

NETTOGAZ GC1

1000155

SECTION 1 Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name : NETTOGAZ GC1

1.2. Relevant identified uses of the substance or mixture and uses advised against
1.2.1 Relevant identified uses : Internal cleaning of refrigeration and air-conditioning systems

1.3. Details of the supplier of the safety data sheet

 : DEHON SERVICE
 26 Avenue du Petit Parc
 94683 VINCENNES Cedex France
 Tel : +33 (0) 1 43 98 75 00
 Fax : +33 (0) 1 43 98 21 51

e-mail : ContactFDS@climalife.dehon.com

1.4. Emergency telephone number : EMERGENCY TELEPHONE NUMBER (24h/24) : + 33 (0) 1 72 11 00 03
 Anti-poison Center :INRS/ORFILA (France) : +33 (0) 1 45 42 59 59
 Anti-poison Centre (Belgium) : +32 70 245 245
 Anti-poison Centre (Spain) : +34 91 562 04 20
 Anti-poison Centre (Netherlands) : +31 30 274 8888
 Anti-poison Centre (United Kingdom) : +44 870 600 6266
 Poisons Information Centre (Hungary) : +36 80 201 199

SECTION 2 Hazards identification

2.1. Classification of the substance or mixture

 Classification EC 67/548 or EC 1999/45 : Xn; R20
 R52-53

2.2. Label elements

Labelling EC 67/548 or EC 1999/45

Contains : Trans-dichloroethylene

Symbol(s)



: Xn : Harmful

R Phrase(s)

 : R20 : Harmful by inhalation.
 R52/53 : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S Phrase(s)

 : S7/9 : Keep container tightly closed and in well-ventilated place.
 S29 : Do not empty into drains.
 S61 : Avoid release to the environment. Refer to special instructions/Safety data sheets.

- Further data

 : Contains : HFC-245fa, HFC-365mfc
 Greenhouse fluorinated gas falling within Kyoto Protocol

2.3. Other hazards

: None under normal conditions

- Fire or explosion

: Toxic and corrosive vapours may be released

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SECTION 3 Composition/information on ingredients

- 3.1./3.2. Substance / Preparation : Preparation.
 Chemical nature : Solvent mixture pressurized with nitrogen
 Hazardous constituents :

Substance name	Contents	CAS No	EC No	Index No	Ref REACH	Classification
trans-dichloroethylene	25 to 50 %	156-60-5	205-860-2	602-026-00-3	----	F: R11 Xn: R20 R52-53 ----- Flam. Liq. 2;H225 Acute Tox. 4 (Inhalation);H332 Aquatic Chronic 3;H412
1,1,1,3,3-pentafluoropropane	10 to 50 %	460-73-1	419-170-6	----	----	Not classified. (DSD/DPD) ----- Undefined. (GHS)
1,1,1,3,3-pentafluorobutane	10 to 50 %	406-58-6	430-250-1	602-102-00-6	01-0000017653-68	F: R11 ----- Flam. Liq. 2;H225
Methyl and perfluoroisobutyl ether	5 to 20 %	163702-08-7	422-270-2	----	01-0000016878-53	Not classified. (DSD/DPD) ----- Not classified. (GHS)
Methyl and perfluorobutyl ether	5 to 20 %	163702-07-6	422-270-2	----	01-0000016878-53	Not classified. (DSD/DPD) ----- Not classified. (GHS)

SECTION 4 First aid measures
4.1. Description of first aid measures

- Inhalation** : If the person feels unwell :
 Move the affected person away from the contaminated area and into the fresh air
 If breathing difficulties persist :
 Call a doctor
- Skin contact** : Wash with soapy water
- Eye contact** : Rinse with plenty of water immediately.
 If irritation persists, consult an eye specialist
- Ingestion** : Rinse mouth out with water
 Do NOT give the affected person anything to drink, even if he is fully conscious
 Never attempt to induce vomiting
 consult a doctor

4.2. Most important symptoms and effects, both acute and delayed : No information available

4.3. Indication of any immediate medical attention and special treatment needed : No information available

SECTION 5 Fire-fighting measures
5.1. Extinguishing media

- Suitable extinguishing media** : All extinguishing agents can be used
- Unsuitable extinguishing media** : None to our knowledge. If there is a fire close by, use suitable extinguishing agents

5.2. Special hazards arising from the substance or mixture

- Specific hazards** : Pressurized container. On heating there is a risk of bursting due to internal pressure build-up.
- On thermal decomposition (pyrolysis) :
 Toxic and corrosive vapours are released
 For further information, refer to section 10 : "Stability and Reactivity"

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Supersedes : 26 / 7 / 2012

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SECTION 5 Fire-fighting measures (continued)

