

**Safety Data Sheet according to Regulation (EC)
No. 1907/2006 (REACH)**

Printed 30.11.2010
Revision 30.11.2010 (GB) Version 7.1
R 23
0023

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

Product identifier

Name of product R 23
Art-Nr.: 0023
Name of substance Trifluormethan
EC No 200-872-4
CAS No 75-46-7

Manufacturer/distributor

GHC Gerling, Holz & Co. Handels GmbH
Ruhrstraße 113, D-22761 Hamburg
Phone +49 (0) 40 853 123-0, Fax +49 (0) 40 853 123-66
E-Mail msds@ghc.de
Internet www.ghc.de

Advice

Phone +49 (0) 40 853 123-0
Fax +49 (0) 40 853 123-66

Emergency advice

GHC Gerling, Holz & Co. Handels GmbH
Phone +49 (0) 40 853 123-0

Recommended intended purpose(s)
Refrigerant.

2. Hazards identification

Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]

Hazard classes and Hazard categories	Hazard Statements	Classification procedure
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Liquef. Gas	H280	On basis of test data.
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Hazard statements for physical hazards

H280 Contains gas under pressure; may explode if heated.

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



GHS04

Signal word

Warning

Hazard statements for physical hazards

H280 Contains gas under pressure; may explode if heated.

Precautionary Statements

Storage

P403 Store in a well-ventilated place.

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Hazardous ingredients for labeling

Trifluormethan

Supplemental Hazard information (EU)

Health properties

Asphyxiant in high concentrations.

Information pertaining to special dangers for human and environment

In high concentrations may cause asphyxiation.

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

Contact with liquid may cause cold burns/frostbite.

Receptacle under pressure.

3. Composition/information on ingredients

CAS No 75-46-7
EC No 200-872-4

Trifluormethan

4. First aid measures

General information

Remove contaminated soaked clothing immediately.

Adhere to personal protective measures when giving first aid.

Seek medical advice immediately.

In case of inhalation

Remove the casualty into fresh air and keep him immobile.

Seek medical treatment immediately.

In case of respiratory standstill give artificial respiration by respiratory bag (Ambu bag) or respirator. Send for a doctor.

In case of skin contact

In case of contact with skin wash off with warm water.

In case of frostbite rinse with plenty of water. Don't remove clothing.

In case of frostbite spray with lukewarm (not hot) water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.

In case of eye contact

Eye rinsing with water carefully while protecting unhurt eye.

Call for a doctor immediately.

In case of ingestion

Ingestion is not considered a potential route of exposure.

Treatment (Advice to doctor)

Do not give any preparations of the adrenalin-ephedrine group.

Long-term inhaling of separation products may cause pulmonary oedema.

5. Firefighting measures

Suitable extinguishing media

Product does not burn, fire-extinguishing activities according to surrounding.

Extinguishing media which must not be used for safety reasons

Full water jet

Special hazards arising from the substance or mixture

In case of fire formation of dangerous gases possible.

Carbon monoxide (CO)

Hydrogen fluoride (HF)

Carbonyl fluoride.

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Special protective equipment for fire-fighters

Use breathing apparatus with independent air supply (isolated).
Wear full protective clothing.

Additional information

Cool endangered containers with water spray jet.
Exposure to fire may cause containers to rupture/explode.

6. Accidental release measures

Personal precautions

See chapter 8.
Remove persons to safety.

Environmental precautions

If possible, stop flow of product.
Do not discharge into the drains/surface waters/groundwater.
Prevent spread over a wide area (e.g. by containment or oil barriers).
Do not discharge into the subsoil/soil.

Methods for cleaning up

Ensure adequate air ventilation.
Allow to vaporise.

Additional Information

Informations for safe handling see chapter 7.
Informations for personal protective equipment see chapter 8.

! 7. Handling and storage

! Advice on safe handling

Use only in thoroughly ventilated areas.
Transfer and handle only in enclosed systems.
Provide good room ventilation even at ground level (vapours are heavier than air).
Prevent cylinders from falling over.
Ensure valve protection device is correctly fitted.
Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
Open valve slowly to avoid pressure shock.
Do not allow backfeed into the container.
Suck back of water into the container must be prevented.
No water to valves, flanges and other fittings.
Purging of pipes and valves with inert gases - to avoid: water, solvents.

Advice on protection against fire and explosion

The product is not combustible.

Requirements for storage rooms and vessels

Keep in closed original container.
Ventilate store-rooms thoroughly.
Suitable materials: Normalised steel and carbon steel, tempered steel, aluminium alloys, stainless steel.
Valve: Suitable materials: Brass, copper alloys, carbon steels, aluminium alloys, stainless steel.

Advice on storage compatibility

Do not store with combustible materials.
Do not store together with animal feedstuffs.
Do not store together with food.

