MATERIAL SAFETY DATA SHEET

2,4,6-Trinitrotoluene

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

1.1. Product identifier

<table>
<thead>
<tr>
<th>International Chemical Identification</th>
<th>2,4,6-trinitrotoluene; TNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index Number</td>
<td>609-008-00-4</td>
</tr>
<tr>
<td>Number EC</td>
<td>204-289-6</td>
</tr>
<tr>
<td>Number CAS</td>
<td>118-96-7</td>
</tr>
<tr>
<td>Number ONZ</td>
<td>0209</td>
</tr>
<tr>
<td>Another name</td>
<td>Trotyl, TNT, 2,4,6-trinitrotoluene, 2-methyl-1,3,5-trinitrobenzene</td>
</tr>
<tr>
<td>Chemical name</td>
<td>C7H5N3O6</td>
</tr>
<tr>
<td>Registration number</td>
<td>01-2119860061-49-0000</td>
</tr>
</tbody>
</table>

The registration number for tonnage band under 10 tonnes/year; obligation to update registration dossier under 1000 tonnes/year – deadline to 1st June 2013.

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

1.3. Details of the supplier of the safety data sheet

Zakłady Chemiczne „NITRO-CHEM” S.A. 85-825 Bydgoszcz, ul. Wojska Polskiego 65a
tel. (052) 374 76 60, fax. (052) 361 11 24
Person responsible for the Material Safety Data Sheet:
Beata Wasilewska, e-mail: wasilewska@nitrochem.com.pl
Teresa Soczka, e-mail: t.soczka@nitrochem.com.pl

1.4. Emergency telephone number

tel. (052) 374 76 60 (weekday 7.00 a.m. – 3.00 p.m.)
tel. (01) 406 43 43 – Poisoning Head Office in Wien: Vergiftungsinformationzentrale VIZ

SECTION 2: Hazard Identification

Risks
- Explosive; mass explosion hazard.
- Toxic by inhalation, in contact with skin or if swallowed.
- May cause damage to organs (liver, eyes, nervous system, circulatory system) through prolonged or repeated exposure.
- Toxic to aquatic life with long lasting effects.

Fire 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.
2.1. Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Hazard Class and Category Code(s) (read in point 16)</th>
<th>Hazard statement Code(s) (read in point 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expl. 1.1</td>
<td>H201</td>
</tr>
<tr>
<td>Acute Tox. 3</td>
<td>H331</td>
</tr>
<tr>
<td>Acute Tox. 3</td>
<td>H311</td>
</tr>
<tr>
<td>Acute Tox. 3</td>
<td>H301</td>
</tr>
<tr>
<td>STOT RE 2</td>
<td>H373</td>
</tr>
<tr>
<td>Aquatic Chronic 2</td>
<td>H411</td>
</tr>
</tbody>
</table>

According to Directive 67/548/EEC

<table>
<thead>
<tr>
<th>Warning symbols (read in point 16)</th>
<th>Danger symbols (R) (read in point 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>R2</td>
</tr>
<tr>
<td>T</td>
<td>R23/24/25</td>
</tr>
<tr>
<td>N</td>
<td>R33</td>
</tr>
<tr>
<td></td>
<td>R51-53</td>
</tr>
</tbody>
</table>

2.2. Label elements

2,4,6-trinitrotoluene; TNT
Index No: 609-008-00-4

![Danger Symbols]

DANGER

H201 Explosive; mass explosion hazard.
H301 Toxic if swallowed.
H311 Toxic in contact with skin.
H331 Toxic if inhaled.
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/sparks/open flames/hot surfaces. — No smoking.
P273 Avoid release to the environment.
P370+P380 In case of fire: Evacuate area.
P373 DO NOT fight fire when fire reaches explosives.
P309+P311 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
P501 Dispose of contents/container in accordance with national and international regulation.

2.3. Other hazards

- PBT and vPvB assessment haven’t carried out yet. The deadline required hasn’t passed.
- Toxic combustion products: Nitric oxides (NOₓ), Carbon oxides (CO, CO₂).
SECTION 3: Composition/information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>International Chemical Identification</th>
<th>Identyfikator substancji</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSTITUENTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,4,6-trinitrotoluene, TNT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EC No</th>
<th>CAS No</th>
<th>ONZ No</th>
<th>Index No</th>
<th>Ca. 99.8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>204-289-6</td>
<td>118-96-7</td>
<td>0209</td>
<td>609-008-00-4</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

4.1.1. 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 10 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.

4.1.2. 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: Fire-fighting measures

5.1. Extinguishing media

**Suitable extinguishing media:**
Carbon dioxide, extinguishing powders, medium or heavy foams, diffused water currents

**Minor fire:** 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, CO₂), nitric oxides(NOₓ).

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:** extinguish with powder or carbon dioxide extinguisher.

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

**Special protective equipment for firemen:** Gas-tight protective suit with breathing apparatus insulating respiratory tract, face and head protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. 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.

