Nitric acid, technical

Date of issue: 01.09.2007
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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product identifier:
Nitric acid, technical
Index-No.: 007-004-00-1
CAS-No.: 7697-37-2
EINECS-No.: 231-714-2
REACH Registration Name: Nitric Acid
REACH Registration Number: 01-2119487297-23-0022
Other name: acidum nitricum

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

Identified uses:
For the production of fertilizers and inorganic or organic chemicals. As an oxidizing agent for chemical processes. Solvent and etching agent for metals.

Uses advised against:
As a blend of cleansing agents at a concentration of> 3%

1.3 Details of the supplier of the safety data sheet:
Lovochemie, a.s.
Terezínská 57
410 02 Lovosice
Czech Republic
E-mail: info@lovochemie.cz
Phone number: +420 416 561 111

1.4 Emergency telephone number:
corporate dispatching 416 563 441, 736 507 221

Toxicology information centre - Toxikologické informační středisko (TIS), Na Bojišti 1, 128 08 Praha 2
Tel. (24 h/day - nonstop): +420 2 2491 9293, +420 2 2491 5402

SECTION 2: HAZARDS IDENTIFICATION

This product is **classified as a dangerous** according to Regulation 1272/2008/EC.

2.1 Classification of the substance or mixture:

according to 1272/2008/EC
Acute Tox. 3; H331
Skin Corr. 1A; H314
Met. Corr. 1; H290
Full text of all classifications and precautionary statements is listed in section 16.

2.2 Label elements:

Hazard pictogram(s):

Signal word(s):
Danger

Index-No.:
007-004-00-1

Hazard statement(s):
H314 - Causes severe skin burns and eye damage.
H290 - May be corrosive to metals.
H331 - Toxic if inhaled.

Precautionary statement(s):
P234 - Keep only in original packaging.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash hands and face thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a doctor.
P321 - Specific treatment (see section 4.3 of this safety data sheet).
P363 - Wash contaminated clothing before reuse.
P390 - Absorb spillage to prevent material damage.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P501 - Dispose of contens/container in accordance with local regulations

Additional information on the label:
EUH071 Corrosive to the respiratory tract.

2.3 Other hazards:

The most serious adverse effects on human health when using the substance or mixture:
Causes severe skin burns and eye damage. Corrosive to the respiratory tract. Nitrous gases.

The most serious adverse effects on the environment when using the substance or mixture:
Slightly water endangering.

The most important adverse physical and chemical effects when using the substance or mixture:
May be corrosive to metals.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance related information

Nitric acid
Concentration: 52 - 61 %
Index number: 007-004-00-1
CAS number: 7697-37-2
ES (EINECS) number: 231-714-2
Classification according to Regulation 1272/2008/EC:
Ox. Liq. 3; H272
Skin Corr. 1A; H314
Met. Corr. 1; H290
EUH071 Corrosive to the respiratory tract.
Specific concentration limits:
Skin Corr. 1A; H314: C ≥ 20 %
Skin Corr. 1B; H314: 5 % ≤ C < 20 %
Ox. Liq 2; H272: C ≥ 99 %
Ox. Liq. 3; H272: 65% ≤ C < 99 %
Acute Tox. 4; H332: 13 % < C ≤ 26 %
Acute Tox. 3; H331: 26 % < C ≤ 70 %
Acute Tox. 1; H330: C > 70 %

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures:
Speed is essential.Call a physician immediately.Ensure that eye flushing systems and safety showers are located close to the working place. First aider needs to protect himself.

Inhalation:
Move victims to fresh air and do not leave them without supervision. Keep the affected person warm and at rest in a half upright position. Give artificial respiration if necessary. Call a physician immediately.

Skin contact:
Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. If skin burns appear, call a doctor immediately Cover wound with sterile dressing.

Eye contact:
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult an eye specialist immediately, even if there are no immediate symptoms.

Ingestion:
Solution with pH < 1,5 or unknown: Do not give anything to drink. Do NOT induce vomiting. If victim is conscious: Rinse mouth with water. Take victim immediately to hospital. Solution with pH > 1,5 and in small quantities: Give water to drink. Place under medical observation

4.2 Most important symptoms and effects, both acute and delayed:
Causes severe skin burns and eye damage. Nitric acid fumes may cause immediate irritation of the respiratory tract, pain, and dyspnea which are followed by a period of recovery that may last several weeks. After this time, a relapse may occur with death caused by bronchopneumonia and/or pulmonary fibrosis.