- Specific fire fighting methods** : In case of significant fire close by :
Do not breathe vapour
Cool down the containers exposed to heat with a water spray
- 5.3. Advice for firefighters**
- Protection of fire-fighters** : Complete protective clothing
Self-contained breathing apparatus
For further information refer to section 8 "Exposure controls/personal protection"

SECTION 6 Accidental release measures

- 6.1. Personal precautions, protective equipment and emergency procedures** : Avoid contact with skin and eyes
Do not breathe vapours
Turn leaking containers leak-side up to prevent the escape of liquid
In the event of significant spillages :
Local evacuation is necessary from the vapour emission zone
Ventilate spillage area
- 6.2. Environmental precautions** : Contain the spilled material by bunding
Do not discharge into drains or rivers
- Prohibited :** : As far as possible, do not spray damaged or overturned packaging
- 6.3. Methods and material for containment and cleaning up**
- Neutralization** : Cover with:
- earth or sand
- Cleaning/decontamination** : Wash the non-recoverable remainder with :
- an appropriate organic solvent
- Recovery** : Recover as much product as possible
Transfer the product into a spare container:
- suitably labelled
- tightly closed.
Then take the emergency containers to an area reserved for subsequent recycling or disposal
- Disposal** : Dispose of contaminated materials in accordance with current regulations
- 6.4. Reference to other sections** : For further information refer to section 8 "Exposure controls/personal protection"

SECTION 7 Handling and storage

- 7.1. Precautions for safe handling**
- Technical measures** : Install a retention tank.
Ventilation
Use non-sparking tools
- Precautions** : Smoking is forbidden
Smoking when using this product may cause contamination of the tobacco and/or the smoke and cause the formation of the hazardous decomposition products referred to in section 10 of this notice
Liquid under pressure
- Safe handling advice :** : Handle and open the container with care.
Do not heat up to temperatures above 150 °C
- Industrial hygiene** : Always wash your hands immediately after handling this product, and once again before leaving the workplace
Do not eat, drink or smoke during use

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SECTION 7 Handling and storage (continued)

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

- Recommended : Store :
 - in a cool, well-ventilated area
 - away from any source of ignition
 - away from direct sunlight

Incompatible products

- : Strong bases
- Strong oxidizing agents
- Alkali metals
- Alkaline earth metals
- Aluminium

Packaging materials

- Recommended : Ordinary steel.
- Not suitable : Plastic materials.

7.3. Specific end use(s)

- : No data

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

Engineering measures

- : Ensure good ventilation of the work station

8.1.1. Occupational Exposure Limits

- : trans-dichloroethylene : USA (OSHA) : PEL - TWA (8h; mg/m³) : 790
- trans-dichloroethylene : USA (OSHA) : PEL - TWA (8h; ppm) : 200
- trans-dichloroethylene : Germany : MAK - TWA (8h; mg/m³) : 800
- trans-dichloroethylene : Belgium : GWBB - TWA (8h; mg/m³) : 805
- trans-dichloroethylene : Germany : MAK - STEL (15min; ppm) : 400
- trans-dichloroethylene : Germany : MAK - STEL (15min; mg/m³) : 1600
- trans-dichloroethylene : Germany : MAK - TWA (8h; ppm) : 200
- trans-dichloroethylene : Belgium : GWBB - TWA (8h; ppm) : 200
- 1,1,1,3,3-pentafluoropropane : France : LEP - VME (8h; mg/m³) : 1.644
- 1,1,1,3,3-pentafluoropropane : France : LEP - VME (8h; ppm) : 300
- 1,1,1,3,3-pentafluorobutane : France : LEP - VME (8h; ppm) : 500
- Methyl and perfluoroisobutyl ether : France : LEP - VME (8h; ppm) : 750
- Methyl and perfluorobutyl ether : France : LEP - VME (8h; ppm) : 750

8.2. Exposure controls

Personal protection :

- Respiratory protection : In the event of thermal decomposition :
 - Avoid inhaling the products of thermal decomposition. Select one of the following approved items of breathing equipment, taking into account the concentration of contaminants in the atmosphere and in compliance with the current regulations :
 - Mask with AX canister
 - Self-contained breathing apparatus with an air line
- Hand protection : Protective gloves made of Viton
- Skin protection : Protective clothing
- Safety foot-wear
- Eye protection : Safety spectacles with side shields

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SECTION 9 Physical and chemical properties
9.1. Information on basic physical and chemical properties
9.1.a. Appearance
Physical state : Liquid under pressure

Colour : Colourless

9.1.b. Odour : slightly ethereal.

9.1.c. Odour threshold : No information available

9.1.d. pH : Not applicable

9.1.e. Melting point / Freezing point : No data

9.1.f. Initial boiling point - boiling range : Initial : +20 °C

9.1.g. Flash point : None (Closed cup)

9.1.h. Evaporation rate : No data

9.1.i. Flammability : Non flammable.

