2,4,6-Trinitrotoluene

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

1.1. Product identifier

International Chemical Identification	2,4,6–trinitrotoluene; TNT
Index Number	609-008-00-4
Number EC	204-289-6
Number CAS	118-96-7
Number ONZ	0209
Another name	Trotyl, TNT, 2,4,6-trinitrotoluene, 2-methyl-1,3,5-trinitrobenzene
Chemical name	$C_7H_5N_3O_6$
Registration number	01-2119860061-49-0000

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

Bursting explosive. Use to production of explosives materials and ammunitions, including formulation of mixtures. Formulation of explosive materials and ammunitions (e.g. flaking, tabletting, compression, extrusions, filling of bodies of artillery ammunition). Industrial and professional uses by professional workers.

1.3. Details of the supplier of the safety data sheet

Zakłady Chemiczne „NITRO-CHEM" S.A.; ul. Theodora Wulffa 18; 85-862 Bydgoszcz; Poland
tel. +48 (52) 374 76 60, fax. +48 (52) 361 11 24
Person responsible for the Safety Data Sheet: Beata Wasilewska, e-mail : wasilewska@nitrochem.com.pl

1.4. Emergency telephone number

tel. +48 (52) 374 76 60 (weekday during office hours 7.00 a.m. – 3.00 p.m.)

SECTION 2: Hazard Identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 (CLP)	
Hazard Class and Category Code(s) (read in section 16)	Hazard statement Code(s) (read in section 16)
Expl. 1.1	H201
Acute Tox. 3	H331
Acute Tox. 3	H311
Acute Tox. 3	H301
STOT RE 2	H373
Repr. 2	H361d
Aquatic Chronic 2	H411

Hazard statement Codes (H) and used contractions read in point 16.

2.2. Label elements

2,4,6-trinitrotoluene; TNT
EC No: 204-289-6

DANGER

H201 Explosive; mass explosion hazard.
H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
H361d Suspected of damaging the unborn child.
H373 May cause damage to organs (liver, eyes, nervous system, circulatory system) through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273 Avoid release to the environment.
P370+P372+P380+P373 In case of fire: Explosion risk. Evacuate area. DO NOT fight fire when fire reaches explosives.
P312 Call a POISON CENTER/doctor if you feel unwell.
P501 Dispose of contents/container to an authorized organization.

2.3. Other hazards

- High bursting explosive. Risk of explosion by shock, friction or fire. Burning of small amounts in the open is safe burning of small amounts in a closed area or burning of large amounts results in explosion
- Substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII REACH Regulation.
- Toxic combustion products: Nitric oxides(NO_x), Carbon oxides (CO, CO_2).

SECTION 3: Composition/information on ingredients

3.1. Substances

International Chemical Identification	Product identifier				Concentration
	EC No	CAS No	ONZ No	Index No	
CONSTITUENTS					
2,4,6-trinitrotoluene, TNT	204-289-6	118-96-7	0209	609-008-00-4	ca. 99,8%

SECTION 4: First aid measures

4.1. Description of first aid measures

First aid instructions by routes of exposure.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Ensure patency of respiratory tract, protect against heat loss. In case of breathing depression if possible administer oxygen until normal breathing is resumed. If necessary, make artificial respiration. **Call a POISON CENTER or doctor/physician.**

IF ON SKIN: Gently wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

IF CONTACT WITH EYES: Immediately wash with plenty of pure water for at least 15 minutes. Get medical advice/attention if you feel unwell. Contamination of eyes results in lachrymation, pain, redness of conjunctivas with a risk of damage to cornea.

IF SWALLOWED: After swallowing try to remove poison as soon as possible inducing vomiting (by administering water or water with medicinal charcoal and then provoking vomits by irritating posterior throat wall, e.g., with a finger). **Do not administer milk or alcohol**. Rinse mouth. **Immediately call a POISON CENTER or doctor/physician.**

Additional advice

Immediate medical attention is needed in the case of: oral exposure, problems with breathing, the occurrence of allergic symptoms such as edema, loss of consciousness and other symptoms indicating a health condition aggravated. If inhalation exposure: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

Ways of exposure

Skin, respiratory tract, gastrointestinal duct**,** eyes.

Inhalation risk

Dust and possibly vapours cause coughing, headache, vomiting and shortness of breath, related to methemoglobinemia.

Swallowing risk

It may cause nausea, vomiting, headache and difficulties with breathing.