Further information on storage conditions

Keep container tightly closed.
Store only in original container at temperature of 50°C maximum (=122°F).
Prevent cylinders from falling over.

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Keep container in a well-ventilated place
Protect of heat.

Information on storage stability

At appropriate storage unlimited stability.

Recommendation(s) for intended use

Use in accordance with regulation (EC) No 842/2006 on certain fluorinated greenhouse gases.

8. Exposure controls/personal protection

Additional advice on system design

no

Additional advice

no

Respiratory protection

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Keep self contained breathing apparatus readily available for emergency use.
In case of rescue and maintenance activities in storage containers use environment-independent breathing apparatus because of risk of suffocation by edging out of air oxygen

Hand protection

Leather gloves

Eye protection

safety goggles with side protection

Skin protection

protective clothing

General protective measures

Do not inhale gases/vapours/aerosols.

Hygiene measures

At work do not eat, drink and smoke.

Limitation and surveillance of the environment

See chapter 7.

9. Physical and chemical properties

Form

Gaseous / liquefied under pressure.

Colour

colourless

Odour

ethereal

Important health, safety and environmental information

	Value	Temperature	at	Method	Remark
pH value in delivery state	not applicable				
boiling point	-82,2 °C		1013 hPa		
melting point	-155,2 °C				
Flash point	no				

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	Value	Temperature	at	Method	Remark
Ignition temperature	no				
Lower explosion limit	no				
Upper explosion limit	no				
Vapour pressure	41840 hPa	20 °C			
Density	1,44 g/cm ³	-82 °C			liquid phase
Rel. vapour density	2,47				air = 1
Solubility in water	ca. 1 g/l	20 °C			
Partition coefficient (log p_{OW})	0,64				
Viscosity dynamic	0,108 mPa*s	-40 °C			liquid phase
Oxidizing properties	no				
Explosive properties	no				
Additional information	Vapours are heavier than air.				

10. Stability and reactivity

Conditions to avoid

Heat sources / heat - risk of bursting.

Materials to avoid

Reactions with alkali metals.

Reactions with earth alkali metals.

Hazardous decomposition products

Carbon monoxide

Fluorophosgene on contact open flame or glowing objects

Hydrogen fluoride

Thermal decomposition

Remark No decomposition if used as directed.

Additional information

Stable under normal conditions.

11. Toxicological information

Acute toxicity/Irritability/Sensitization

Value/Validation	Species	Method	Remark
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	Value/Validation	Species	Method	Remark
LC50 acute inhalation	> 1898 mg/l (4 h)	rat		

Subacute Toxicity - Carcinogenicity

	Value	Species	Method	Validation
Mutagenicity				No experimental information on genotoxicity in vitro and in vivo available.
Reproduction-Toxicity				No indications of toxic effects were observed in reproduction studies in animals.
Carcinogenicity				No indications of carcinogenic effects are available from long-term trials.

Experiences made from practice

Long-term inhaling of separation products may cause pulmonary oedema.
Inhalation causes disordered cardiac rhythm.
Inhalation causes shortness of breath.
Gases have a suffocating effect.
Inhalation causes narcotic effect/intoxication.

12. Ecological information

Data on elimination (persistence and degradability)

	Elimination rate	Method of analysis	Method	Validation
Physico-chemical degradability	At normal temperature very highly volatile or gaseous product that can be released to atmosphere. Elimination test cannot be employed.			

General regulation

Avoid emission in atmosphere.
ODP: 0
GWP: 11700

13. Disposal considerations

Waste code No.	Name of waste
14 06 01*	chlorofluorocarbons, HCFC, HFC

Wastes marked with an asterisk are considered to be hazardous waste pursuant to Directive 91/689/EEC on hazardous waste.

Recommendations for the product

Return to manufacturer.

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Recommendations for packaging

Transportable pressure equipment (empty, residual pressure): Return to supplier / manufacturer.

14. Transport information

Land and inland navigation transport ADR/RID

UN 1984 REFRIGERANT GAS R 23 (TRIFLUORMETHAN), 2.2, (C/E), Classification code: 2A

Marine transport IMDG

UN 1984 REFRIGERANT GAS R 23 (TRIFLUOROMETHANE), 2.2, Marine pollutant: no

EmS: F-C, S-V

Air transport ICAO/IATA-DGR

UN 1984 Refrigerant gas R 23 (TRIFLUOROMETHANE), 2.2

15. Regulatory information

VOC standard

VOC content >=99 % 20 °C 41840 hPa

16. Other information

Recommend uses and restrictions

Use in accordance with regulation (EC) No 842/2006 on certain fluorinated greenhouse gases.

National and local regulations concerning chemicals shall be observed.

Further information

All declarations of safety-data-sheet refer to pure substance.

The information contained herein is based on the state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

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