9.1.j. Explosion limits (lower - upper) : No data

9.1.k. Vapour pressure : No information available
0.52 Bar absolute at 20 °C (calculated)

9.1.l. Vapour density : No information available

9.1.m. Density : 1.26 g/cm³ at 20 °C
(calculated)

9.1.n. Solubility
-in water : Slightly soluble

9.1.o. Partition coefficient : n-octanol / water : No specific data

9.1.p. Auto-ignition temperature : No data

9.1.q. Thermal decomposition : No data

9.1.r. Viscosity : No data

9.1.s. Explosive Properties : Not explosive material according to EC criteria.

9.1.t. Oxidising properties : Non oxidizing material according to EC criteria

9.2. Other information
Volatile component : 100 %

SECTION 10 Stability and reactivity
10.1. Reactivity
10.2. Chemical stability : Stable under normal conditions of use

10.3. Possibility of hazardous reactions
10.4. Conditions to avoid : Pressurized container
Intense heat may cause container to burst
May decompose :
- above 150 °C.

10.5. Incompatible materials : - strong bases
- strong oxidizing agents
- alkali metals
- alkaline earth metals.
- aluminium

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SECTION 10 Stability and reactivity (continued)

- 10.6. Hazardous decomposition products :** : On thermal decomposition (pyrolysis), releases :
 Carbon oxydes (CO, CO₂)
 Fluorophosgene
 Hydrofluoric acid
 At temperatures above 300 °C, it forms:
 Perfluoroisobutylene
- Further information :** : The PFIB formation rate is approximately 1000 times less than the rate of formation of the principal products of decomposition
 There is no danger to health due to exposure to PFIB under foreseeable conditions of use

SECTION 11 Toxicological information
11.1. Information on toxicological effects

- **Acute toxicity** : Harmful by inhalation
- On ingredients**
- trans-dichloroethylene** : Rat inhalation LC50 [ppm/4h] : 24100
 : Rat oral LD50 [mg/kg] : 770
- Methyl and perfluorobutyl ether** : Rat oral LD50 [mg/kg] : 5000
 : Rat inhalation LC50 [mg/l/4h] : 1000 (Vapours).
- Methyl and perfluoroisobutyl ether** : Rat oral LD50 [mg/kg] : 5000
 : Rat inhalation LC50 [mg/l/4h] : 1000 (Vapours).
- 1,1,1,3,3-pentafluorobutane** : Rat oral LD50 [mg/kg] : > 2000
 : Rat inhalation LC50 [ppm/4h] : > 100000
- 1,1,1,3,3-pentafluoropropane** : Rabbit dermal LD50 [mg/kg] : > 2
 : Rat inhalation LC50 [ppm/4h] : > 200000
 : Inhalation (mouse) LC50 [[ppm/4h] : > 100000
- **Irritation** : Slightly irritating to the eyes
 Slightly irritating to the skin
- **Corrosivity** : No information available
- **Sensitisation** : No information available
- **Repeated dose toxicity** : Hydrofluoroether :
 Experimental studies in animals have shown an increase in fluorides in the urine after repeated exposure through inhalation
- **Carcinogenicity** : No information available
- **Mutagenicity** : No information available
- **Toxicity for reproduction** : No information available

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SECTION 12 Ecological information

12.1. Toxicity

Effects on the aquatic environment : Harmful to aquatic organisms
May cause long-term adverse effects in the aquatic environment

On ingredients

trans-dichloroethylene : 48 Hour - EC50 - Daphnia magna [mg/l] : 220
: 48 Hours - LC50 - Crustaceans [mg/l] : 220
: 96 Hours - LC50 - Fish (Lepomis macrochirus) [mg/l] : 140

Methyl and perfluorobutyl ether : 48 Hour - EC50 - Daphnia magna [mg/l] : 10
: 96 Hours - LC50 - Fish [mg/l] : 7.9
: 96 Hour - EC50 - Algae [mg/l] : 8.9

Methyl and perfluoroisobutyl ether : 48 Hour - EC50 - Daphnia magna [mg/l] : 10
: 96 Hours - LC50 - Fish [mg/l] : 7.9
: 96 Hour - EC50 - Algae [mg/l] : 8.9

1,1,1,3,3-pentafluorobutane : 48 Hour - EC50 - Daphnia magna [mg/l] : > 200
: 96 Hours - LC50 - Fish (Danio rerio) [mg/l] : > 200
: 72 Hour - EC50 - Algae (Selenastrum capricornutum) [mg/l] : > 114

1,1,1,3,3-pentafluoropropane : 48 Hour - EC50 - Daphnia magna [mg/l] : > 97.9
: 96 Hours - LC50 - Fish (Rainbow trout) [mg/l] : > 81.8

