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|  | SAFETY DATA SHEET | | Version: | 1.0 |
| | AUSTROGEL P | | Issued on: | 28.02.2018 |
| | | | Updated on: | - |
| | <i>This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006 REACH, as amended.</i> | | Page: | 1 of 19 |

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/ MIXTURE AND OF THE COMPANY/ UNDERTAKING.

1.1 Product identifier

| | |
|----------------------|---|
| Trade name: | AUSTROGEL P |
| Registration number: | Not applicable. |
| Contains: | Nitroglycerin, ethylene glycol dinitrate, nitrocellulose, ammonium nitrate. |

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

Products are used in underground and open-pit mining, tunnel drilling, demolition and seismic works. It is **forbidden** to use the products in conditions of firedamp and/ or coal dust explosion hazard.

1.3 Details of the supplier of the safety data sheet

| | | |
|-------------------|--|--------------------|
| Company name: | NITROERG S.A. | |
| Address: | pl. Alfreda Nobla 1 43-150 Bieruń Poland | |
| Production plant: | ul. Zawadzkiego 1 42-693 Krupski Młyn Poland | |
| Contact number: | Krupski Młyn | (+48) 32 46 62 103 |
| Fax: | Krupski Młyn | (+48) 32 46 62 100 |
| E-mail: | sds@nitroerg.pl | |

1.4 Emergency telephone number

| | |
|---------------------|---|
| NITROERG S.A. | +48 32 46 62 000 (6 ⁰⁰ - 15 ⁰⁰ , from Monday till Friday) |
| Police | Depends on the country. |
| Fire brigade | Depends on the country. |
| Ambulance services | Depends on the country. |
| Emergency services: | 112, 911 or 999 (from cell phone). |


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SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

| | |
|---|--|
| Expl. 1.1 H201 | Explosive, subclass 1.1 |
| Eye. Irrit. 2 H319 | Eye irritating, cat. 2. |
| Acute Tox. 2 H300 | Acute Toxicity, cat. 2 |
| Acute Tox. 1 H310 | Acute Toxicity, cat. 1 |
| Acute Tox. 2 H330 | Acute Toxicity, cat. 2 |
| STOT RE 2 H373 | Specific target organ toxicity - repeated exposure, cat. 2 |
| Aquatic Chronic 3 H412 | Chronic toxicity for aquatic life, cat. 3 |
| Full meaning of H- and P-phrases in sections 2 -15: see SECTION 16. | |

2.2 Label elements

| | | |
|----------------------|---|--|
| Hazard pictogram(s): |  | |
| Signal word: | DANGER | |
| H-phrases(s): | H201 | Explosive; mass explosion hazard. |
| P-phrases(s): | P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| | P370+P380 | In case of fire: Evacuate area. |
| | P372 | Explosion risk in case of fire. |
| | P373 | DO NOT fight fire when fire reaches explosives. |
| | P401 | Store to in accordance with national regulation. |
| | P501 | Dispose of contents/container to in accordance with national regulation. |

2.3 Other hazards.

The mixture explosive decomposes above 165 °C. During the heating and combustion, highly toxic carbon monoxide and nitrogen oxides are created.

SECTION 3: COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable.