6.1.2. 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

7.1.1. 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.
7.1.2. 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 off 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. Relative humidity of storage of TNT mustn’t exceed 50%.
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 uses

Not expected any specific uses.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th></th>
<th>NDS (limit value – eight hours) mg/m³</th>
<th>NDSch (limit value – short term) mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poland*</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Germany (AGS)</td>
<td>0,1</td>
<td>0,2</td>
</tr>
<tr>
<td>USA (OSHA)</td>
<td>1,5</td>
<td>-</td>
</tr>
</tbody>
</table>

OSHA – Occupational Safety and Health Administration – USA
AGS – Committee stage for hazardous substances- Germany (Auschuss für Gefahrstoffe)

The biological limit values haven’t been determined.

Monitoring in air at the workplace

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

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 works related to the heating of the substance carry out in a fume cupboard.
SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Yellow solid in flake</td>
</tr>
<tr>
<td>Odour</td>
<td>Of nitro-compounds</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Missing data</td>
</tr>
<tr>
<td>pH</td>
<td>Does not concern</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Decompose at 311 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>240 °C</td>
</tr>
<tr>
<td>Flammability</td>
<td>Explosive material</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Heat of explosion: 4111 kJ/kg</td>
</tr>
<tr>
<td></td>
<td>Volume of products of explosion: 739,5 dm³/kg</td>
</tr>
<tr>
<td></td>
<td>Sensitivity to shock : 14,7 J</td>
</tr>
<tr>
<td></td>
<td>Sensitivity to friction : over 353N</td>
</tr>
<tr>
<td></td>
<td>Mechanical sensitivity index Rm: 5,47</td>
</tr>
<tr>
<td></td>
<td>Sensitivity index Rw: 6,45</td>
</tr>
<tr>
<td></td>
<td>Thermal sensitivity index Rt: 7,60</td>
</tr>
<tr>
<td></td>
<td>Trauzl lead block 277 cm³</td>
</tr>
<tr>
<td></td>
<td>Hazard index: 0,82</td>
</tr>
<tr>
<td></td>
<td>Detonation speed : 6900 m/s</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not concern</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>1,99x10⁻⁴ mm Hg</td>
</tr>
<tr>
<td>Relative density</td>
<td>1,65 g/cm³ (cristaline)</td>
</tr>
<tr>
<td></td>
<td>0,7-0,8 g/cm³</td>
</tr>
<tr>
<td>Solubility</td>
<td>Dissolves in pyridine, acetone, methyl acetate, benzene, toluene, chlorobenzene, chloroform, ethyl ether, ethyl alcohol</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>130 mg/dm³ w temp 20 °C</td>
</tr>
<tr>
<td>Octanol-Water Partition Coefficient</td>
<td>1,86</td>
</tr>
<tr>
<td>log Kow</td>
<td>Missing data</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Missing data</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Relative vapour density (air=1): 7,85</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Missing data</td>
</tr>
</tbody>
</table>

9.2. Other information

Melting point/ freezing point: 80,20 °C

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.
SECTION 11: Toxicological information

10.5. Incompatible materials
Concentrated acids and alkalis, flammable objects and substances.

10.6. Hazardous decomposition products
Nitric oxides (NO\textsubscript{x}), Carbon oxides (CO, CO\textsubscript{2}).

### 11.1. Information on toxicological effects

#### Toxicological data

<table>
<thead>
<tr>
<th>Organism</th>
<th>Test Type</th>
<th>Route</th>
<th>Reported Dose (Normalized Dose)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat</td>
<td>LDLo</td>
<td>oral</td>
<td>1850mg/kg (1850mg/kg)</td>
<td>Special Report Series—Medical Research Council Vol. 58, Pg. 32, 1921.</td>
</tr>
<tr>
<td>Cat</td>
<td>LDLo</td>
<td>subcutaneous</td>
<td>200mg/kg (200mg/kg)</td>
<td>Special Report Series—Medical Research Council Vol. 58, Pg. 32, 1921.</td>
</tr>
<tr>
<td>Mouse</td>
<td>LD50</td>
<td>oral</td>
<td>660mg/kg (660mg/kg)</td>
<td>Journal of Toxicology and Environmental Health. Vol. 9, Pg. 565, 1982.</td>
</tr>
<tr>
<td>Rabbit</td>
<td>LDLo</td>
<td>oral</td>
<td>500mg/kg (500mg/kg)</td>
<td>Special Report Series—Medical Research Council Vol. 58, Pg. 32, 1921.</td>
</tr>
<tr>
<td>Rabbit</td>
<td>LDLo</td>
<td>subcutaneous</td>
<td>500mg/kg (500mg/kg)</td>
<td>Special Report Series—Medical Research Council Vol. 58, Pg. 32, 1921.</td>
</tr>
<tr>
<td>Rat</td>
<td>LD50</td>
<td>oral</td>
<td>607mg/kg (607mg/kg)</td>
<td>International Journal of Toxicology. Vol. 19, Pg. 169, 2000.</td>
</tr>
</tbody>
</table>

#### 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.
Specific target organ toxicity — repeated exposure cat 2: May cause damage to organs (liver, eyes, nervous system, circulatory system) through prolonged or repeated exposure.

