# Nitric Acid, 50% v/v (1+1)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Issue date: 10/31/2013 Revision date: 10/22/2020 Supersedes: 02/20/2017 Version: 1.2

## SECTION 1: Identification

### 1.1. Identification

Product form : Mixtures

Product name : Nitric Acid, 50% v/v (1+1)

Product code : LC17770

### 1.2. Recommended use and restrictions on use

Use of the substance/mixture : For laboratory and manufacturing use only.

### 1.3. Supplier

LabChem, Inc.

1010 Jackson's Pointe Ct.

Zelienople, PA 16063 - USA

T 412-826-5230 - F 724-473-0647

info@labchem.com - www.labchem.com

### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or +1-703-741-5970

## SECTION 2: Hazard(s) identification

### 2.1. Classification of the substance or mixture

**GHS US classification**

| | |
|---|---|
| Corrosive to metals Category 1 | H290 May be corrosive to metals |
| Skin corrosion/irritation Category 1B | H314 Causes severe skin burns and eye damage |
| Serious eye damage/eye irritation Category 1 | H318 Causes serious eye damage |

Full text of H statements : see section 16

### 2.2. GHS Label elements, including precautionary statements

**GHS US labeling**

Hazard pictograms (GHS US) :



Signal word (GHS US) : Danger

Hazard statements (GHS US) : H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage

Precautionary statements (GHS US) : P234 - Keep only in original container.
P260 - Do not breathe mist, vapors, spray.
P264 - Wash exposed skin thoroughly after handling.
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): Remove/Take off immediately all contaminated clothing. Rinse skin with water/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 poison center or doctor/physician.
P363 - Wash contaminated clothing before reuse.
P390 - Absorb spillage to prevent material-damage.
P405 - Store locked up.
P406 - Store in corrosive resistant container with a resistant inner liner.
P501 - Dispose of contents/container to comply with local, state and federal regulations.

### 2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None.

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

| Name | Product identifier | % | GHS US classification |
|---|---|---|---|
| Water | (CAS-No.) 7732-18-5 | 60 | Not classified |
| Nitric Acid, 70% w/w | (CAS-No.) 7697-37-2 | 40 | Ox. Liq. 3, H272<br>Met. Corr. 1, H290<br>Skin Corr. 1A, H314<br>Eye Dam. 1, H318 |

Full text of hazard classes and H-statements : see section 16

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor/physician.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

### 4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects : Causes severe skin burns and eye damage.

Symptoms/effects after eye contact : Causes serious eye damage.

### 4.3. Immediate medical attention and special treatment, if necessary

No additional information available

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

### 5.2. Specific hazards arising from the chemical

### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Protective equipment : Protective goggles. Protective clothing. Gloves. Combined gas/dust mask with filter type B/P3.

Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials. Absorb spillage to prevent material-damage.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Additional hazards when processed : May be corrosive to metals.

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not breathe mist, vapors, spray.

Hygiene measures : Wash exposed skin thoroughly after handling. Wash contaminated clothing before reuse.

### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : incompatible materials. Keep container closed when not in use.

Incompatible products : Strong bases. Halogens. metals. aluminum. Strong reducing agents.

Incompatible materials : Sources of ignition. Direct sunlight.

Packaging materials : Store in corrosive resistant container with a resistant inner liner.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| **Nitric Acid, 50% v/v (1+1)** | |
|---|---|
| No additional information available | |

| **Nitric Acid, 70% w/w (7697-37-2)** | |
|---|---|
| **USA - ACGIH - Occupational Exposure Limits** | |
| ACGIH TWA (ppm) | 2 ppm (Nitric acid; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value) |
| ACGIH STEL (ppm) | 4 ppm (Nitric acid; USA; Short time value; TLV - Adopted Value) |
| **USA - OSHA - Occupational Exposure Limits** | |
| OSHA PEL (TWA) (mg/m³) | 5 mg/m³ |
| OSHA PEL (TWA) (ppm) | 2 ppm |
| **USA - IDLH - Occupational Exposure Limits** | |
| US IDLH (ppm) | 25 ppm |
| **USA - NIOSH - Occupational Exposure Limits** | |
| NIOSH REL (TWA) (mg/m³) | 5 mg/m³ |
| NIOSH REL (TWA) [ppm] | 2 ppm |
| NIOSH REL (STEL) (mg/m³) | 10 mg/m³ |
| NIOSH REL (STEL) [ppm] | 4 ppm |

| **Water (7732-18-5)** |
|---|
| No additional information available |

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.