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

Symptoms:
Highly corrosive, causes severe skin burns and eye damage. Nitric acid fumes may cause immediate irritation of the respiratory tract, pain, and dyspnea which are followed by a period of recovery that may last several weeks. After this time, a relapse may occur with death caused by bronchopneumonia and/or pulmonary fibrosis.
Hazards:
Later control for pneumonia and lung oedema.
Treatment:
Control of circulatory system, shock therapy if needed. Oxygen, if needed. Early administration of cortisone spray. After inhalation of nitrous gas, medical supervision for at least 48 hours. After inhalation, symptoms usually only occur after several hours.
Follow the advises given in section 4.1. Following exposure to acid/NOx fumes, the affected person should be kept under medical review for at least 48 hours as delayed pulmonary oedema may develop.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media:

Suitable extinguishing media:
Water mist. Carbon dioxide (CO2). Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media:
Powders/chemical extinguishers/Foam. Do not attempt to smother the fire with steam or sand.

5.2 Special hazards arising from the substance or mixture:

Non flammable. But if involved in a fire use the best mean available to extinguish the fire. May accelerate the burning of other combustible materials (wood, cotton, straw, ...). Toxic gases are released (NOx). On contact with ordinary metals (steel, galvanized, aluminum) corrosion may occur and generate highly flammable hydrogen gas. May explode in contact with a powerful reducing agent.

5.3 Advice for firefighters:
Containers/equipment exposed to heat have to be cooled down using water flush. Use water spray to disperse vapors and to protect personnel. Avoid disposal of contaminated fire fighting water to the environment.
Do not attempt to fight the fire without suitable protective equipment:
- Acid-resistant clothing
- Complete protective clothing
- Self-contained breathing apparatus

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:
Do not breathe vapours/dust. Suppress (knock down) gases/vapours/mists with a water spray jet. Do not attempt to intervene without suitable protective equipment (See section 8). Avoid any direct contact with the product.

6.2 Environmental precautions:

Should not be released into the environment. Do not discharge into drains and / or rivers. Dilute with water and neutralize the acid with, for example soda or sodium carbonate, before discharging contaminated material into treatment plants or water courses.

6.3 **Methods and material for containment and cleaning up:**

Soak up with a liquid binder (e.g. sand, universal binder). Transfer into suitable containers and take for disposal. Dispose of recovered material according to the regulations. Do not direct water spray onto the leak. Use respiratory protection during cleaning up.
Recovery:
Stop the leak. Confine the product and direct it towards a watertight area. Pump up the product into a spare containersuitably labeled.
Neutralization:
Neutralize non-recoverable product with:
- slaked lime
- carbonates or bicarbonates
Cleaning/decontamination:
Wash dirty surfaces with water. Neutralize polluted soils with slaked lime, then wash. Never neutralize product whilst it is still inside closed packaging or in a closed emergency container.
Disposal:
Dispose of contaminated materials in accordance with current regulations.

6.4 **Reference to other sections:**
Individual protection measures in section 8.
Disposal considerations in section 13.

SECTION 7: HANDLING AND STORAGE

7.1 **Precautions for safe handling:**

Ensure good ventilation of the work station. Only use materials resistant to acids. For preference use pumping techniques for unloading and discharging. Provide an adapted retention system. Avoid any direct contact with the product. Avoid breathing vapours, mist or gas. Never introduce water or any aqueous agent into tanks or containers containing acids. Dilutions or neutralizations are very highly exothermic, avoid spatters, carry out slowly. Always add acid to water. Do not mix with incompatible materials (See section 10.5).
Smoking, eating and drinking should be prohibited in the application area. Wash hands after use; and remove contaminated clothing and protective equipment before entering eating areas.

7.2 **Conditions for safe storage, including any incompatibilities.**
Store in tanks made of ANTINIT. Do not store together with foodstuffs and combustibles.

7.3 **Specific end use(s):**
For the substance were created exposure scenarios, and a chemical safety report.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 **Control parameters:**
European Union:
BOELV - 2,6 mg/m^3 (15 minutes average value)

DNEL:
Workers/Inhalation/Local effects/Long term exposure - 2,6 mg/m^3
Workers/Inhalation/Local effects/Short term exposure - 2,6 mg/m^3
General population/Inhalation/Local effects/Long term exposure - 1,3 mg/m^3
General population/Inhalation/Local effects/Short term exposure - 1,3 mg/m^3

8.2 **Exposure controls:**

Use closed systems or covering of open containers (e.g. screens). Transport over pipes, technical barrel filling/emptying of barrel with automatic systems (suction pumps etc.). Use of pliers, grip arms with long handles with manual use to avoid direct contact and exposure by splashes (no working over one's head). Local exhaust ventilation is required except for closed processes and outdoor processes. Handle product only in closed system or provide appropriate exhaust ventilation at machinery.