3.2 Mixtures

| | | | |
|----------------------|-------------------------|---------------------------|-----------------------|
| Name: | Nitroglycerin | Ethylene glycol dinitrate | Nitrocellulose |
| IUPAC name: | 1,2,3-Trinitroxypropane | 1,2-dinitroxyethane | - |
| EC number: | 200-240-8 | 211-063-0 | - |
| CAS number: | 55-63-0 | 628-96-6 | 9004-70-0 |
| Registration number: | 01-2119488893-18-0000 | 01-2119492860-31-0001 | - |
| Classification: | Unst. Expl.; H200 | Unst. Expl.; H200 | Flam. Sol. 1; H228 |
| | Acute Tox. 2; H300 | Acute Tox. 2; H300 | - |
| | Acute Tox. 1; H310 | Acute Tox. 1; H310 | - |
| | Acute Tox. 2; H330 | Acute Tox. 2; H330 | - |
| | STOT RE 2; H373 | STOT RE 2; H373 | - |
| | Aquatic Chronic 2; H411 | - | - |
| Concentration [%]: | 18,0 ÷ 23,1 | 12,0 ÷ 15,4 | 0,8 ÷ 1,6 |
| EU limit values: | No data. | No data. | No data. |
| Name: | Ammonium nitrate | Magnesium nitrate | Ethylene glycol |
| IUPAC name: | Ammonium nitrate | Magnesium nitrate | Ethane-1,2-diol |
| EC number: | 229-347-8 | 233-826-7 | 203-473-3 |
| CAS number: | 6484-52-2 | 10377-60-3 | 107-21-1 |
| Registration number: | 01-2119490981-27-0025 | 05-2117368611-43-0000 | 01-2119456816-28-0004 |

| | | | |
|--------------------|--------------------|--------------------|-------------------------------------|
| Classification: | Ox. Sol. 3; H272 | Ox. Sol. 3; H272 | Acute Tox. 4; H302 |
| | Eye Irrit. 2; H319 | Eye Irrit. 2; H319 | STOT RE 2; H373 |
| Concentration [%]: | 52,5 ÷ 66,5 | < 2% | < 1,2% |
| EU limit values: | No data. | No data. | 52 mg/m ³ (8 hours) |
| | | | 104 mg/m ³ (temporarily) |

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

4.1.1 Intoxication by inhalation

Call medical assistance if any alarming symptoms occur, the injured person should be moved to fresh air and kept at rest. The products of thermal decomposition and detonation are highly toxic. In case of intoxication with those products, remove the person from the place of exposure and call medical service.

4.1.2 In contact with skin

Take off clothes and wash contaminated skin with running water with soap. In case of skin changes or malaise, contact a call medical service.

4.1.3 In contact with eyes

Rinse cautiously with large amount of running water for several minutes (avoid strong stream of water due to the risk of mechanical damage to the eye). Consult a doctor.

4.1.4 Intoxication by ingestion

Call a medical service. Immediately after ingestion give the injured person plenty of water to drink and activated charcoal if possible. Try to induce vomiting.

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

| SYMPTOMS | ROUTE OF EXPOSURE | EFFECTS |
|----------|-------------------|---|
| Acute | Inhalation | Blood vessel dilation, blood pressure drop, headache, mental break-down, loss of consciousness. |
| | Skin | Skin changes (irritation); absorption through skin gives similar symptoms as in intoxication by inhalation. |
| | Eyes | Lacrimation, eyes reddening. |
| | Oral | Irritation of mucous membranes of lips, esophagus and gastrointestinal |

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| | | tract. Other symptoms are similar as in intoxication by inhalation. |
| Delayed | Inhalation | Repeated or prolonged exposure to vapours of nitroglycerine and nitroglycol mixture may cause inurement. Slightly increased level of methemoglobin in blood may persist and so may changes in the nervous system and blood vessels, tremors and neurological pains, digestion disorders. |
| | Skin | Chronic allergic reactions and skin inflammations. |

4.3 Indication of any immediate medical attention and special treatment needed

The symptoms may not occur instantaneously, therefore the injured person should be observed for 48h. If breathing disorders occur intubate, apply CPR with oxygen. If arterial blood pressure drops considerably, administer liquids intravenously (5% glucose, 0.9% NaCl or Dextran 40000 or alternatively dopamine in intravenous drop). Transport to hospital in a resuscitation ambulance without discontinuing the treatment.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

| | |
|-------------|---|
| Suitable: | If the fire has not reached the product, use suitable extinguishing media and methods, prevent the fire from spreading onto the product. If the mixture is not involved in the fire use water from a safe distance, carbon dioxide, extinguishing powders, alcohol - resistant foams. |
| Unsuitable: | Do not use water near the electrical equipment and installations. |

5.2 Special hazards arising from the substance or mixture

Do not attempt to extinguish fire if it has covered the product due to explosion risk. Highly toxic nitrogen oxides and carbon oxide are created during thermal decomposition of the product.

