

Danger



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

1.1. Product identifier

Trade name : Nitrogen trifluoride
SDS no : EIGA091-ALBNL
Other means of identification : Nitrogen trifluoride
CAS-No. : 7783-54-2
EC-No. : 232-007-1
EC Index-No. : ---
REACH registration No : 01-2119962459-23
Chemical formula : NF₃

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

Relevant identified uses : See the list of identified uses and exposure scenarios in the annex of the safety data sheet.
Perform risk assessment prior to use.
Uses advised against : Consumer use.
Uses other than those listed above are not supported, contact your supplier for more information on other uses.

1.3. Details of the supplier of the safety data sheet

THE NETHERLANDS:

AIR LIQUIDE BV
De Witbogt 1
5652 AG Eindhoven
the Netherlands-Nederland
Tel: +31 (0)40 250 35 03

BELGIUM:

L'AIR LIQUIDE BELGE S.A./N.V.
Hermeslaan 11
1932 Zaventem
Belgium-Belgique-België
Tel: +32 (0)2 540 86 60

LUXEMBURG:

L'AIR LIQUIDE LUXEMBOURG S.A.
ZONE P.E.D.-B.P.20
L-4801 RODANGE Luxembourg
Tel: +352 26 30 29 03

infosafetydatasheet.albv@airliquide.com

www.airliquide-benelux.com

1.4. Emergency telephone number

Country/Area	Organisation/Company	Address	Emergency number	Comment
Belgium	Centre Anti-Poisons/Antigifcentrum c/o Hôpital Militaire Reine Astrid	Rue Bruyn 1 1120 Bruxelles/Brussel	+32 70 245 245	Please dial: 070 245 245 for any urgent questions about intoxication (free of charge 24/7), if not accessible, dial: 02 264 96 30 (standard fee)
Luxembourg	Centre Anti-Poisons/Antigifcentrum c/o Hôpital Militaire Reine Astrid	Rue Bruyn 1 1120 Bruxelles/Brussel	+352 8002 5500	Free telephone number with a 24/7 access. Experts answer all urgency questions on dangerous products in French, Dutch and English
Netherlands	Nationaal Vergiftigingen Informatie Centrum	Huispostnummer Q03.2.315 Postbus 85500 3508 GA Utrecht	+31 88 755 80 00	Only for the purpose of informing medical personnel in cases of acute intoxications (24 hours a day, 7 days a week)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Physical hazards	Oxidising Gases, Category 1	H270
	Gases under pressure : Liquefied gas	H280
Health hazards	Acute toxicity (inhalation:gas) Category 4	H332
	Specific target organ toxicity – Repeated exposure, Category 2	H373

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS03

GHS04

GHS07

GHS08

Signal word (CLP) :

: Danger

Hazard statements (CLP) :

: 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.

Precautionary statements (CLP)

- Prevention : P260 - Do not breathe gas, vapours.
P244 - Keep valves and fittings free from oil and grease.
P220 - Keep away from clothing and other combustible materials.
- Response : P304+P340+P315 - IF INHALED : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice / attention.
P370+P376 - In case of fire: Stop leak if safe to do so.
- Storage : P403 - Store in a well-ventilated place.
- Supplemental information : Contains fluorinated greenhouse gases.

2.3. Other hazards

- Contact with liquid may cause cold burns/frostbite.
- Not classified as PBT or vPvB.
- The substance/mixture has no endocrine disrupting properties.
- Not classified as PMT or vPvM.

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP] ATE, EUH-statements, M-Factors
Nitrogen trifluoride	CAS-No.: 7783-54-2 EC-No.: 232-007-1 EC Index-No.: --- REACH registration No: 01-2119962459-23	100	Ox. Gas 1, H270 Press. Gas (Liq.), H280 Acute Tox. 4 (Inhalation:gas), H332 (ATE=3350 ppmv/4h) STOT RE 2, H373

Full text of H- and EUH-statements: see section 16

Contains no other components or impurities which will influence the classification of the product.

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

- Inhalation : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped.
- Skin contact : In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.
- Eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes.
- Ingestion : Ingestion is not considered a potential route of exposure.

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

- Delayed adverse effects possible.
- Prolonged or repeated exposure may affect the red blood cells and haemoglobin.
- See section 11.