Protection of respirator organs:

It is not necessary if concentration limits are observed. Blue NO-P3 Nitrogen Oxide Filter or Combined Special AVEC NBC-2 SL Type A2B2E2K2NOP3D, resp. self-contained breathing apparatus. It is required in the case of vapor / aerosol formation, filter E (P2).

Protection of eyes:
Protective glasses or face shield

Protection of hands:
Protective gloves

Protection of skin:
Suitable protective clothing, protective shoes

Further data including the general hygienic measures:

Do not eat, drink or smoke. After work, wash your hands with warm water and soap. Treat your skin with suitable reparation means.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 **Information on basic physical and chemical properties:**
Physical state (at 20C and 101,3 kPa): liquid
Colour: colourless, light yellow
Odour: stinging
Odour threshold: 0,75 mg/m3
pH (at 20C) : 0
Melting point/freezing point: -21°C 60%; -41°C 99%
Initial boiling point and boiling range: 118,5°C 60%; 83°C 100%; 121,8°C 69,2% azeotrop
Flash point: not determined
Flammability: not determined
Explosive limits: not determined
Vapour pressure: 773 Pa 60%; 6100 Pa 99%
Vapour density: not determined
Relative density (at 20C): 1367 kg/m3 60%; 1513 kg/m3 99%
Solubility in water: miscible
Partition coefficient (n-octanol/water): Not applicable, inorganic substance
Auto-ignition temperature: not determined
Viscosity (at 20C): 880 kPa.s
Explosive properties: Not applicable
Oxidising properties: Not explosive

9.2 **Other information:**
The substance is not liposoluble.
Dissociation constant pKa: -1,38

SECTION 10: STABILITY AND REACTIVITY

10.1 **Reactivity:**
Stable under recommended storage and handling conditions (see section 7).

10.2 **Chemical stability:**
Thermally stable in reaction term at designed storage conditions. Slightly decompose to nitrogen oxides when in contact with light or organic matter.

10.3 **Possibility of hazardous reactions:**
May react violently with reducing agents, strong bases, organic material, chlorides and finely divided metals Exothermic reaction with water.

10.4 **Conditions to avoid:**
Uncontrolled heating. Light. Containment.

10.5 **Incompatible materials:**
reducing materials, Alkalis, Corrosive Substances, Powdered metals, Hydrogen sulphide, Chlorates, carbides, non noble metals, Alcohols

10.6 **Hazardous decomposition products:**
nitrous gases and hydrogen in contact with powdered metals

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 **Information on toxicological effects:**

Acute toxicity:
LD_{50}, oral, rat: data for the substance are not available
LD_{50}, dermal, rat/rabbit: data for the substance are not available
LC_{50}, inhalation, rat, for aerosol: > 2,65 mg/l

Skin corrosion/irritation:
Skin Corrosive cat. 1A

Serious eye damage/irritation:
Skin Corrosive cat. 1A

Respiratory or skin sensitisation:
not classified

Carcinogenicity:
not classified

Germ cell mutagenicity:
not classified

Reproductive toxicity:
not classified

Specific target organ toxicity - single exposure:
not classified

Specific target organ toxicity - repeated exposure:
not classified

Aspiration hazard:
No data available

Other information:
It etches the skin, mucous membranes, eyes, airways, lungs, causes burning and eye pain, mucous membranes of pharynx, skin and shortness of breath. Ingestion of severe digestive pain, vomiting

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity:

Acute toxicity:
LT50, 96 h., fish: median lethal pH (96 h) 3 - 3,5 (Lepomis macrochirus)
median lethal pH (96 h) 3,7 (Oncorhynchus mykiss)
LC50, 96 h., fish (mg/l): 8226 (Salmo sp., $NaNO_3$)
EC50, 48 h., daphnia (mg/l): 8 609 (24 h, Daphnia magna)
IC50, 72 h., algae (mg/l): No data available

Chronic toxicity:
NOEC (3 mo, Amphiprion ocellaris, $NaNO_3$): 97,8 mg/l

12.2 Persistence and degradability:
It is not mentioned for inorganic substances.

12.3 Bioaccumulative potential:
No data given. It is a compound well soluble in water. Bioaccumulation is not expected.

12.4 Mobility in soil:
No data available.

12.5 Results of PBT and vPvB assessment:
Not relevant to inorganic materials.

12.6 Other adverse effects:
No data available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:
Neutralise with alkali solution – sodium carbonate. Attention, exothermic reaction. Other methods of disposal in accordance with valid regulations.