5.3 Advice for firefighters

Do not attempt to extinguish fire if it has covered the product. Withdraw from the endangered area and let the material to burn out.

Use autonomic breathing apparatus together with gas-tight clothing, compliant with EN469 standard. Immediately evacuate all personnel from the endangered area. Use all the natural protection and covers, avoid direct contact with the location of the accident and order people to move away from the windows. Stop all the traffic and close the danger zone within the radius of 500 m. Evacuate unnecessary personnel.

In case of fire of the mean of transport, disconnect the tractor from the trailer and move the tractor to a safe place (if possible).

In case of fire of the wagon, disconnect it from the rest of the carriage and move it to a safe place (if possible).

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SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Not required. People who do not participate in failure handling should gather in an indicated place, away from the failure.

6.1.2 For emergency personnel

Use personal protection measures described in SECTION 8.

6.2 Environmental precautions

Inform the surroundings about the failure. Secure the explosive and area of the accident against unauthorized personnel.

6.3 Methods and material for containment and cleaning up

6.3.1 Removing contamination

In case of accidental release into environment:

| | |
|-------------------|---|
| Small quantities: | Remove all potential ignition sources (extinguish open fire, announce smoking ban). Avoid inhalation of fumes. If the packaging was damaged, carefully collect the scattered product (avoid sparking) and place it in a tight container (e.g. PE bag). While removing the failure use protection gloves. Dispose the explosive waste according to SECTION 13. |
|-------------------|---|

| | |
|-------------------|--|
| Large quantities: | In case of serious failure or danger, call emergency services. Do not allow the mixture to penetrate to sewage systems, surface and ground waters. |
|-------------------|--|

6.4 Reference to other sections

Personnal protection measures: see SECTION 8.

Waste disposal: see SECTION 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Do not eat, drink or smoke during handling the product. Follow the GHP and GMP rules. Use personal protection measures. Work in dry, well ventilated places to protect the product from dampness. Ensure the cleanliness of means of transport. Avoid mechanical shock, friction, high temperatures or any energetic stimuli which may cause detonation. Protect the product from adverse weather conditions (excessive lightning, rain, lightning, etc.)

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:

Store the product in original packaging in temperature range:

Austrogel P

0 °C ÷ 30 °C

Packaging:

Paper, film, plastic tube.

Requirements concerning the storage:

According to regulations on storage of explosives.

Storage class:

1

Storage with other materials:

Strictly with other class 1 materials, compatibility group C, D, E, G, N and S (according to ADR regulation)

Acceptable quantity:

Strictly defined by regulations.

7.3 Specific end use(s)

None.

SECTION 8: EXPOSURE CONTROL/ PERSONAL PROTECTION

8.1 Control parameters

8.1.1 For substance(s), mixture(s) or mixture components listed in SECTION 3.

| COMPONENT | CAS | TLV-TWA | TLV-STEL | TLV-C | BLV: |
|---------------------------|-----------|-------------------------|------------------------|-------|------|
| Nitroglycerin | 55-63-0 | 0,095 mg/m ³ | 0,19 mg/m ³ | - | - |
| Ethylene glycol dinitrate | 628-96-6 | 0,3 mg/m ³ | 0,4 mg/m ³ | - | - |
| Ammonium nitrate (dust) | 6484-52-2 | 10 mg/m ³ | - | - | - |
| Ethylene glycol | 107-21-1 | 15 mg/m ³ | 50 mg/m ³ | - | - |

8.1.2 For gaseous toxic compounds created during detonation.

| | | | |
|-----------------------|------------|---------------------------------|-----------------------|
| Substance: | | Nitrogen dioxide | Carbon monoxide |
| CAS/ Registration No. | | 10102-44-0 | 630-08-0 |
| Poland | TLV - TWA | 0,7 mg/m ³ (0,2 ppm) | 23 mg/m ³ |
| | TLV - STEL | 1,5 mg/m ³ | 117 mg/m ³ |

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|-----------|---------------------------------------|--|---|
| | TLV - C | - | - |
| Standard: | PN-Z-04009-11:2008 PN-Z-04317:2006 | PN-Z-04094-02:1974 PN-Z-04094-03:1974 | |
| BLV: | - | - | |

8.1.3 Legal basis

The Threshold Limit Value (TLV) of specific substances depends on the country and is regulated by local law. Please keep in mind, that the values given above for these particular chemical compounds, may be different in your country.

