pressure; may explode if heated.
H412: Harmful to aquatic life with long lasting effects.

Precautionary Statement

P273 Avoid release to the environment.
P410+P403 Protect from sunlight. Store in a well-ventilated place.

2.3 Other hazards

SAFETY DATA SHEET:
NOVEC 1230 pressurized with Nitrogen

Results of PBT and vPvB assessment


Asphyxiant in high concentrations.

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients
3.1 Substances

not relevant (mixture)

3.2 Mixtures
Description of the mixture

Hazardous ingredients acc. to CLP				
Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
1,1,1,2,2,4,5,5,5-nonafluoro-4-(trifluoromethyl)-3-pentanone	CAS No 756-13-8 EC No 436-710-6 Index No 606-108-00-X	80-99	Aquatic Chronic 3 / H412	
Nitrogen	CAS No 7727-37-9 EC No 231-783-9	< 20	Press. Gas C / H280	

SECTION 4: First Aid Measures
4.1 Description of first aid measures

General

Inhalation

In all cases of doubt, or when symptoms persist, seek medical advice

Provide fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Mouth to mouth resuscitation should be avoided. Use alternative methods, preferably with oxygen or compressed air driven apparatus.

Eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Skin Contact

Wash with plenty of soap and water.

Ingestion

Rinse mouth. Do not induce vomiting. Get medical advice/attention if you feel unwell.

Notes for the doctor

none

4.2 Most important symptoms and effects, both acute and delayed

These information are not available.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards

None

Treatment

None

SECTION 5: Firefighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Unsuitable extinguishing media

co-ordinate firefighting measures to the fire surroundings
None

5.2 Special hazards arising from the substance or mixture

Hazardous Combustion Products

Hazardous decomposition products: Section 10. Contact with the product can cause burns and/or frostbite. Contains gas under pressure; may explode if heated
hydrogen fluoride (HF)

5.3 Advice for firefighters

Special firefighting procedures

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

Special protective equipment
for firefighters:

self-contained breathing apparatus (EN 133)

SECTION 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.
Ventilate affected area.
Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/spray/gases.

6.2 Environmental Precautions

Keep away from drains, surface and ground water.
Retain contaminated washing water and dispose it.

6.3 Methods and material for containment and cleaning up

Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and Storage

7.1 Precautions for safe handling

SAFETY DATA SHEET:
NOVEC 1230 pressurized with Nitrogen
Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.
Prevent from heating up above 50 °C/122 °F. Pressurized container: may burst if heated.

Specific notes/details

None

Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Do not to eat, drink and smoke in work areas.

7.2 Conditions for safe storage, including any incompatibilities
Flammability hazards

Protect from sunlight

Incompatible substances or mixtures

Incompatible materials: see section 10.

Protect against external exposure, such as

Heat

Consideration of other advice

Keep away from food, drink and animal feeding stuffs

Ventilation requirements

Provision of sufficient ventilation.

Packaging compatibilities

Only packaging which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s):

No information available.

SECTION 8: Exposure Controls/Personal Protection
8.1 Control Parameters

No data available.

Relevant DNELs of components of the mixture

Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	DNEL	1,286,130 mg/m ³	human, inhalatory	worker (industry)	acute systemic effects
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	DNEL	780 mg/m ³	human, inhalatory	worker (industry)	chronic systemic effects
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	DNEL	1,000,000 mg/m ³	human, inhalatory	worker (industry)	chronic local effects

SAFETY DATA SHEET:
NOVEC 1230 pressurized with Nitrogen

1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	DNEL	147 mg/kg	human, dermal	worker (industry)	chronic systemic effects
---------------------------------------------------------------	----------	------	-----------	---------------	-------------------	--------------------------

Relevant PNECs of components of the mixture

Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Exposure time
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	PNEC	0.008 mg/l	Fresh water	acute systemic effects
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	PNEC	0.001 mg/l	Marine water	chronic systemic effects
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	PNEC	1 mg/l	sewage treatment plant (STP)	chronic local effects
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	PNEC	0.006 mg/kg	freshwater sediment	chronic systemic effects
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	PNEC	0.001 mg/kg	marine sediment	chronic local effects
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	PNEC	0.006 mg/kg	soil	chronic systemic effects

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection

Use protective eyewear to guard against splash of liquids.

Hand Protection

Material	Material hicness	Breakthrough times of the glove material
data are not available	data are not available	data are not available

Respiratory Protection

[In case of inadequate ventilation] wear respiratory protection. Self-contained breathing apparatus (EN 133).

Environmental exposure controls

Use appropriate container to avoid environmental contamination.
Keep away from drains, surface and ground water.