Ways of disposal of contaminated packaging:
Delivered in returnable transport containers for nitric acid.

Other information:
No data available

SECTION 14: TRANSPORT INFORMATION

Land transport (ADR/RID):
Classification Code: C1
Hazard Identification Number: 80
Labels: 8
Packing group: 2
Tunnel restriction code: E

Sea transport (IMDG):
EMS-No.: F - A, S - B

Air transport (ICAO/IATA):
Proper technical name: NITRIC ACID (other than red fuming, with nitric acid < 65%)
Labels: Corrosive

14.1 **UN number:** 2031

14.2 **UN proper shipping name:** NITRIC ACID (other than red fuming, with nitric acid < 65%)

14.3 **Transport hazard class(es):** 8

14.4 **Packing group:** II

14.5 **Environmental hazards:**
does not

14.6 **Special precautions for user:**
It is Skin Corr. 1A

14.7 **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:**
not available

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.
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.
European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Other regulations:
Regulation (EU) No 98/2013: Acquisition, possession or use by the general public is restricted.

15.2 **Chemical safety assessment:**
For the substance were created exposure scenarios, and a chemical safety report (CSR).

SECTION 16: OTHER INFORMATION

In case of a revised safety data sheet, a clear indication of where changes have been made to the previous version of the safety data sheet:
Revision no. 1 - deleted classification according to Directive 1999 / 45 / EC and adjusted overall appearance of the safety data sheet in accordance with Commission Regulation (EU) no. 453/2010 - Annex II .
Revision no. 2 - change of classification, related addition and modification of P-phrases and H-phrases, addition of specific concentration limits for acute toxicity, modification of the title of subsections 14.1, 14.2 and 15.1.
Revision no. 3 - addition of non-recommended uses and addition and modification of the precautionary statements.
Revision no. 4 - updating of the list of regulations on safety, health and the environment.
Revision no. 5 - updating and supplementing H-phrases and P-phrases in Sections 2 and 16, adjusting specific concentration limits in Section 3.1, modifying and updating DNELs in Section 8, modifying and updating Section 11, Updating Section 14, Editing Legend to Used Abbreviations in Section 16
Revision no. 6 - addition of section 15 - reference to Regulation (EU) No 98/2013 on the placing on the market and use of explosives precursors

Key or legend to abbreviations and acronyms used in the safety data sheet:
Acute Tox. 1 - acute toxicity, category 1
Acute Tox. 3 - acute toxicity, category 3
Acute Tox. 4 - acute toxicity, category 4
Ox. Liq. 2 - oxidising liquid, category 2
Ox. Liq. 3 - oxidising liquid, category 3
Skin Corr. 1A - skin corrosion, category 1A
Skin Corr. 1B - skin corrosion, category 1B
Met. Corr. 1 - corrosive to metals, category 1
BOELV - Binding Occupational Exposure Limit Value
DNEL - Derived No Effect Level
CLP - Regulation No 1272/2008/EC
REACH - Regulation No 1907/2006/EC
PBT - Persistent, bio-accumulative and toxic substance
vPvB - Very persistent and very bio-accumulative substance

Sources of key data used to compile the Safety Data Sheet:
Data from safety data sheets, literature, national and European legislation, database MedisAlarm and the experience of man.

List of hazard statements and precautionary statements:
H330 - Fatal if inhaled.
H331 - Toxic if inhaled.
H332 - Harmful if inhaled.
H272 - May intensify fire; oxidiser.
H314 - Causes severe skin burns and eye damage.
H290 - May be corrosive to metals.
P234 - Keep only in original packaging.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash hands and face thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a doctor.
P321 - Specific treatment (see section 4.3 of this safety data sheet).
P363 - Wash contaminated clothing before reuse.
P390 - Absorb spillage to prevent material damage.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P501 - Dispose of contens/container in accordance with local regulations

Training advice:
According to MSDS.

Other information:
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