POLAND: Regulation of the Minister of Labour and Social Policy of 6 June 2014. On maximum permissible concentration and intensity of harmful factors in the work environment (Dz.U. 2017 nr 0 pos. 1348), as amended.


8.1.4 DNEL

Nitroglycerin

| For workers | EFFECT | ROUTE OF EXPOSURE | DNEL |
|--------------------------------|------------------|-------------------|----------------|
| | Systemic acute | Skin | 2,5 mg/kg/day |
| | Systemic chronic | Skin | 0,5 mg/kg/ day |
| For the rest of the population | Systemic chronic | Oral | 0,5 mg/kg/ day |

Ethylene glycol dinitrate

| For workers | EFFECT | ROUTE OF EXPOSURE | DNEL |
|--------------------------------|------------------|-------------------|-------------------------|
| | Systemic chronic | Skin | 0,06 mg/kg/ day |
| | Systemic chronic | Respiratory tract | 0,085 mg/m ³ |
| For the rest of the population | EFFECT | ROUTE OF EXPOSURE | DNEL |
| | Systemic acute | Oral | 0,015 mg/kg/ day |
| | Systemic chronic | Respiratory tract | 0,043 mg/m ³ |
| | Systemic chronic | Oral | 0,015 mg/kg/ day |

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Ammonium nitrate

| For workers | EFFECT | ROUTE OF EXPOSURE | DNEL |
|--------------------------------|------------------|-------------------|------------------------|
| | Systemic chronic | Skin | 21,3 mg/kg/ day |
| | Systemic chronic | Respiratory tract | 37,6 mg/m ³ |
| | Systemic chronic | Oral | 12,8 mg/kg/ day |
| For the rest of the population | EFFECT | ROUTE OF EXPOSURE | DNEL |
| | Systemic chronic | Skin | 12,8 mg/kg/ day |
| | Systemic chronic | Respiratory tract | 11,1 mg/m ³ |
| | Systemic chronic | Oral | 12,8 mg/kg/ day |

Ethylene glycol

| For workers | EFFECT | ROUTE OF EXPOSURE | DNEL |
|-------------|---------------|-------------------|----------------------|
| | Local chronic | Respiratory tract | 35 mg/m ³ |

8.1.5 PNEC

| COMPONENT | TARGET OF PROTECTION | | | |
|---------------------------|----------------------|------------|--------------------|----------------------------|
| | Saltwater | Sweetwater | Occasional release | Wastewater treatment plant |
| Nitroglycerin | - | 1,98 mg/l | - | - |
| Ethylene glycol dinitrate | 0,0003 mg/l | 0,003 mg/l | 0,019 mg/l | - |
| Ammonium nitrate | 0,045 mg/l | 0,45 mg/l | 4,5 mg/l | 18 mg/l |

No data available for other components of the mixture.

8.2 Exposure controls

8.2.1 Applied technical means of control

| | |
|------------------|---|
| PN-Z-04008.07 | Air quality protection. Sampling. General provisions. Principles of sampling in the work environment and interpretation of results. |
| PN-89/Z-04213/02 | Air quality protection. Testing nitroglycerin level in air. Determination of nitroglycerin level at workplace using gas chromatography. |
| PN-89/Z-04212/02 | Air quality protection. Testing ethylene glycol dinitrate level in air. Determination of ethylene glycol dinitrate level at workplace using gas chromatography. |

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| | |
|------------------|---|
| PN-91/Z-04030/05 | Air quality protection. Examination of total dust at workplace by filtration and weight method. |
| Ventilation | Using ventilation as a part of GMP. |

