

SAFETY DATA SHEET

NITROGEN TRIFLUORIDE

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Compilation date: 19/01/2010

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Revision No: 2

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: NITROGEN TRIFLUORIDE

CAS number: 7783-54-2

EINECS number: 232-007-1

Product code: PC5254

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

1.3. Details of the supplier of the safety data sheet

Company name: Apollo Scientific Ltd

Units 3 & 4

Parkway

Denton

Manchester

M34 3SG

UK

Tel: 0161 337 9971

Fax: 0161 336 6932

Email: david.tideswell@apolloscientific.co.uk

1.4. Emergency telephone number

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CHIP: O: R8; Xn: R20; -: R44; Xn: R48/20

Classification under CLP: Ox. Gas 1: H270; Press. Gas: H280; Acute Tox. 4: H332; STOT RE 2: H373; -: EUH044

Most important adverse effects: Contact with combustible material may cause fire. Harmful by inhalation. Risk of explosion if heated under confinement. Harmful: danger of serious damage to health by prolonged exposure through inhalation.

2.2. Label elements

Label elements under CLP:

Hazard statements: H270: May cause or intensify fire; oxidiser.

H280: Contains gas under pressure; may explode if heated.

H332: Harmful if inhaled.

H373: May cause damage to organs through prolonged or repeated exposure [inhalation (gas)].

EUH044: Risk of explosion if heated under confinement.

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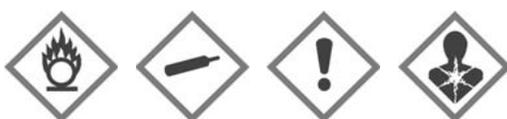
Signal words: Danger

Hazard pictograms: GHS03: Flame over circle

GHS04: Gas cylinder

GHS07: Exclamation mark

GHS08: Health hazard



Precautionary statements: P260: Do not breathe gas.

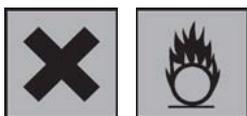
P220: Keep/Store away from clothing/combustible materials.

P312: Call a POISON CENTER or doctor if you feel unwell.

Label elements under CHIP:

Hazard symbols: Harmful.

Oxidising.



Risk phrases: R8: Contact with combustible material may cause fire.

R20: Harmful by inhalation.

R44: Risk of explosion if heated under confinement.

R48/20: Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Safety phrases: S9: Keep container in a well-ventilated place.

S17: Keep away from combustible material.

S23: Do not breathe gas.

S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S53: Avoid exposure - obtain special instructions before use.

S59: Refer to manufacturer / supplier for information on recovery / recycling.

2.3. Other hazards

Other hazards: Contact with combustible material may cause fire. Danger of serious damage to health by prolonged exposure. Risk of explosion if heated under confinement.

PBT: This substance is not identified as a PBT substance.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: NITROGEN TRIFLUORIDE

Section 4: First aid measures

[cont...]

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4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water.

Eye contact: Bathe the eye with running water for 15 minutes. Consult a doctor.

Ingestion: Unlikely route of exposure.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. Consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: It is unlikely that this substance will be swallowed due to its physical properties.

Inhalation: There may be a feeling of tightness in the chest with shortness of breath.

4.3. Indication of any immediate medical attention and special treatment needed

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Carbon dioxide, dry chemical powder, foam. Suitable extinguishing media for the surrounding fire should be used.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: Oxidising. Harmful. In combustion emits toxic fumes. Nitrogen oxides (NO_x). Hydrogen fluoride (HF).

5.3. Advice for fire-fighters

Advice for fire-fighters: Cylinder may explode under conditions of fire. Keep cylinders cool with water spray. Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Remove all incompatible materials as outlined in section 10 of SDS. Eliminate all sources of ignition. If outside do not approach from downwind.

6.2. Environmental precautions

Environmental precautions: Alert the neighbourhood to the presence of fumes or gas.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Ventilate area.

6.4. Reference to other sections

Section 7: Handling and storage

[cont...]