12.2. Persistence and degradability

Persistence : Hydrofluoroether : Life in atmosphere : 4.1 years
Trans-dichloroethylene : Life in atmosphere : 6 d
1,1,1,3,3-pentafluoropropane : Life in atmosphere : 8.4 years
1,1,1,3,3-pentafluorobutane : Life in atmosphere : 16-19 years

12.3. Bioaccumulative potential

Octanol/water partition coefficient : Bioaccumulation unlikely
: Trans-dichloroethylene <3 (log Pow)
1,1,1,3,3-pentafluorobutane : 1.6 (log Pow)
1,1,1,3,3-pentafluoropropane 1.35 (log Pow)

12.4. Mobility in soil

: No data

12.5. Results of PBT and vPvB assessment

: No data

12.6. Other adverse effects

Ozone depletion potential : ODP (R-11=1)=0

Global warming potential: : Hydrofluoroether : GWP (CO2=1) = 320
1,1,1,3,3-pentafluoropropane : GWP (CO2=1) = 950
1,1,1,3,3-pentafluorobutane : GWP (R11=1) = 0.17

SECTION 13 Disposal considerations

13.1. Waste treatment methods

WASTE FROM PRODUCT :

Prohibition : : Do not allow the product to be released into the environment
Do not discharge waste into drains

Destruction/Disposal : : Recycle the material as far as possible.
Non recycled product:
Incinerate at a licensed installation.
Dispose of at a licensed waste collection center

CONTAMINATED PACKAGING :

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SECTION 13 Disposal considerations (continued)

Decontamination/cleaning : Empty the packaging completely prior to disposal
Destruction/Disposal : Recycle following cleaning or dispose of at an authorised site
NOTE : The user's attention is drawn to the possible existence of specific european, national or local regulations regarding disposal

SECTION 14 Transport information

14.1. UN number : UN 3163
14.2. UN proper shipping name : LIQUEFIED GAS, N.O.S. (1,1,1,3,3-pentafluoropropane, Nitrogen)
14.3. Transport hazard class(es)
Rail/road (RID/ADR) : Class : 2
Sea transport : Class : 2.2
Air transport (OACI/IATA) : Class : 2.2
Hazard Label(s) : 2.2



14.4. Packing group : Not applicable
14.5. Environmental hazards : Not classified as dangerous to the aquatic environment
 Marine pollutant : NO

14.6. Special precautions for user
Rail/road (RID/ADR) : Classification code : 2A
 Hazard identification number : 20
 Tunnel restriction code : (C/E)
Sea transport : Emergency schedule (EmS) : F-C, S-V
Air transport (OACI/IATA) : Cargo aircraft:
 Packing instruction: 200
 Quantity: 150 kg
 Passenger aircraft:
 Packing instruction: 200
 Quantity: 75 kg

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

NOTE : The above regulatory prescriptions are those valid on the date of publication of this sheet
 However, given the possible evolution of transport regulations for hazardous materials, in case the present sheet is dating back to more than 12 months ago, it would be advisable to check their validity with your commercial agency



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SECTION 15 Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture : Ensure all national/local regulations are observed.

France : Classified Installations : N° 1185
Professional diseases(table(s) nr 12) : applicable

REGULATION EC No 842/2006 : (Contains : HFC-245fa, HFC-365mfc)
Greenhouse fluorinated gas falling within Kyoto Protocol

NOTE : : The regulatory information given in this part only indicate the principal regulations specifically applicable to the product described in the Safety Data Sheet.
The cited basic Community texts are being updated and transcribed in national law.
Refer to all applicable national, international and local regulations or provisions.
The user's attention is drawn to the possible existence of additional provisions which complete these regulations.

15.2. Chemical safety assessment : No information available

SECTION 16 Other information

Further information : Product for industrial use only
For more information regarding the use of this product, please refer to our technical information or contact the sales department in your region
This safety data sheet has been written in conformity with the regulation (UE) 453/2010.

Text of R-Phrases in § 3 : R11 : Highly flammable.
R20 : Harmful by inhalation.
R52/53 : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Text of H-Phrases in § 3 : H225 - Highly flammable liquid and vapour
H332 - Harmful if inhaled
H412 - Harmful to aquatic life with long lasting effects

*** Update** : All chapters have been modified since the previous version

This sheet complements the technical sheets but does not replace them. The information given is based on our knowledge of the product, at the time of publication. It is given in good faith. Besides, the attention of the user is drawn to the possible risks incurred by using the product for any other use than that for which it was intended. In no way does this exempt the user from knowing and applying all the regulations controlling his activity. He alone will take on the responsibility for taking the precautions involved by the use of the product. The aim of all the mandatory regulations mentioned is just to help the user to fulfil his obligations regarding the use of hazardous products.

This information must not be considered exhaustive. It does not exempt the user from ensuring that other obligations than those mentioned could apply, related to the storage and use of the product, this being his sole responsibility.

End of document

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