### 8.3. Individual protection measures/Personal protective equipment

**Personal protective equipment:**

Combined gas/dust mask with filter type B/P3. Gloves. Protective clothing. Protective goggles.

**Hand protection:**

Wear protective gloves.

**Eye protection:**

Chemical goggles or face shield

**Skin and body protection:**

Wear suitable protective clothing

**Respiratory protection:**

Wear appropriate mask

**Personal protective equipment symbol(s):**



**Other information:**

Do not eat, drink or smoke during use.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

| | | |
|---|---|---|
| Physical state | : | Liquid |
| Appearance | : | Colorless to pale yellow liquid. |
| Color | : | Colourless to light yellow |
| Odor | : | characteristic Pungent |
| Odor threshold | : | No data available |
| pH | : | No data available |
| Melting point | : | No data available |
| Freezing point | : | No data available |
| Boiling point | : | No data available |
| Flash point | : | No data available |
| Relative evaporation rate (butyl acetate=1) | : | No data available |
| Flammability (solid, gas) | : | Non flammable. |
| Vapor pressure | : | No data available |
| Relative vapor density at 20 °C | : | No data available |
| Relative density | : | No data available |
| Specific gravity / density | : | 1.25 g/ml |
| Solubility | : | Soluble in water. |
| Log Pow | : | No data available |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Viscosity, kinematic | : | 1.25 mm²/s |
| Viscosity, dynamic | : | No data available |
| Explosion limits | : | No data available |
| Explosive properties | : | No data available |
| Oxidizing properties | : | No data available |

### 9.2. Other information

VOC content : 0 g/l

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Thermal decomposition generates : Corrosive vapors.

### 10.2. Chemical stability

Not established.

### 10.3. Possibility of hazardous reactions

Not established.

### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

### 10.5. Incompatible materials

Strong reducing agents. Strong bases. metals. aluminum. Ammonia. combustible materials. Halogens.

### 10.6. Hazardous decomposition products

Nitrogen oxides. Thermal decomposition generates : Corrosive vapors.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

| Water (7732-18-5) | |
|---|---|
| LD50 oral rat | ≥ 90000 mg/kg |
| ATE US (oral) | 90000 mg/kg body weight |

Skin corrosion/irritation : Causes severe skin burns.
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified
Viscosity, kinematic : 1.25 mm²/s
Likely routes of exposure : Inhalation. Skin and eye contact.
Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.
Symptoms/effects : Causes severe skin burns and eye damage.
Symptoms/effects after eye contact : Causes serious eye damage.

## SECTION 12: Ecological information

### 12.1. Toxicity

| Nitric Acid, 70% w/w (7697-37-2) | |
|---|---|
| EC50 Daphnia 1 | 180 mg/l (EC50; 48 h) |
| LC50 fish 2 | 72 ppm (LC50; 96 h) |
| Threshold limit algae 1 | > 19 mg/l (EC0) |

### 12.2. Persistence and degradability

| Nitric Acid, 50% v/v (1+1) | |
|---|---|
| Persistence and degradability | Not established. |

| Nitric Acid, 70% w/w (7697-37-2) | |
|---|---|
| Persistence and degradability | Biodegradability: not applicable. No test data on mobility of the components available. |
| Biochemical oxygen demand (BOD) | Not applicable |
| Chemical oxygen demand (COD) | Not applicable |

| Nitric Acid, 70% w/w (7697-37-2) | |
|---|---|
| ThOD | Not applicable |

| Water (7732-18-5) | |
|---|---|
| Persistence and degradability | Not established. |

### 12.3. Bioaccumulative potential

| Nitric Acid, 50% v/v (1+1) | |
|---|---|
| Bioaccumulative potential | Not established. |

| Nitric Acid, 70% w/w (7697-37-2) | |
|---|---|
| BCF fish 1 | ≤ 1 (BCF) |
| Log Pow | -2.3 (OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method) |
| Bioaccumulative potential | Bioaccumulation: not applicable. |

| Water (7732-18-5) | |
|---|---|
| Bioaccumulative potential | Not established. |

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

Other information : Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.

Ecology - waste materials : Avoid release to the environment.