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

- Obtain medical assistance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray or fog.
Product does not burn, use fire control measures appropriate for the surrounding fire.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

- Specific hazards : Supports combustion.
Exposure to fire may cause containers to rupture/explode.
- Hazardous combustion products : Hydrogen fluoride. Nitric oxide/nitrogen dioxide.

5.3. Advice for firefighters

- Specific methods : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.
If possible, stop flow of product.
Use water spray or fog to knock down fire fumes if possible.
Move containers away from the fire area if this can be done without risk.
- Special protective equipment for fire fighters : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus.
Standard EN 943-2: Protective clothing against liquid and gaseous chemicals, aerosols and solid particles. Gas-tight chemical protective suits for emergency teams.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel : Act in accordance with local emergency plan.
Try to stop release.
Evacuate area.
Eliminate ignition sources.
Ensure adequate air ventilation.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Stay upwind.
See section 8 of the SDS for more information on personal protective equipment.
- For emergency responders : Monitor concentration of released product.
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
See section 5.3 of the SDS for more information.

6.2. Environmental precautions

Try to stop release.

6.3. Methods and material for containment and cleaning up

Ventilate area.

6.4. Reference to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Safe use of the product

- : Do not breathe gas.
- Avoid release of product into atmosphere.
- Use only lubricants and sealings approved for the specific gas service.
- The product must be handled in accordance with good industrial hygiene and safety procedures.
- Only experienced and properly instructed persons should handle gases under pressure.
- Consider pressure relief device(s) in gas installations.
- Ensure the complete gas system was (or is regularly) checked for leaks before use.
- Do not smoke while handling product.
- Avoid exposure, obtain special instructions before use.
- Keep equipment free from oil and grease. For more guidance, refer to the EIGA Doc. 33 - Cleaning of Equipment for Oxygen Service downloadable at <http://www.eiga.eu>.
- Use no oil or grease.
- Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
- Avoid suck back of water, acid and alkalis.

Safe handling of the gas receptacle

- For more guidance on safe use, refer to the EIGA Doc.92 "Code of practice Nitrogen trifluoride", downloadable at <http://www.eiga.org>. and consult your supplier.
- : Do not allow backfeed into the container.
- Protect containers from physical damage; do not drag, roll, slide or drop.
- When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.
- Leave valve protection caps, when provided, in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.
- If user experiences any difficulty operating valve discontinue use and contact supplier.
- Never attempt to repair or modify container valves or safety relief devices.
- Damaged valves should be reported immediately to the supplier.
- Keep container valve outlets clean and free from contaminants particularly oil and water.
- Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.
- Close container valve after each use and when empty, even if still connected to equipment.
- Never attempt to transfer gases from one cylinder/container to another.
- Never use direct flame or electrical heating devices to raise the pressure of a container.
- Do not remove or deface labels provided by the supplier for the identification of the content of the container.
- Suck back of water into the container must be prevented.
- Open valve slowly to avoid pressure shock.

7.2. Conditions for safe storage, including any incompatibilities

- Observe all regulations and local requirements regarding storage of containers.
- Containers should not be stored in conditions likely to encourage corrosion.
- Container valve guards or caps, when provided, should be in place.
- Containers should be stored in the vertical position and properly secured to prevent them from falling over.
- Stored containers should be periodically checked for general condition and leakage.
- Keep container below 50°C in a well ventilated place.
- Segregate from flammable gases and other flammable materials in store.
- Store containers in location free from fire risk and away from sources of heat and ignition.
- Keep away from combustible materials.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Nitrogen trifluoride (7783-54-2)	
Belgium - Occupational Exposure Limits	
Local name	Azote (trifluorure d') # Stikstoftrifluoride
OEL TWA	29 mg/m ³
	10 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023

Nitrogen trifluoride (7783-54-2)	
DNEL: Derived no effect level (Workers)	
Acute - local effects, inhalation	44 mg/m ³
Acute - systemic effects, inhalation	44 mg/m ³
Long-term - local effects, inhalation	29 mg/m ³
Long-term - systemic effects, inhalation	29 mg/m ³

PNEC (Predicted No-Effect Concentration) : None established.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation.
Product to be handled in a closed system.
Systems under pressure should be regularly checked for leakages.
Ensure exposure is below occupational exposure limits (where available).
Gas detectors should be used when toxic gases may be released.
Consider the use of a work permit system e.g. for maintenance activities.