8.2.2 Individual protection measures, such as personal protective equipment

| PROTECTION OF: | PROTECTION MEASURES | STANDARD |
|-------------------|---|----------|
| Eyes | Protective glasses with side shields, cat. II, transparent, made of PC, optical class I or safety goggles class 2 | EN166 |
| Respiratory tract | In case of failure or >TLV, use protective gas mask with organic vapors absorber. | EN149 |
| Skin | Protective clothing (cat. II or III), antielectrostatic. | EN340 |
| Hands | Protective gloves, antielectrostatic. | EN374 |

8.2.3 Environmental exposure control

See subsection 6.2 i 6.3.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|---|--|
| Appearance: | Homogenic, ductile mixture of pink to red color in paper shielding, plastic shielding or in plastic tubes. |
| Odour: | Sweet |
| Odour threshold: | No data available. |
| pH: | Not applicable. |
| Melting point/freezing point: | Not applicable. |
| Initial boiling point and boiling range: | Not applicable. |
| Flash point: | No data available. |
| Evaporation rate: | Examination impossible for safety reasons. |
| Flammability (solid, gas): | Burning may lead to detonation. |
| Upper/lower flammability or explosive limits: | Examination impossible for safety reasons. |

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| | | |
|---|---|--------|
| Vapour pressure: | No data available. | |
| Vapour density: | No data available. | |
| Relative density: | No data available. | |
| Solubility(ies): | Extraction of water soluble components occurs. | |
| Partition coefficient: n-octanol/water: | Not applicable. | |
| Auto-ignition temperature: | No data available. | |
| Decomposition temperature: | >165 °C | |
| Viscosity: | Not applicable. | |
| Explosive properties: | Impact sensitivity | ≥ 2 J |
| | Friction sensitivity | ≥ 80 N |
| Oxidising properties: | Explosive mixture. Determination of oxidizing properties is not required. | |

9.2 Other information.

| PRODUCT | Mechanical sensitivity coefficient Rm | Thermal sensitivity coefficient Rt | Sensitivity coefficient Rw |
|-------------|---------------------------------------|------------------------------------|----------------------------|
| Austrogel P | 2,45 | 2,53 | 2,49 |

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

The mixture is sensitive to mechanical, thermal and electric stimuli.

10.2 Chemical stability


Mixture is stable in conditions specified by the manufacturer.

10.3 Possibility of hazardous reactions

High temperature, mechanical shock, friction, static electricity and other energetic may lead to detonation.

10.4 Conditions to avoid

Avoid open fire, high temperature, static electricity, mechanical shock, friction and other energetic stimuli.

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10.5 Incompatible material

Strong acids and bases, reductors and organic materials.

10.6 Hazardous decomposition products

None.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

11.1.1 Acute toxicity

| COMPONENT | ORGANISM | LD ₅₀ or EC ₅₀ | | |
|---------------------------|----------|--------------------------------------|------------|-------------------------|
| | | Oral | Skin | Inhalation |
| Nitroglycerin | rat | 105 mg/kg | - | - |
| | rabbit | - | 280 mg/kg | - |
| Ethylene glycol dinitrate | rat | 460 ÷ 616 mg/kg | - | - |
| | rabbit | - | 400 mg/kg | - |
| Ammonium nitrate | rat | 2950 mg/kg | 5000 mg/kg | - |
| Ethylene glycol | rat | 4700 mg/kg | - | 10876 mg/m ³ |
| | rabbit | - | 9530 mg/kg | - |

• Acute Toxicity Estimate of mixture (ATE_{mix})

| MIXTURE | ATE _{mix} | | |
|-------------|--------------------|--------------|-------------------|
| | Oral [mg/kg] | Skin [mg/kg] | Inhalation [mg/l] |
| Austrogel P | 16,6 | 16,6 | 1,66 |

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11.1.2 Symptoms related to physical, chemical and toxicological properties of the product.