Contact with skin and eyes

Skin contamination causes its flushing and gradually increasing blue colouring, together with headache and shortness of breath. Contamination of eyes results in lachrymation, pain, redness of conjunctivas with a risk of damage to cornea.

Health effects of acute exposure

Poisoning may result in haemolytic or aplastic anaemia, liver damage.

Health effects of chronic exposure

Liver damage, anaemia, polyneural changes, chronic dermatitis, cataract.

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

General recommendation

In case of doubt or if symptoms persist, get medical advice. Show this material substance data sheet or label.

Recommendation for medical

The problems with breathing, administer oxygen.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Carbon dioxide, extinguishing powders, medium or heavy foams, diffused water currents

Minor fire (a laboratory sample): extinguish with powder or carbon dioxide extinguisher.

Major fire: Do not attempt to extinguish large fire, evacuate area.

Unsuitable extinguishing media:

Light foams, compact water currents.

5.2. Special hazards arising from the substance or mixture

Explosion risk in case of fire. **DO NOT fight fire when fire reaches explosives.** If it is not possible to contain the fire very quickly, immediately withdraw from the area on fire, **evacuating everybody to the distance of minimum 800 m.**

Combustion products: Carbon oxides (CO, CO_2), nitric oxides(NO_x).

5.3. Advice for firefighters

Explosion risk in case of fire. **DO NOT fight fire when fire reaches explosives.** If it is not possible to contain the fire very quickly, immediately withdraw from the area on fire, **evacuating everybody to the distance of minimum 800 m.**

Minor fire (a laboratory sample): extinguish with powder or carbon dioxide extinguisher.

Major fire: **Do not attempt to extinguish large fire, evacuate area.**

Special protective equipment for firemen: respiratory tract protection, face and head protection, protective clothing.

SECTION 6: **Accidental release measures**

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Use personal protective equipment as is recommended at point 8.

Avoid contacting with skin, eyes, breathing dust.

Remove sources of ignition, extinguish open fire, impose ban on smoking and on use of sparking equipment, avoid direct contact with released material.

For emergency responders

Use follows personal protective equipment: Non-static clothes (cotton), leather or rubber footwear, rubber gloves. When pouring or sieving dry trinitrotoluene use dust-proof mask or half-mask.

6.2. Environmental precautions

Do not wash into sewer. Do not let this chemical enter the environmental.

6.3. Methods and material for containment and cleaning up

Pick up spilled material into a sealed container using non-sparking tools and hand over to professional services for destroying. Contaminated product cannot be used in production.

6.4. Reference to other sections

When removing contamination, use with personal protection measures in accordance with the section 8.

Collected wastes remove in accordance with section 13.

SECTION 7: **Handling and Storage**

7.1. Precautions for safe handling

Work in a well-ventilated place, do not use sparking tools; avoid exposure to open fire, high temperatures, mechanical influences or friction. Don't smoke. **Warning! Explosion risk.**

Avoid spilling and dusting of the substance, don't breathe dust.

Avoid release to the environment.

When handling, do not eat or drink, avoid contact with the material, avoid inhaling of vapours and dust, observe personal hygiene principles, use personal protective equipment in accordance with the section 8. Don't smoke. After use, wash hands and take of f protective clothes and personal protective equipment before entering into lunchroom.

7.2. Conditions for safe storage, including any incompatibilities

Warehouse for explosives according to official regulations. Store in original sealed packaging in: dry, covered and protected from direct sunlight rooms, at temperature -25 ÷ 30°C. TNT storage temperature mustn't exceed 30°C due to the properties of TNT.

Materials assigned the same danger category can be stored in one storage area, storage in vicinity of concentrated acids, alkali, flammable things or substances is prohibited.

At the storage area don't smoke, don't eat, and don't use an open flame and sparking tools.

7.3. Specific end use(s)

Explosives.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

	NDS (limit value – eight hours) mg/m³	NDSch (limit value – short term) mg/m³	NDSP Threshold limit value – ceiling mg/m³
Poland*)	1	3	Not applicable
Germany (AGS)	0,1	0,2	-
USA (OSHA)	1,5	-	-

*) Rozporządzenie Ministra Rodziny, Pracy i Polityki Społecznej z dnia 12 czerwca 2018 r. w sprawie najwyższych dopuszczalnych stężeń i natężeń czynników szkodliwych dla zdrowia w środowisku pracy (Dz.U. 2018 poz. 1286, Dz.U. 2020 poz. 61).

The substance causes methemoglobinemia, the biological limit values: 2% MetHb in blood.