SAFETY DATA SHEET:
NOVEC 1230 pressurized with Nitrogen
SECTION 9: Physical And Chemical Properties
9.1 Information on basic physical and chemical properties

Appearance	
Physical state	Liquid
Form	Pressurized
Colour	Colorless
Odour	Odorless
Odour Threshold	these information are not available.
pH	not relevant.
Melting Point/Freezing point	49 °C
Flash Point	Not applicable
Evaporation Rate	these information are not available
Flammability (solid, gas)	non-flammable
Lower explosion limit (LEL)	these information are not available.
Upper explosion limit (UEL)	these information are not available.
Density	1.6 g/cm ³ at 20 °C
Vapour pressure	these information are not available.
Vapour density	these information are not available.
Relative density	these information are not available.
Solubility (ies)	
Solubility in Water	insoluble
Partition coefficient (n-octanol/water)	these information are not available.
Autoignition Temperature	these information are not available..
Decomposition Temperature	these information are not available.
Viscosity	not relevant
Kinematic viscosity	these information are not available.
Dynamic viscosity	these information are not available.
Explosive properties	Not explosive
Oxidising Properties	shall not be classified as oxidising

SECTION 10: Stability and Reactivity
10.1 Reactivity

If heated:	Gas under pressure. danger of explosion, gas under pressure, danger of bursting container
------------	----------------------------------------------------------------------------------------------

10.2 Chemical Stability

See below "Conditions to avoid"..

10.3 Possibility of Hazardous Reactions

No known hazardous reactions

10.4 Conditions to Avoid

Contains gas under pressure; may explode if heated.

10.5 Incompatible Materials

bases, amine.

SAFETY DATA SHEET:
NOVEC 1230 pressurized with Nitrogen
10.6 Hazardous Decomposition Products

Carbon monoxide (CO).

Carbon dioxide (CO₂).

Hydrogen fluoride (HF)

SECTION 11: Toxicological Information
11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification according to GHS (1272/2008/EC, CLP)
Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity of components of the mixture

Name of substance	CAS No	Exposure route	Endpoint	Value	Species
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	Oral	LD50	>2,000 mg/kg	rat
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	Dermal	LD50	>2,000 mg/kg	rat

Skin Corrosion/Irritation

Shall not be classified as corrosive/irritant to skin.

Serious Eye Damage/Eye Irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or Skin Sensitisation
Product

Shall not be classified as a respiratory or skin sensitiser.

Germ Cell Mutagenicity Product

Shall not be classified as germ cell mutagenic.

Carcinogenicity Product

Shall not be classified as carcinogenic.

Reproductive toxicity Product

Shall not be classified as a reproductive toxicant.

Specific Target Organ Toxicity -
Single Exposure Product

Shall not be classified as a specific target organ toxicant (single exposure).

Specific Target Organ Toxicity -
Repeated Exposure Product

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration Hazard Product

Shall not be classified as presenting an aspiration hazard.

SECTION 12: Ecological Information
12.1 Toxicity
Acute toxicity (acute)

Test data are not available for the complete mixture.

Aquatic toxicity (acute) of components of the mixture
Aquatic toxicity (acute) of components of the mixture

SAFETY DATA SHEET:
NOVEC 1230 pressurized with Nitrogen

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	LC50	>1,070 mg/l	fathead minnow (Pimephales promelas)	96 hours
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	EC50	>1,080 mg/l	daphnia magna	48 hours

Acute toxicity (chronic)

Harmful to aquatic life with long lasting effects.

Test data are not available for the complete mixture

12.2 Persistence and Degradability Product

Degradability of components of the mixture

Degradability of components of the mixture				
Name of substance	CAS No	Process	Degradation rate	Time
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	carbon dioxide generation	1.8 - 3.4 %	28 d

Biodegradation

The relevant substances of the mixture are readily biodegradable

Persistence

Data are not available.

12.3 Bioaccumulative Potential Product

Data are not available.

Bioaccumulative potential of components of the mixture

Degradability of components of the mixture			
Name of substance	CAS No	BCF	Log KOW
1,1,1,2,2,4,5,5,5-nonafluoro-4-(tri fluoromethyl)-3-pentanone	756-13-8	4.8	3.08

12.4 Mobility in Soil Product

Data are not available.

12.5 Results of PBT and vPvB assessment Product

This mixture does not contain any substances that are assessed to be a PBT or a vPvB..

SAFETY DATA SHEET:
NOVEC 1230 pressurized with Nitrogen
12.6 Other Adverse Effects

Endocrine disrupting potential
Remarks

Global warming potential 1

None of the ingredients are listed.
Water hazard class - WHC (Wassergefährdungsklasse): 1 (Slightly hazardous to water)

SECTION 13: Disposal Considerations
13.1 Waste treatment methods

General information

This material and its container must be disposed of as hazardous waste.
Dispose of contents/container to an authorized waste treatment facility.

Sewage disposal-relevant information

Do not empty into drains

Waste treatment of containers/packaging

It is a dangerous waste; only packaging which are approved (e.g. acc. to ADR) may be used.

Remarks

Handle contaminated packages in the same way as the substance itself.
Please consider the relevant national or regional provisions.