| SYMPTOMS | |
|--|---|
| ACUTE | DELAYED |
| Skin reddening (especially on face), sensation of feeling hot, headache, hallucination, nausea, burning in throat, tinnitus, shortness of breath; pain in the chest may occur as well as stomachache; sudden blood pressure drop, which may lead to collapse, convulsions, breathing problems and death. | Repeated or chronic exposure to vapors may increase tolerance (short term effect) to nitroesters and may lead to increased methemoglobin level and changes in nervous system and blood vessels. Tremors, neurological pain, digestive disorders, chronic skin inflammations and allergic reactions. Repeated exposure may cause symptoms similar to acute symptoms. |

Nitroglycerin and ethylene glycol dinitrate have synergic effect with antihypertensive drugs, vasodilators, TPDL, neuroleptics, alcohol, sildenafil, tadalafil and vardenafil.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

No data on toxicity to aquatic life.

12.2 Persistence and degradability

Not specified.

12.3 Bioaccumulative potential

The mixture is fully biodegradable.

12.4 Mobility in soil

Not specified.

12.5 Results of PBT and vPvB assessment

The mixture and its components are not classified as PBT and vPvB.

12.6 Other adverse effects

None.

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SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

13.1.1 Disposal of the product/ packaging

| | |
|--------------------|---|
| Product disposal | The product should be disposed by detonation or burning outside installations or devices (see subsection 13.1.4) |
| Packaging disposal | The packaging should be disposed by combustion in open air or in special devices and installations adapted for this purpose (see subsection 13.1.4) |

13.1.2 Waste processing - essentials information

The waste should not be processed for safety reasons. For disposal considerations see subsection 13.1.4.

13.1.3 Wastewater discharge - essentials information

Do not discharge the waste to sewage system.

13.1.4 Other information about wastes disposal

| | |
|-------------------------|--|
| Special safety measures | See SECTION 7. |
| Legal basis: | Depends on the local legislation. POLAND: The Act of 14 December 2012. About Waste (Dz.U.2018, pos. 21), as amended. |

Disposal of the waste may be carried out by authorized personnel only. Disposal of the product should comply to requirements of environmental safety, legislation on waste disposal and requirements of local authorities.

The manufacturer will accept an explosive waste and packaging contaminated with explosive material, manufactured by NITROERG S.A.


SECTION 14: TRANSPORT INFORMATION

14.1 UN number

UN 0081

14.2 UN proper shipping name

| | |
|---------|------------------------------------|
| Polish | MATERIAŁ WYBUCHOWY KRUSZĄCY TYPU A |
| English | EXPLOSIVE, BLASTING, TYPE A |
| German | SPRENGSTOFF, TYP A |

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| French | EXPLOSIF DE MINE DU TYPE A |
|--------|----------------------------|

14.3. Transport hazard class(es)

| | |
|----------|-------|
| Class | 1 |
| Division | 1.1 D |

14.4. Packing group

Not applicable.

14.5 Environmental hazards

Mixture possesses chronic toxicity hazard to aquatic life, cat. 3 (Aquatic Chronic 3 H412). According to ADR regulation in such case marking with the environmentally hazardous substance mark is not needed.

14.6 Special precautions for user

Packaging method and package labeling as well as the labeling of the means of transport of explosives of class 1.1D, subject to regulations appropriate for specific mean of transport (ADR/ RID, IMDG, IATA/ ICAO).


14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

SECTION 15: REGULATORY INFORMATION

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

| | |
|----------------|---|
| EU Regulations | <p>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 Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, as amended.</p> <p>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, as amended.</p> |
| Authorizations | Certificate No 1453.EXP.10.0177 |

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| Restrictions on use | Arising from (EC) No 1907/2006 (REACH). |
| Other international regulations | <p>Directive 2014/28/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market and supervision of explosives for civil uses (recast) Text with EEA relevance.</p> <p>Directive 2012/18/EU 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 Text with EEA relevance.</p> <p>European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) concluded in Geneva on 30 September 1957; O.J. 2009 No 27 pos. 162, as amended.</p> <p>DIRECTIVE 2008/68/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 September 2008 on the inland transport of dangerous goods (Text with EEA relevance).</p> |
| Local regulations: | Depends on the country/ local legislation. |
| Professional limitations: | People who take sildenafil, tadalafil or vardenafil are forbid to work with product containing nitroesters. |

15.2 Chemical safety assessment

Chemical safety assessment for mixture is not needed.