Monitoring in air at the workplace

PN-Z-04128-5: 1996 Air purity protection - Tests for content of nitrotoluenes - Determination of 2,4,6-trinitrotoluene in work places by gas chromatograph.

DNEL $_{worker}$ (inhalation, long-term, systemic effects): 0.04 mg/m3
DNEL $_{worker}$ (inhalation, acute, systemic effects): 0.1 mg/m3
DNEL $_{worker}$ (dermal, long-term, systemic effects): 0.01 mg/kg bw/day
DNEL $_{worker}$ (dermal, acute, systemic effects): 0.02 mg/kg bw/day
DNEL $_{consumer}$(inhalation, long-term, systemic effects): 0.01 mg/m3
DNEL $_{consumer}$ (inhalation, acute, systemic effects): 0.02 mg/m3
DNEL $_{consumer}$ (dermal, long-term, systemic effects): 0.01 mg/kg bw/day
DNEL $_{consumer}$ (dermal, acute, systemic effects): 0.01 mg/kg bw/day
DNEL $_{consumer}$ (oral, long-term, systemic effects): 0.01 mg/kg bw/day
DNEL $_{consumer}$ (oral, acute, systemic effects): 0.01 mg/kg bw/day
PNEC (fresh water): 0.1 µg/L
PNEC (marine water): 0.1 µg/L
PNEC (intermittent release): 4 µg/L
PNEC (sediment fresh water): 0.01 mg/kg sediment
PNEC (sediment marine water): 0.001 mg/kg sediment
PNEC (STP): 0.1 mg/L
PNEC (soil): 0.01 mg/kg soil
PNEC (oral): 620 g/kg food

8.2. Exposure controls

Technical solutions:

Local exhaust ventilation with an enclosed dust emission area and general ventilation are necessary. Inlets of a local ventilation system located at work surface or below it. Outlets of a general ventilation system in the upper part of the room and near the floor. The ventilation systems must meet requirements set for fire or explosion hazard. Workplace and methods should be developed to prevent contact with the product.

Personal protective equipment:

Non-static clothes (cotton), leather or rubber footwear, rubber gloves. When pouring or sieving dry trinitrotoluene use dust-proof mask or half-mask and safety goggles. Analytical and research work related to the heating of the substance and other hazardous work: use a face shield.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Yellow solid in flake
Odour	Of nitro-compounds

Odour threshold	Not known
pH	Not applicable
Melting point/ freezing point	80,4 °C
Boiling point	Not applicable
Flash point	240 °C
Evaporation rate	Not applicable
Flammability	Not applicable - Explosive material
Upper/lower flammability or explosive limits	Not known
Vapour pressure	0.00371 Pa at 20 °C
Vapour density	7,85 (air=1)
Density	1,64 g/cm^3 (cristaline) 0,7-0,8 g/cm^3 (bulk density)
Solubility(ies)	In water: 127 mg/L at 20 °C Dissolves in pyridine, acetone, methyl acetate, benzene, toluene, chlorobenzene, chloroform, ethyl ether, ethyl alcohol
Partition coefficient: n-octanol/water	Log Kow (Pow): 1.65 at 20 °C
Auto-ignition temperature	Not applicable - Explosive material
Decomposition temperature	311°C
Viscosity	Not applicable
Explosive properties	Heat of explosion: 4111 kJ/kg Volume of products of explosion: 739,5 dm^3/kg Sensitivity to shock : 14,7 J Sensitivity to friction : over 353N Mechanical sensitivity index Rm: 5,47 Sensitivity index Rw: 6,45 Thermal sensitivity index Rt: 7,60 Trauzl lead block 277 cm3 Hazard index: 0,82 Detonation speed : 6900 m/s
Oxidising properties	Not applicable - Explosive material

9.2. Other information

Not known.

SECTION 10: Stability and reactivity

10.1. Reactivity

Explosive. The substance reacts with reducers dangerously. Forms highly explosive compounds in reaction with water solutions of bases, alcoholates and metals, sensitive to mechanic and thermal induction. Substance isn't pyrophoric.

10.2. Chemical stability

The product is stable provided that the appropriate handling of the substance in accordance with the MSDS.

10.3. Possibility of hazardous reactions

Explosive. The substance reacts with reducers dangerously. Forms highly explosive compounds in reaction with water solutions of bases, alcoholates and metals, sensitive to mechanic and thermal induction.