8.2.2. Individual protection measures, e.g. personal protective equipment

A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk.

The following recommendations should be considered:

PPE compliant to the recommended EN/ISO standards should be selected.

- Eye/face protection : Wear goggles when transfilling or breaking transfer connections.
Standard EN 166 - Personal eye-protection - specifications.
- Skin protection : Wear working gloves when handling gas containers.
Standard EN 388 - Protective gloves against mechanical risks, performance level 1 or higher. Recommended types include wrist gloves from leather or synthetic material with equivalent performance, fabric gloves, fabric gloves with leather palms.
- Hand protection
- Other : Consider the use of flame resistant safety clothing.
Standard EN ISO 14116 - Limited flame spread materials.
Wear safety shoes while handling containers.
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

- Respiratory protection : Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
Consult respiratory device supplier's product information for the selection of the appropriate device.
Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.
Keep self contained breathing apparatus readily available for emergency use.
Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.
- Thermal hazards : None in addition to the above sections.

8.2.3. Environmental exposure controls

Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
- Physical state at 20°C / 101.3kPa	: Gas.
- Colour	: Colourless.
Odour	: Mouldy.
Melting point / Freezing point	: -207 °C
Boiling point	: -129 °C
Flammability	: Non flammable.
Lower explosion limit	: Not applicable.
Upper explosion limit	: Not applicable.
Flash point	: Not applicable for gases and gas mixtures.
Auto-ignition temperature	: Non flammable.
Decomposition temperature	: Not applicable.
pH	: Not applicable for gases and gas mixtures.
Viscosity, kinematic	: No reliable data available.
Water solubility [20°C]	: 61 mg/l
Partition coefficient n-octanol/water (Log Kow)	: Not applicable for inorganic products.
Vapour pressure [20°C]	: Not applicable.
Vapour pressure [50°C]	: Not applicable.
Density and/or relative density	: Not applicable for gases and gas mixtures.
Relative vapour density (air=1)	: 2,4
Particle characteristics	: Not applicable for gases and gas mixtures. Nanoforms are not relevant for gases and gas mixtures.

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Oxidising properties	: Oxidiser.
- Coefficient of oxygen equivalency (Ci)	: 1,6
Critical temperature [°C]	: -39 °C

9.2.2. Other safety characteristics

Molar mass	: 71 g/mol
Other data	: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 10: Stability and reactivity

10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Violently oxidises organic material.

10.4. Conditions to avoid

Avoid moisture in installation systems.

10.5. Incompatible materials

May react violently with combustible materials.
May react violently with reducing agents.
Keep equipment free from oil and grease. For more guidance, refer to the EIGA Doc. 33 - Cleaning of Equipment for Oxygen Service downloadable at <http://www.eiga.eu>.
For additional information on compatibility refer to ISO 11114.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity : Harmful if inhaled.

Nitrogen trifluoride (7783-54-2)

LC50 Inhalation - Rat [ppm]	6700 ppm/1h (ADR) 3350 ppm/4h (CLP)
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Skin corrosion/irritation : No known effects from this product.
Serious eye damage/irritation : No known effects from this product.
Respiratory or skin sensitisation : No known effects from this product.
Germ cell mutagenicity : No known effects from this product.
Carcinogenicity : No known effects from this product.
Toxic for reproduction : Fertility : No known effects from this product.
Toxic for reproduction : unborn child : No known effects from this product.
STOT-single exposure : Damage to red blood cells (haemolytic poison).
STOT-repeated exposure : Prolonged or repeated exposure may affect the red blood cells and haemoglobin.
May cause damage to organs through prolonged or repeated exposure.
Target organ(s) : heart.
liver.
blood.
Aspiration hazard : Not applicable for gases and gas mixtures.

11.2. Information on other hazards

Other information : The substance/mixture has no endocrine disrupting properties.

SECTION 12: Ecological information

12.1. Toxicity

Assessment : No ecological damage caused by this product.
EC50 48h - Daphnia magna [mg/l] : No data available.
EC50 72h - Algae [mg/l] : No data available.
LC50 96 h - Fish [mg/l] : No data available.

12.2. Persistence and degradability

Assessment : Not applicable for inorganic products. Study scientifically unjustified.

12.3. Bioaccumulative potential

Assessment : Study scientifically unjustified.
Product is an inorganic gas with a low potential to bioaccumulate in aquatic species.