SECTION 16: OTHER INFORMATION


16.1 Changes from the previous version of the SDS

- Version 1.0.

16.2 Abbreviations and acronyms

16.2.1 H-phrases

| | |
|------|----------------------------------|
| H200 | Unstable explosive. |
| H201 | Explosive; mass explosion hazard |
| H228 | Flammable solid. |
| H272 | May intensify fire; oxidizer |
| H300 | Fatal if swallowed |

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| | |
|------|--|
| H310 | Fatal in contact with skin. |
| H319 | Causes serious eye irritation. |
| H330 | Fatal if inhaled. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H411 | Toxic to aquatic life with adverse long-term effects. |
| H412 | Harmful to aquatic life with long-lasting effects. |

16.2.2 P-phrases

| | |
|-----------|--|
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P372 | Explosion risk in case of fire. |
| P373 | DO NOT fight fire when fire reaches explosives. |
| P401 | Store ... |
| P501 | Dispose off contents/container to |
| P370+P380 | In case of fire: Evacuate area. |

16.2.3 Other

| | |
|------------------|---|
| TLV-TWA | Threshold limit value - Time weighted average |
| TLV-STEL | Threshold limit value - Short-term exposure limit |
| TLV-C | Threshold limit value - Ceiling limit |
| BLV | Biological Limit Value |
| DNEL | Derived no-effect level. |
| PNEC | Predicted No Effect Concentration. |
| LD ₅₀ | Median lethal dose. |
| EC ₅₀ | half maximal effective concentration. |
| EC number | EINECS number |

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| | |
|-------------------|---|
| CAS | Unique numerical identifier assigned by Chemical Abstracts Service to every chemical substance. |
| CMR | Carcinogenic, Mutagenic or Toxic for Reproduction |
| Expl. 1.1. | Explosive, subclass 1.1 |
| Unst. Expl | Unstable explosive. |
| Acute Tox. 2 | Acute Toxicity, cat. 2 |
| Acute Tox. 1 | Acute Toxicity, cat. 1 |
| Eye Irrit. 2 | Eye Irritating, cat. 2 |
| STOT RE 2 | Specific Target Organ Toxicity - Repeated Exposure, cat. 2 |
| Aquatic Chronic 3 | Chronic toxicity to aquatic life, cat. 3 |
| Flam. Sol. 1 | Flammable solid, cat.1 |
| Ox. Sol 3 | Oxidising solid, cat. 3 |

16.3 Literature and data sources

- SDS of raw materials, practical knowledge and experience. All the provided data is related to the product in the form in which it is used.
- GESTIS and ECOTOX databases;

16.4. The procedure used for the mixture classification in accordance with Regulation (EC) No. 1272/2008

| | |
|------------------------|-----------------------|
| Expl. 1.1 H201 | Weight of evidence. |
| Eye. Irrit. 2 H319 | Computational method. |
| Acute Tox. 2 H300 | Computational method. |
| Acute Tox. 1 H310 | Computational method. |
| Acute Tox. 2 H330 | Computational method. |
| STOT RE 2 H373 | Computational method. |
| Aquatic Chronic 3 H412 | Computational method. |

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16.5 Training

Personnel involved in handling the mixture should be trained in handling, safety and work hygiene while working with the product.

16.6 Closing remarks

All information and data included in this Safety Data Sheet were prepared on the basis of the above mentioned documents, reference documentation, our knowledge and experience. Information and data included should be interpreted as safety issues description and must not be interpreted as parameters guaranteed by the manufacturer. The User is solely responsible for ensuring safe storage and safe conditions while using the product. This Safety Data Sheet only refers to intended and recommended uses of the product. The User is solely liable for the result of any improper handling and/or use of the product.