10.4. Conditions to avoid

Avoid high temperatures. Do not subject to grinding, shock, friction or concussion. When heated and burned, highly toxic nitric oxide is released, explodes when heated to 240°C. Keep away from heat, sparks, open flames, hot surfaces. Substance is sensitive to mechanical and thermal stimuli.

10.5. Incompatible materials

Concentrated acids and alkalis, flammable objects and substances.

10.6. Hazardous decomposition products

Nitric oxides(NO_x), Carbon oxides (CO, CO_2).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Organism	Test Type	Route	Dose	Method
Rat	LD50	oral	795 mg/kg bw	OECD 401
Rat	LC50	inhalation, 4h	>1.01	OECD 403
Not applicable	LD50	skin	Not applicable	Not applicable

Hazard classes:
Acute toxicity cat.3: Toxic if swallowed.
Acute toxicity cat.3: Toxic in contact with skin.
Acute toxicity cat.3: Toxic if inhaled.

Skin corrosion/irritation

Based on available data, the classification criteria are not met. Can cause slight skin irritation.

Serious eye damage/irritation

Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met.
LOAEL: 10 mg/kg bw/day (oral, rat, method OECD 453)

Reproductive toxicity

Suspected of damaging the unborn child.
NOAEL: 4.5 mg/kg bw/day (oral, rat, method OECD 443)

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Specific target organ toxicity — repeated exposure cat 2: May cause damage to organs *(liver, eyes, nervous system, circulatory system)* through prolonged or repeated exposure.
NOAEL: 1 mg/kg bw/day (oral, rat, method OECD 408)

Aspiration hazard.

Based on available data, the classification criteria are not met.

Ways of exposure

Skin, respiratory tract, gastrointestinal duct**,** eyes.

Inhalation risk

Dust and possibly vapours cause coughing, headache, vomiting and shortness of breath, related to methemoglobinemia.

Swallowing risk

It may cause nausea, vomiting, headache and difficulties with breathing.

Contact with skin and eyes

Skin contamination causes its flushing and gradually increasing blue colouring, together with headache and shortness of breath.

Health effects of acute exposure

Poisoning may result in haemolytic or aplastic anaemia, liver damage.

Health effects of chronic exposure

Liver damage, anaemia, polyneural changes, chronic dermatitis, cataract.

SECTION 12: Ecological information

12.1. Toxicity

Test Organism	Environment	Based on	Test	Dose	Method
Fish					
Pimephales promelas	Freshwater	Mortality	96h LC50 10d LC50	2,7 mg/L 2,2 mg/L	EPA-821-R-02-012
Aquatic invertebrates					
Daphnia magna *Eohaustorius estuarius*	Freshwater Marine water	Immobility	48h LC50 28d NOEC	9.49 mg/L 0,0328 mg/L	OECD 202 EPA600/R-94/025
Algae					
Pseudokirchnerella subcapitata	Freshwater	Yield	EC50	0,19 mg/L	OECD 201
Soil macro-organisms (annelids)					
Eisenia andrei	Soil	Mortality Growth	14d LC50 56d NOEC	222,4 mg/kg 55 mg/kg	OECD 207 ISO 11268-2
Terrestial plants					
Medicago sativa L	Land	Seedling	5d EC50	50 mg/kg	EPA OPPTS 850.4100
Soil micro-organisms					
Field soils	Soil	Nitrification activity	7d NOEC	0,4 mg/kg	Other
Birds					
Colinus virginianus	Land	Mortality	90d NOAEL	>=7 mg/kg	90-d toxicity

Hazardous to the aquatic environment. Chronic aquatic toxicity cat.2: Toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

The compound is hardly biodegradable (17.52%). It stays in the environment for a long time. Therefore, avoid passing of this compound to surface water and soil.

12.3. Bioaccumulative potential

The distribution ratio of K_{ow} = 1.65 indicates that the compound accumulation level in plant and animal tissue, as well as compound accumulation and transfer in alimentary chain, should not be high.

12.4. Mobility in soil

2,4,6-trinitrotoluene may pass to the air due to detonation, open burning and shell emptying. Also, dust and gases may pass to the atmosphere, when emptying the shells. Water may be polluted by contaminated wastewater from production and/or processing. 2,4,6-trinitrotoluene may pass to the soil due to detonation and open burning.

Due to relatively low vapour pressure (0,00371 Pa at 20°C) and relatively high solubility in water (127 mg/l at 20°C), passing of 2,4,6-trinitrotoluene from water surface to the air is not expected. Also, passing of 2,4,6-trinitrotoluene from water to the sediment or soil in a considerable degree is not expected, on the basis of the value of absorptivity by active carbon.