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7.1. Precautions for safe handling

Handling requirements: Ensure there is sufficient ventilation of the area. Keep away from sources of ignition.
Pressurised container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. Fire or intense heat may cause violent rupture.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep away from sources of ignition. Avoid incompatible materials and conditions - see section 10 of SDS. Store in tightly closed, airtight, moisture-proof cylinders in a cool, dry, well-ventilated area away from heat, sources of ignition and sparks. Protect the pressurised containers from physical damage.

Suitable packaging: Must only be kept in original packaging. CYLINDERS

7.3. Specific end use(s)

Specific end use(s): No data available.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area.

Respiratory protection: Self-contained breathing apparatus must be available in case of emergency.

Hand protection: Protective gloves.

Eye protection: Safety goggles.

Skin protection: Protective clothing.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Pressurised gas

Colour: Colourless

Odour: Moldy

Oxidising: Oxidising (by EC criteria)

Solubility in water: 1.48×10^{-5} mol/mol H₂O

Boiling point/range °C: -129

Melting point/range °C: -207

Vapour pressure: 1.33kPa @-171°C

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

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10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions. Stable at room temperature.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions.

10.4. Conditions to avoid

Conditions to avoid: Heat. Sources of ignition.

10.5. Incompatible materials

Materials to avoid: Organic materials.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes. Nitrogen oxides (NO_x). Hydrogen fluoride (HF).

Section 11: Toxicological information

11.1. Information on toxicological effects

Relevant hazards for substance:

Hazard	Route	Basis
Acute toxicity (ac. tox. 4)	INH	Based on test data
STOT-repeated exposure	-	Based on test data

Symptoms / routes of exposure

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: It is unlikely that this substance will be swallowed due to its physical properties.

Inhalation: There may be a feeling of tightness in the chest with shortness of breath.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: No data available.

12.3. Bioaccumulative potential

Bioaccumulative potential: No data available.

12.4. Mobility in soil

Mobility: No data available.

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12.5. Results of PBT and vPvB assessment

PBT identification: This substance is not identified as a PBT substance.

12.6. Other adverse effects

Other adverse effects: No data available.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: MATERIAL SHOULD BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS

Disposal of packaging: Dispose of as special waste in compliance with local and national regulations Observe all federal, state and local environmental regulations.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN2451

14.2. UN proper shipping name

Shipping name: NITROGEN TRIFLUORIDE

14.3. Transport hazard class(es)

Transport class: 2 (5.1)

14.4. Packing group

14.5. Environmental hazards

Environmentally hazardous: No

Marine pollutant: No

14.6. Special precautions for user

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* Data predicted using computational software. Toxtree - Toxic Hazard Estimation by

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decision tree approach. [http://ecb.jrc.ec.europa.eu/qsar/qsar-tools/index.php?](http://ecb.jrc.ec.europa.eu/qsar/qsar-tools/index.php?c=TOXTREE)

c=TOXTREE

~ Data predicted using computational software ACD/ToxSuite v 2.95.1 Copyright 1994-2009 ACD/labs, Copyright 2001-2009 Pharma Algorithms, Inc, Advanced Chemistry Development, Inc (ACD/Labs). http://www.acdlabs.com/products/pc_admet/tox/tox/

Phrases used in s.2 and 3: EUH044: Risk of explosion if heated under confinement.

H270: May cause or intensify fire; oxidiser.

H280: Contains gas under pressure; may explode if heated.

H332: Harmful if inhaled.

H373: May cause damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.

R8: Contact with combustible material may cause fire.

R20: Harmful by inhalation.

R44: Risk of explosion if heated under confinement.

R48/20: Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Legal disclaimer: The material is intended for research purposes only and should be handled exclusively by those who have been fully trained in safety, laboratory and chemical handling procedures. The above information is believed to be correct to the best of our knowledge. The above information is believed to be correct to the best of our knowledge at the date of its publication, but should not be considered to be all inclusive. It should be used only as a guide for safe handling, storage, transportation and disposal. We cannot guarantee that the hazards detailed in this document are the only hazards that exist for this product. This is not a warranty and Apollo Scientific Ltd shall not be held liable for any damage resulting from handling or from contact with the above product.