

Safety Data Sheet

Product : **Nitrogen trifluoride**
MSDS Nr : 301-00-2001BOC(A) Version : 1.02

Page :1/4
Date : 22/07/2004

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name Nitrogen trifluoride
Chemical formula NF3
Company identification see heading and/or footer
Emergency phone numbers see heading and/or footer

2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation Substance.
Components/Impurities Contains no other components or impurities which will influence the classification of the product.
CAS Nr 7783-54-2
EC Nr (from EINECS) 232-007-1

3 HAZARDS IDENTIFICATION

Hazards identification Compressed gas
Oxidant. Strongly supports combustion. May react violently with combustible materials.

4 FIRST AID MEASURES

Inhalation In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.
Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
Ingestion Ingestion is not considered a potential route of exposure.

5 FIRE FIGHTING MEASURES

Specific hazards Supports combustion.
Exposure to fire may cause containers to rupture/explode.
Non flammable
Hazardous combustion products If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition:
Nitric oxide/nitrogen dioxide
Hydrogen fluoride
Suitable extinguishing media All known extinguishants can be used.
Specific methods If possible, stop flow of product.
Move away from the container and cool with water from a protected position.
Special protective equipment for fire fighters Use self-contained breathing apparatus and chemically protective clothing.

Safety Data Sheet

Product :

Nitrogen trifluoride

Page :2/4

MSDS Nr : 301-00-2001BOC(A)

Version : 1.02

Date : 22/07/2004

6 ACCIDENTAL RELEASE MEASURES

| | |
|---------------------------|---|
| Personal precautions | Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation. Eliminate ignition sources. |
| Environmental precautions | Try to stop release. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. |
| Clean up methods | Ventilate area. |

7 HANDLING AND STORAGE

| | |
|----------------------|--|
| Handling and storage | Use no oil or grease. Open valve slowly to avoid pressure shock. Segregate from flammable gases and other flammable materials in store. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Keep away from ignition sources (including static discharges). Refer to supplier's container handling instructions. Keep container below 50°C in a well ventilated place. |
|----------------------|--|

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

| | |
|----------------------------------|--|
| Exposure limit value for country | UK: LTEL: 10ppm; STEL: 15ppm (EH40/2002) France: VME: 10ppm |
| Personal protection | Keep self contained breathing apparatus readily available for emergency use. Do not smoke while handling product. Ensure adequate ventilation. |

9 PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--------------------------|-----------------|
| Molecular weight | 71 |
| Melting point | -207 °C |
| Boiling point | -129 °C |
| Critical temperature | -39 °C |
| Relative density, gas | 2.4 (air=1) |
| Relative density, liquid | Not applicable. |
| Vapour Pressure 20°C | Not applicable. |
| Solubility mg/l water | 61 mg/l |
| Appearance/Colour | Colourless gas |

Safety Data Sheet

Product :

Nitrogen trifluoride

Page :3/4

MSDS Nr : 301-00-2001BOC(A)

Version : 1.02

Date : 22/07/2004

| | |
|------------|--|
| Odour | Mouldy |
| Other data | Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level. |

10 STABILITY AND REACTIVITY

| | |
|--------------------------|---|
| Stability and reactivity | May react violently with combustible materials May react violently with reducing agents. Violently oxidises organic material. |
|--------------------------|---|

11 TOXICOLOGICAL INFORMATION

| | |
|---------|---|
| General | Damage to red blood cells (haemolytic poison). Damage to kidneys and liver. Irritation to eyes and respiratory tract. |
|---------|---|

12 ECOLOGICAL INFORMATION

| | |
|---------|--|
| General | No known ecological damage caused by this product. |
|---------|--|

13 DISPOSAL CONSIDERATIONS

| | |
|---------|---|
| General | Do not discharge into any place where its accumulation could be dangerous. Avoid discharge to atmosphere. Contact supplier if guidance is required. |
|---------|---|

14 TRANSPORT INFORMATION

| | |
|------------------------------------|---|
| Proper shipping name | NITROGEN TRIFLUORIDE |
| UN Nr | 2451 |
| Class | 2.2 |
| Subsidiary risk | 5.1 |
| ADR/RID Classification code | 20 |
| ADR/RID Hazard Nr | 25 |
| Packing group | None |
| Labelling ADR | Label 2.2: non flammable non toxic gas Label 5.1: fire intensifying risk. |
| IMDG EmS codes | F-C, S-W |
| IMDG Marine pollutant | No |
| IATA passenger packing instruction | 200 |
| IATA passenger max. quantity/pack | 75kg |
| IATA cargo packing instruction | 200 |
| IATA cargo max. quantity/pack | 150kg |
| Other transport information | 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 |

Safety Data Sheet

Product :

Nitrogen trifluoride

Page :4/4

MSDS Nr : 301-00-2001BOC(A)

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the event of an accident or an emergency.

Before transporting product containers ensure that they are firmly secured and:

- cylinder valve is closed and not leaking
- valve outlet cap nut or plug (where provided) is correctly fitted
- valve protection device (where provided) is correctly fitted
- there is adequate ventilation.
- compliance with applicable regulations.

15 REGULATORY INFORMATION

Number in Annex I of Dir 67/548

Not included in Annex I.

EC Classification

O;R8

-Symbols

O: Oxidising

Labelling of cylinders

-Symbols

Label 2.2: non flammable non toxic gas

Label 5.1: fire intensifying risk.

-Risk phrases

R8 Contact with combustible material may cause fire.

-Safety phrases

S9 Keep container in well ventilated place.

S17 Keep away from combustible material.

S23 Do not breathe the gas.

16 OTHER INFORMATION

Ensure all national/local regulations are observed.

The hazard of asphyxiation is often overlooked and must be stressed during operator training.

Users of breathing apparatus must be trained.

This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws.

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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Number of pages :4