12.4. Mobility in soil

Assessment : Because of its high volatility, the product is unlikely to cause ground or water pollution.
Partition into soil is unlikely.

12.5. Results of PBT and vPvB assessment

Assessment : Not classified as PBT or vPvB.

12.6. Endocrine disrupting properties

Assessment : The substance/mixture has no endocrine disrupting properties.

12.7. Other adverse effects

Other adverse effects : Not classified as PMT or vPvM.
Effect on the ozone layer : No effect on the ozone layer.
Global warming potential [CO₂=1] : 17400
Effect on global warming : When discharged in large quantities may contribute to the greenhouse effect.
Contains greenhouse gas(es).
Contains fluorinated greenhouse gases listed in Regulation 2024/573.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Contact supplier if guidance is required.
Discharge to atmosphere in large quantities should be avoided.
Must not be discharged to atmosphere.
Ensure that the emission levels from local regulations or operating permits are not exceeded.
Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.org> for more guidance on suitable disposal methods.
Return unused product in original container to supplier.
List of hazardous waste codes (from Commission Decision 2000/532/EC as amended) : 16 05 04 *: Gases in pressure containers (including halons) containing hazardous substances.

13.2. Additional information

External treatment and disposal of waste should comply with applicable local and/or national regulations.

SECTION 14: Transport information

14.1. UN number or ID number

In accordance with ADR / RID / IMDG / IATA / ADN
UN-No. : 2451

14.2. UN proper shipping name

Transport by road/rail/inland waterways (ADR/RID/ADN) : NITROGEN TRIFLUORIDE
Transport by air (ICAO-TI / IATA-DGR) : Nitrogen trifluoride
Transport by sea (IMDG) : NITROGEN TRIFLUORIDE

14.3. Transport hazard class(es)

Labelling



2.2 : Non-flammable, non-toxic gases.
5.1 : Oxidizing substances.

Transport by road/rail/inland waterways (ADR/RID/ADN)

Class : 2
Classification code : 20
Hazard identification number : 25
Tunnel Restriction : C/E - Tank carriage: Passage forbidden through tunnels of category C, D and E. Other carriage: Passage forbidden through tunnels of category E

Transport by air (ICAO-TI / IATA-DGR)

Class / Div. (Sub. risk(s)) : 2.2 (5.1)

Transport by sea (IMDG)

Class / Div. (Sub. risk(s)) : 2.2 (5.1)
Emergency Schedule (EmS) - Fire : F-C
Emergency Schedule (EmS) - Spillage : S-W

14.4. Packing group

Transport by road/rail/inland waterways (ADR/RID/ADN) : Not applicable.
Transport by air (ICAO-TI / IATA-DGR) : Not applicable.
Transport by sea (IMDG) : Not applicable.

14.5. Environmental hazards

Transport by road/rail/inland waterways (ADR/RID/ADN) : None.
Transport by air (ICAO-TI / IATA-DGR) : None.
Transport by sea (IMDG) : None.

14.6. Special precautions for user

Packing Instruction(s)

Transport by road/rail/inland waterways (ADR/RID/ADN) : P200.
Transport by air (ICAO-TI / IATA-DGR)
Passenger and Cargo Aircraft : 200.
Cargo Aircraft only : 200.
Transport by sea (IMDG) : P200.

Special transport precautions

: 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 there is adequate ventilation.
- Ensure that containers are firmly secured.
- Ensure valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

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

EU-Regulations

Restrictions on use : None.
 Other information, restriction and prohibition regulations : Not listed on the PIC list (Regulation EU 649/2012).
 : Not listed on the POP list (Regulation EU 2019/1021).
 Seveso Directive : 2012/18/EU (Seveso III) : Covered.

Seveso III Part I (Categories of dangerous substances)	Qualifying quantity (tonnes)	
	Lower-tier	Upper-tier
P4 OXIDISING GASES Oxidising gases, Category 1	50	200

National regulations

Regulatory reference : Ensure all national/local regulations are observed.

15.2. Chemical safety assessment

A CSA has been carried out.

SECTION 16: Other information

Indication of changes : Revised safety data sheet in accordance with commission regulation (EU) No 453/2010.