SECTION 14: Transport Information

98-0212-3203-2

International Regulations

Not dangerous for transport purposes according to the criteria and in accordance with current legislation.

ADR

14.1 UN Number

Novec 1230, is not regulated by the ADR.

If pressurized with Nitrogen gas it is regulated by the ADR and the classification is as follows:

NUMBER: UN 3164 - CLASS 2.2 A

Objects under pneumatic pressure (Novec 1230 extinguishing - FK5-1-12)

Charged with compressed nitrogen

NOVEC 1230 pressurized with nitrogen

14.2 UN Proper Shipping Name

14.3 Transport Hazard Class (es)

Class

2

Label(s)

2.2

Hazard No. (ADR)

20

Tunnel restriction code

(E)

Emergency Action Code

2T

14.4 Packing Group

-

14.5 Environmental hazards

not applicable

14.6 Special precautions for user

-

RID

14.1 UN Number

Novec 1230, is not regulated by the ADR.

If pressurized with Nitrogen gas it is regulated by the ADR and the classification is as follows:

NUMBER: UN 3164 - CLASS 2.2 A

Objects under pneumatic pressure (Novec 1230 extinguishing - FK5-1-12)

Charged with compressed nitrogen

SAFETY DATA SHEET:
NOVEC 1230 pressurized with Nitrogen

14.2 UN Proper Shipping Name	NOVEC 1230 pressurized with nitrogen
14.3 Transport Hazard Class (es)	
Class	2
Label(s)	2.2
Hazard No. (ADR)	20
Tunnel restriction code	(E)
Emergency Action Code	2T
14.4 Packing Group	-
14.5 Environmental hazards	not applicable
14.6 Special precautions for user	-

IMDG

14.1 UN Number	Novec 1230, is not regulated by the ADR. If pressurized with Nitrogen gas it is regulated by the ADR and the classification is as follows: NUMBER: UN 3164 - CLASS 2.2 A Objects under pneumatic pressure (Novec 1230 extinguishing - FK5-1-12) Charged with compressed nitrogen
----------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

14.2 UN Proper Shipping Name	NOVEC 1230 pressurized with nitrogen
14.3 Transport Hazard Class (es)	
Class	2
Label(s)	2.2
Hazard No. (ADR)	20
Tunnel restriction code	(E)
Emergency Action Code	2T
14.4 Packing Group	-
14.5 Environmental hazards	not applicable
14.6 Special precautions for user	-

IATA

14.1 UN Number	Novec 1230, is not regulated by the ADR. If pressurized with Nitrogen gas it is regulated by the ADR and the classification is as follows:
----------------	-----------------------------------------------------------------------------------------------------------------------------------------------

NUMBER: UN 3164 - CLASS 2.2 A

Objects under pneumatic pressure (Novec 1230 extinguishing - FK5-1-12)
Charged with compressed nitrogen

14.2 UN Proper Shipping Name	NOVEC 1230 pressurized with nitrogen
14.3 Transport Hazard Class (es)	
Class	2
Label(s)	2.2
Hazard No. (ADR)	20
Tunnel restriction code	(E)
Emergency Action Code	2T

SAFETY DATA SHEET:
NOVEC 1230 pressurized with Nitrogen

- 14.4 Packing Group -
- 14.5 Environmental hazards not applicable
- 14.6 Special precautions for user -

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

not applicable

Additional identification

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers ensure that they are firmly secured. Ensure that the container valve is closed and not leaking. Container valve guards or caps should be in place. Ensure adequate air ventilation.

SECTION 15: Regulatory information
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII none of the ingredients are listed

List of substances subject to authorisation (REACH, Annex XIV)
none of the ingredients are listed

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

none of the ingredients are listed

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)
none of the ingredients are listed

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

none of the ingredients are listed

Explosives precursors which are subject to restrictions

none of the ingredients are listed

SECTION 16: Other Information
Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Chronic	hazardous to the aquatic environment - chronic hazard

SAFETY DATA SHEET:
NOVEC 1230 pressurized with Nitrogen

BCF	BioConcentration Factor
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DGR	Danger
DNEL	Derived No-Effect Level
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
log KOW	n-octanol/water
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
Press. Gas	gas under pressure
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
vPvB	very Persistent and very Bioaccumulative

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.
 Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU.
 Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN).
 International Maritime Dangerous Goods Code (IMDG).
 Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties.
 Health hazards.
 Environmental hazards.
 The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H280	contains gas under pressure; may explode if heated

Page	13 di 13
Revision n.	2
Date	07/01/2020
Previous	04/04/2018
SDS reference	--

SAFETY DATA SHEET:

NOVEC 1230 pressurized with Nitrogen

H412	harmful to aquatic life with long lasting effects
------	---------------------------------------------------

Disclaimer

This information is based upon the present state of our knowledge.
This SDS has been compiled and is solely intended for this product.

End of document