## SECTION 14: Transport information

**Department of Transportation (DOT)**

In accordance with DOT

Transport document description : UN2031 Nitric acid (other than red fuming, with more than 20% and less than 65 percent nitric acid), 8, II

UN-No.(DOT) : UN2031

Proper Shipping Name (DOT) : Nitric acid
other than red fuming, with more than 20% and less than 65 percent nitric acid

Transport hazard class(es) (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136

Packing group (DOT) : II - Medium Danger

Hazard labels (DOT) : 8 - Corrosive




DOT Packaging Non Bulk (49 CFR 173.xxx) : 158

DOT Packaging Bulk (49 CFR 173.xxx) : 242

| | | |
|---|---|---|
| DOT Special Provisions (49 CFR 172.102) | : | A6 - For combination packaging, if plastic inner packaging are used, they must be packed in tightly closed metal receptacles before packing in outer packaging.<br>B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.<br>B47 - Each tank may have a reclosing pressure relief device having a start-to-discharge pressure setting of 310 kPa (45 psig).<br>B53 - Packaging must be made of either aluminum or steel.<br>IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.<br>IP15 - For UN2031 with more than 55% nitric acid, rigid plastic IBCs and composite IBCs with a rigid plastic inner receptacle are authorized for two years from the date of IBC manufacture.<br>T8 - 4 178.274(d)(2) Normal..... Prohibited<br>TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively. |
| DOT Packaging Exceptions (49 CFR 173.xxx) | : | None |
| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | : | Forbidden |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) | : | 30 L |
| DOT Vessel Stowage Location | : | D - The material must be stowed ‘‘on deck only’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded. |
| DOT Vessel Stowage Other | : | 44 - Stow ‘‘away from’’ oxidizers,66 - Stow ‘‘separated from’’ flammable solids,74 - Stow ‘‘separated from’’ oxidizers,89 - Segregation same as for oxidizers,90 - Stow ‘‘separated from’’ radioactive materials |
| Other information | : | No supplementary information available. |

### Transport by sea

| | | |
|---|---|---|
| Transport document description (IMDG) | : | UN 2031 NITRIC ACID, 8, II |
| UN-No. (IMDG) | : | 2031 |
| Proper Shipping Name (IMDG) | : | NITRIC ACID |
| Class (IMDG) | : | 8 - Corrosive substances |
| Packing group (IMDG) | : | II - substances presenting medium danger |
| Limited quantities (IMDG) | : | 1 L |

### Air transport

| | | |
|---|---|---|
| Transport document description (IATA) | : | UN 2031 Nitric acid, 8, II |
| UN-No. (IATA) | : | 2031 |
| Proper Shipping Name (IATA) | : | Nitric acid |
| Class (IATA) | : | 8 - Corrosives |
| Packing group (IATA) | : | II - Medium Danger |

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

| **Nitric Acid, 50% v/v (1+1)** | |
|---|---|
| SARA Section 311/312 Hazard Classes | Health hazard - Skin corrosion or Irritation<br>Physical hazard - Corrosive to metals<br>Health hazard - Serious eye damage or eye irritation |

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

| | | |
|---|---|---|
| Nitric Acid, 70% w/w | CAS-No. 7697-37-2 | 40% |

| Nitric Acid, 70% w/w (7697-37-2) | |
|---|---|
| RQ (Reportable quantity, section 304 of EPA's List of Lists) | 1000 lb |
| RQ (Reportable quantity, section 304 of EPA's List of Lists) | 1000 lb |
| SARA Section 302 Threshold Planning Quantity (TPQ) | 1000 lb |
| SARA Section 311/312 Hazard Classes | Physical hazard - Oxidizer (liquid, solid or gas)<br>Physical hazard - Corrosive to metals<br>Health hazard - Skin corrosion or Irritation<br>Health hazard - Serious eye damage or eye irritation |

### 15.2. International regulations

**CANADA**

| Water (7732-18-5) |
|---|
| Listed on the Canadian DSL (Domestic Substances List) |

**EU-Regulations**

No additional information available

**National regulations**

No additional information available

### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

## SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 10/22/2020

Other information : None.

Full text of H-phrases: see section 16:

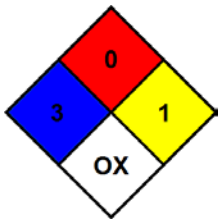
| | |
|---|---|
| H272 | May intensify fire; oxidizer |
| H290 | May be corrosive to metals |
| H314 | Causes severe skin burns and eye damage |
| H318 | Causes serious eye damage |

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.

NFPA specific hazard : OX - Materials that posses oxidizing properties.




Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection : H

H - Splash goggles, Gloves, Synthetic apron, Vapor respirator

SDS US LabChem

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