12.5. Results of PBT and vPvB assessment

Substance does not meets the criteria for PBT or vPvB in accordance with Annex XIII REACH Regulation.

12.6. Other adverse effects

Not known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste code: 16 04 03* – Other waste explosive (dangerous waste) – according to European list of wastes.
Waste codes for packaging:
Product is packaged in a taped plastic bag and a carton. **Avoid release the substance to the packaging that doesn't have contact with the substance.**

- Waste code for contaminated packaging
  15 01 10* Packaging containing residues of or contaminated by dangerous substances
- Waste codes for uncontaminated packaging
  15 01 01 Paper and cardboard packaging

Never dispose of wastes by draining to the sewage system, avoid contamination of surface water and soil.

Dispose of contents/container according to domestic and UE legislation i.e.:

- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.
- 000/532/EC: Commission Decision of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste (OJ L 226, 6.9.2000, p. 3–24)
- Consolidated text: Commission Decision of 21 April 1976 setting up a Committee on Waste Management (OJ L 115, 1.5.1976, p. 73).

SECTION 14: **Transport information**

Transport shall be carried out in accordance with legal regulations described in point 15.1, sub-point 5. For ADR/RID (transport by land), IMDG (transport by sea), transport shall be carried out in accordance with:

14.1. UN Number	0209
14.2. UN proper shipping name	TRINITROTOLUENE (TNT), dry or wetted with less than 30 % of water, by mass.
14.3. Transport hazard class(es) Classification code	1 1.1 D
14.4. Packing group	-
14.5. Environmental hazards	ENVIRONMENTALLY HAZARDUS.
14.6. Special precautions for user	No smoking, use of fire and open flame.
14.7. Transport in bulk according to Annex II of Marpol and the IBC Code	Not expected any transport in bulk.

SECTION 15: Regulatory information

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

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission, with changes.
- Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006, with changes.
- Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC
- International transport regulations RID, ADR and IMDG
- Directive **2012/18/EU (Seveso III) OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently**

repealing Council Directive 96/82/EC (According to Directive Seveso the product is classified as explosive – section P1a)

15.2 Chemical safety assessment

Chemical safety assessment has been carried out.

SECTION 16: Other information

Explanation to used Hazard Classes

Expl. Explosive
Acute Tox. Acute toxicity
STOT RE Specific target organ toxicity — repeated exposure
Aquatic Chronic Hazardous to the aquatic environment. Chronic aquatic toxicity.

Explanation to Hazard statement Codes (H)

H201 Explosive; mass explosion hazard.
H301 Toxic if swallowed.
H331 Toxic if inhaled.
H311 Toxic in contact with skin.
H361d Suspected of damaging the unborn child.
H373 May cause damage to organs *(liver, eyes, nervous system, circulatory system)* through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

Legend to abbreviations and acronyms used in the safety data sheet

NDS Occupational Exposure Limit (Poland)
NDSCh Short-term Occupational Exposure Limit (Poland)
NDSP Threshold limit value – ceiling (Poland)
vPvB Very persistent and very bioaccumulative (substance)
PBT Persistent, bioaccumulative and toxic (substance)
PNEC Predicted No Effect Concentration
DNEL Derived No Effect Levels
LD50 Lethal dose 50%
LC50 Median lethal concentration. The concentration causing 50 % lethality.
NOEC No observed effect concentration
NOAEC No observed adverse effect concentration
LOAEL Lowest observed adverse effect level
BCF Bioconcentration factor
OSHA Occupational Safety and Health Administration – USA
AGS Committee stage for hazardous substances - Germany (Auschuss für Gefahrstoffe)

Advices concern training

Training concern applied explosive materials

Recommendations to apply restriction

All explosives are dangerous and must be carefully handled and used following approved safety procedures either by or under the direction of competent, experienced persons in accordance with all applicable federal, state, and local laws, regulations, or ordinances.

More information

www.nitrochem.com.pl; e-mail: nitrochem@nitrochem.com.pl

Database

Chemical safety report

Changes made in the safety data sheet during revision

Version 12: the labelling has been updated; changes at sections:2,5,8,14,16.
Version 12.1: The name of the document has been changed, changes at sections: 1.3 and 16.

Version 12.2: sections: 1.3, 2.1, 2.2, 8.1, 11, 13, 15, 16.

Enclosed exposure scenarios are an integral part of the safety data sheet.