Section	Changed item	Comments
	GWP 100 years	Modified
	Revision date	Modified
	Supersedes version of	Modified
	Endocrine disrupting properties	Added
	Effect on global warming	Modified
2	Supplemental information	Added
2.3	Other hazards which do not result in classification	Modified
7	Safe handling of the gas receptacle	Modified
8	OEL TWA	Added
8	OEL TWA	Added
8	Regulatory reference	Added
8	Local name	Added
8.2	Hand protection	Modified
9	Partition coefficient n-octanol/water (Log Pow)	Modified
9	Particle characteristics	Added
9	Upper explosive limit (UEL)	Added

9	Lower explosive limit (LEL)	Added
9	Density	Added
9	Partition coefficient n-octanol/water (Log Kow)	Added
9.1	Explosive limits (vol %)	Removed
9.1	Decomposition temperature	Modified
11.1	LC50 Inhalation - Rat [ppm]	Modified
12.7	Other adverse effects	Modified
14	Limited quantities (ADN)	Added
14	Danger labels (ADN)	Added
14	Excepted quantities (ADN)	Added
14	Equipment required (ADN)	Added
14	Classification code (ADN)	Added
14	Number of blue cones/lights (ADN)	Added
14	Classification code (RID)	Added
14	Colis express (express parcels) (RID)	Added
14	Excepted quantities (RID)	Added
14	Hazard identification number (RID)	Added
14	Limited quantities (RID)	Added
14	Mixed packing provisions (RID)	Added
14	Packing instructions (RID)	Added
14	Special provisions for carriage - Loading, unloading and handling (RID)	Added
14	Proper Shipping Name (RID)	Added
14	Portable tank and bulk container instructions (RID)	Added
14	Special provisions (RID)	Added
14	Tank codes for RID tanks (RID)	Added
14	Special provisions for RID tanks (RID)	Added
14	Transport category (RID)	Added
14	UN-No. (RID)	Modified
14.1	UN-No. (ADN)	Added
14.2	Proper Shipping Name (ADN)	Added
14.6	Special provisions (ADN)	Added
16	Abbreviations and acronyms	Modified

Abbreviations and acronyms

: ATE - Acute Toxicity Estimate.
 CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008.
 REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 EINECS - European Inventory of Existing Commercial Chemical Substances.
 CAS# - Chemical Abstract Service number.
 PPE - Personal Protection Equipment.
 LC50 - Lethal Concentration to 50 % of a test population.
 RMM - Risk Management Measures.
 PBT - Persistent, Bioaccumulative and Toxic.
 vPvB - Very Persistent and Very Bioaccumulative.
 STOT- SE : Specific Target Organ Toxicity - Single Exposure.
 CSA - Chemical Safety Assessment.
 EN - European Standard.
 UN - United Nations.
 ADR - Agreement concerning the International Carriage of Dangerous Goods by Road.
 IATA - International Air Transport Association.
 IMDG code - International Maritime Dangerous Goods.
 RID - Regulations concerning the International Carriage of Dangerous Goods by Rail.
 WGK - Water Hazard Class.
 STOT - RE : Specific Target Organ Toxicity - Repeated Exposure.
 UFI : Unique Formula Identifier.
 ADN -International Carriage of Dangerous Goods by Inland Waterways.
 PROC -Process category
 .
 ERC – Environmental release category.
 PMT - Persistent, Mobile and Toxic.
 vPvM – very Persistent and very Mobile.

Training advice

: Users of breathing apparatus must be trained.
 Ensure operators understand the toxicity hazard.

Further information

: Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP).
 Key literature references and sources of data are maintained in EIGA doc 169 :
 'Classification and Labelling Guide', downloadable at <http://www.Eiga.eu> .

Full text of H- and EUH-statements	
Acute Tox. 4 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 4
Ox. Gas 1	Oxidising Gases, Category 1
Press. Gas (Liq.)	Gases under pressure : Liquefied gas
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
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.

DISCLAIMER OF LIABILITY

: 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.

Annex to the safety data sheet

This Annex documents the Exposure Scenarios (ESs) related to the identified uses of the registered substance. The ESs detail protective measures for workers and the environment in addition to those described in sections 7, 8, 11, 12 and 13 of the SDS that are required to ensure that the potential exposure to workers and the environment remains within acceptable levels for each of the identified uses.