#### Available data

**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 conjunctivias 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.
**SECTION 12: Ecological information**

### 12.1. Toxicity

<table>
<thead>
<tr>
<th>Test Organism</th>
<th>Habitat</th>
<th>Biological Endpoint</th>
<th>Statistical Endpoint</th>
<th>Results [μmol/l]</th>
<th>Referens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pimephales promelas</td>
<td>Fresh water</td>
<td>Survival</td>
<td>96h LC50</td>
<td>10,6</td>
<td>[3]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Behavior</td>
<td>96h EC50</td>
<td>2,0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total length</td>
<td>9mo NOEC</td>
<td>0,02</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9mo LOEC</td>
<td>0,06</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>96h LC50</td>
<td>3,5</td>
<td></td>
</tr>
<tr>
<td>Salamo gairdnerii</td>
<td>Fresh water</td>
<td>Survival</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arthropods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceriodaphnia dubia</td>
<td>Fresh water</td>
<td>Reproduct.</td>
<td>7d NOEC</td>
<td>7,2</td>
<td>[3]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7d LOEC</td>
<td>11,9</td>
<td></td>
</tr>
<tr>
<td>Bacteria</td>
<td>Marine</td>
<td>Bioluminesc.</td>
<td>5min EC50</td>
<td>47,6</td>
<td>[3]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15min EC50</td>
<td>3,3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15min LC50</td>
<td>3,4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30min EC50</td>
<td>12,4</td>
<td></td>
</tr>
</tbody>
</table>

**NOAEL** - no-observed-adverse-effect level  
**LOAEL** - lowest observed-adverse-effect level

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. 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 $K_{ow} = 1.86$ 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. According to R 33 classification, there is a danger of compound accumulation in the organism.

### 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 (1.99x10^-4 at 20°C) and relatively high solubility in water (130 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

PBT and vPvB assessment haven’t carried out yet. The deadline required hasn’t passed.

### 12.6. Other adverse effects

Missing data.

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**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.  
Never dispose of wastes by draining to the sewage system, avoid contamination of surface water and soil. Waste must be disposed of in accordance with federal, state and local environmental control regulations.

**Domestic regulations:**

- The Ordinance of the Minister of Environment on catalogue of wastes (Dz.U. 01.112.1206) dated in 27 September 2001.
**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:

<table>
<thead>
<tr>
<th>14.1. Number UN</th>
<th>0209</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2. Prawidłowa nazwa przewozowa UN</td>
<td>TRINITROTOLUENE (TNT), dry or wetted, containing less than 30 % of water by mass.</td>
</tr>
<tr>
<td>14.3. Transport hazard class(es)</td>
<td>1</td>
</tr>
<tr>
<td>Classification code</td>
<td>1.1 D</td>
</tr>
<tr>
<td>14.4. Packing group</td>
<td>-</td>
</tr>
<tr>
<td>14.5. Environmental hazards</td>
<td>ENVIRONMENTALLY HAZARDUS.</td>
</tr>
<tr>
<td>14.6. Special precautions for user</td>
<td>No smoking, use of fire and open flame.</td>
</tr>
<tr>
<td>14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</td>
<td>Not expected any transport in bulk.</td>
</tr>
</tbody>
</table>

**SECTION 15: Regulatory information**

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

- Act on chemical substances and preparations of 11.01.01 (Journal of Laws, No11 item 84), as amended (Journal of Laws, 2001, No 100 item 1085, No 123 item 1350, No 125 item 1367; 2002 No 135 item 1145, No 142 item 1187, 2003 No 189 item 1852, 2004 No 96 item 959, No 121 item 1263, 2005 No 179 item 1485, 2006 No 171 item 1225),
- All the working with the product must be carried out according to the rules of the regulation of Minister of Work and Social Politics of 26.09.1997 in case of general safety regulations and work hygiene (Journal of Laws, 1997 No 129 item 844), uniform text (Journal of Laws, 2003 No 169 item 1650), with the next changes (Journal of Laws, 2007 No 49 item 330).
- Regulation of Minister of Economy, Employment and Social Policy of 9.07.2003 on health and safety at work in manufacturing, internal transport and handling of explosives, including pyrotechnic products (Journal of Laws, 2003 No 163 item 1577)
- International transport regulations RID, ADR and IMDG

15.2. Chemical safety assessment

Chemical safety assessment hasn’t carried out yet. The deadline required hasn’t passed.
Explanation to used warning symbols

E Explosive
T Toxic
N Dangerous to environment

Explanation to danger symbols (R)

R 2 Risk of explosion by shock, friction, fire or other source of ignition
R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
R 33 Danger of cumulative effects
R 51/53 Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.

Explanation to used Hazard Classes

Expl. Explosive
Acute Toxic
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.
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.

Explanation to precautionary statements (P)

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P370+P380 In case of fire: Evacuate area.
P273 Avoid release to the environment.
P373 DO NOT fight fire when fire reaches explosives.
P309+P311 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
P501 Dispose of contents/container in accordance with national and international regulation.

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

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Database

and our learning.
Aim to achieve the Material Safety Data Sheet is description product only from the point of requirement of health, safety and environment protect.

Last changes

Point 1.1: registration number has been added;
Point 7.2 storage temperature has been changed.