Table of contents of the Annex

Identified Uses	Es N°	Short title	ERC	PROC	Page
Formulation of mixtures in pressure receptacles	EIGA091-1	Industrial uses, closed contained conditions	ERC2	PROC1 PROC8b	15
Transfilling in pressure receptacles	EIGA091-1	Industrial uses, closed contained conditions	ERC2	PROC8b PROC9	15
Feedstock in chemical processes	EIGA091-1	Industrial uses, closed contained conditions	ERC4 ERC6a ERC6b	PROC1 PROC2 PROC3	15
Electronic component manufacture	EIGA091-1	Industrial uses, closed contained conditions	ERC6a	PROC1	15

1. EIGA091-1 - Industrial uses, closed contained conditions

1.1. Title section

Industrial uses, closed contained conditions

ES Ref.: EIGA091-1
ES Type: Worker - EIGA
Revision date: 11-2-2018

Processes, tasks, activities covered	Industrial uses, including product transfers and associated laboratory activities within different closed or contained systems
Assessment method	Used ECETOC TRA model MEASE

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Formulation into mixture (ERC2)

ERC2	Formulation into mixture
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Product (article) characteristics

Physical form of product	See section 9 of the SDS, No additional information
Concentration of substance in product	≤ 100 %

Amount used, frequency and duration of use (or from service life)

Annual site tonnage:	300
Emission Days (days/year)	100

Technical and organisational conditions and measures

Wastewater emission controls are not applicable as there is no direct release to wastewater	
Soil emission controls are not applicable as there is no direct release to soil	
Ensure operatives are trained to minimise releases	
Use appropriate abatement systems to ensure that the emission levels defined by local regulations are not exceeded.	

Conditions and measures related to sewage treatment plant

No additional information	
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Conditions and measures related to treatment of waste (including article waste)

See section 13 of the SDS. No additional information	
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Other conditions affecting environmental exposure

No additional information	
Closed systems are used in order to prevent unintended emissions	

1.2.2. Control of environmental exposure: Use of reactive processing aid at industrial site (no inclusion into or onto article) (ERC6b)

ERC6b	Use of reactive processing aid at industrial site (no inclusion into or onto article)
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Product (article) characteristics

Physical form of product	See section 9 of the SDS, No additional information
Concentration of substance in product	≤ 100 %

Amount used, frequency and duration of use (or from service life)

Annual site tonnage:	50
Emission Days (days/year)	20

Technical and organisational conditions and measures

Wastewater emission controls are not applicable as there is no direct release to wastewater	
Soil emission controls are not applicable as there is no direct release to soil	
Ensure operatives are trained to minimise releases	
Use appropriate abatement systems to ensure that the emission levels defined by local regulations are not exceeded.	

Conditions and measures related to sewage treatment plant

No additional information	
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Conditions and measures related to treatment of waste (including article waste)

See section 13 of the SDS. No additional information	
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Other conditions affecting environmental exposure

No additional information	
Closed systems are used in order to prevent unintended emissions	

1.2.3. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
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Product (article) characteristics

Physical form of product	See section 9 of the SDS, No additional information
Concentration of substance in product	≤ 100 %

Exposure scenario

Nitrogen trifluoride

Annex to the safety data sheet

Reference number: EIGA091-ALBNL

CAS-No.: 7783-54-2 Product form: Substance Physical state: Gas

Amount used (or contained in articles), frequency and duration of use/exposure

The actual tonnage handled per shift is not considered to influence the exposure as such for this scenario. Instead, the combination of the scale of operation and level of containment/automation (as reflected in the technical conditions) is the main determinant of the process-intrinsic emission potential.	
Exposure duration	≤ 8 h/day
Covers frequency up to:	5 days/week

Technical and organisational conditions and measures

Handle product within a closed system	
Apply a good standard of general or controlled ventilation when maintenance activities are carried out.	
See sections 2 and 7 of the SDS.	
Ensure operatives are trained to minimise exposure	
Ensure supervision is in place to check that the RMMs are in place and are being used correctly and that the OCs are being followed	

Conditions and measures related to personal protection, hygiene and health evaluation

See section 8 of the SDS.	
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Other conditions affecting workers exposure

Indoor use	
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1.3. Exposure estimation and reference to its source

No data available

1.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

1.4.1. Environment

Guidance - Environment	Check that RMMs and OCs are as described above or of equivalent efficiency
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1.4.2. Health

Guidance - Health	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. For scaling see : http://www.ecetoc.org/tra . http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php
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End of document