SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 01/26/2015

SECTION 1. Identification

Product identifier

Product number: NX0407
Product name: Nitric Acid 67 - 70% OmniTrace®

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

Identified uses: Reagent for analysis

Details of the supplier of the safety data sheet

Company: EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)

Emergency telephone: 800-424-9300 CHEMTREC (USA)
+1-703-527-3887 CHEMTREC (International)
24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Oxidizing liquid, Category 3, H272
Corrosive to Metals, Category 1, H290
Skin corrosion, Category 1A, H314
Serious eye damage, Category 1, H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms

Signal Word: Danger

Hazard Statements
H272 May intensify fire; oxidizer.
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

Precautionary Statements
P210 Keep away from heat.
P220 Keep/Store away from clothing/ combustible materials.
P221 Take any precaution to avoid mixing with combustibles.
P234 Keep only in original container.
P264 Wash 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 victim to fresh air and keep at rest in a position 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.
P321 Specific treatment (see supplemental first aid instructions on this label).
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P390 Absorb spillage to prevent material damage.
P405 Store locked up.
P406 Store in corrosive resistant stainless steel container with a resistant inliner.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. Composition/information on ingredients

Chemical nature: Aqueous solution

Hazardous ingredients

*Chemical Name (Concentration)*

CAS-No.

*nitric acid (>= 50 % - < 70 %)

7697-37-2

Exact percentages are being withheld as a trade secret.

SECTION 4. First aid measures

Description of first-aid measures

**General advice**
First aider needs to protect himself.

**Inhalation**
After inhalation: fresh air. Call in physician.

**Skin contact**
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

**Eye contact**
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.
**Ingestion**
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed**
Irritation and corrosion, Cough, Shortness of breath, Bloody vomiting, death, Risk of blindness!
The following applies to nitrites/nitrates in general: methemoglobinemia after the uptake of large quantities.

**Indication of any immediate medical attention and special treatment needed**
No information available.

---

**SECTION 5. Fire-fighting measures**

**Extinguishing media**

*Suitable extinguishing media*
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

*Unsuitable extinguishing media*
For this substance/mixture no limitations of extinguishing agents are given.

**Special hazards arising from the substance or mixture**
Not combustible.
Has a fire-promoting effect due to release of oxygen.
Ambient fire may liberate hazardous vapors.
Fire may cause evolution of:
nitrous gases, nitrogen oxides

**Advice for firefighters**

*Special protective equipment for fire-fighters*
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*
Suppress (knock down) gases/vapors/mists with a water spray jet. Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.

---

**SECTION 6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**
Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols.
Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

**Environmental precautions**
Do not empty into drains.

**Methods and materials for containment and cleaning up**
Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralizing material (e.g. Chemizorb® H⁺, Art. No. 101595). Dispose of properly. Clean up affected area.

**SECTION 7. Handling and storage**

**Precautions for safe handling**
Observe label precautions.

**Conditions for safe storage, including any incompatibilities**
- Requirements for storage areas and containers
  - No metal or light-weight-metal containers.
  - Tightly closed. Do not store near combustible materials.
  - Store at room temperature.

**SECTION 8. Exposure controls/personal protection**

**Exposure limit(s)**

<table>
<thead>
<tr>
<th>Basis</th>
<th>Value</th>
<th>Threshold limits</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>Time Weighted Average (TWA):</td>
<td>2 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Short Term Exposure Limit (STEL):</td>
<td>4 ppm</td>
<td></td>
</tr>
<tr>
<td>NIOSH/GUIDE</td>
<td>Recommended exposure limit (REL):</td>
<td>2 ppm</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Short Term Exposure</td>
<td>4 ppm</td>
<td>10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Limit (STEL):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSHA_TRANS</td>
<td>PEL:</td>
<td>2 ppm</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td>Z1A</td>
<td>Time Weighted Average (TWA):</td>
<td>2 ppm</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Short Term Exposure</td>
<td>4 ppm</td>
<td>10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Limit (STEL):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Engineering measures**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

**Individual protection measures**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

**Hygiene measures**
Immediately change contaminated clothing. Apply skin-protective barrier cream. Wash hands and face after working with substance.
Eye/face protection
Tightly fitting safety goggles

Hand protection
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:
Acid-resistant protective clothing.

Respiratory protection
required when vapors/aerosols are generated.
Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
</tr>
<tr>
<td>Color</td>
<td>colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>stinging</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>0.27 ppm (anhydrous substance)</td>
</tr>
<tr>
<td>pH</td>
<td>&lt; 1 at 68 °F (20 °C)</td>
</tr>
<tr>
<td>Melting point</td>
<td>ca. -32 °C</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>250 °F (121 °C) at 1,013 hPa</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available.</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No information available.</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No information available.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>ca. 9.4 hPa at 68 °F (20 °C)</td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Density</td>
<td>1.39 g/cm³ at 68 °F (20 °C)</td>
</tr>
</tbody>
</table>
Relative density: No information available.

Water solubility: at 68 °F (20 °C) soluble.

Partition coefficient: n-octanol/water: No information available.

Autoignition temperature: No information available.

Decomposition temperature: Distillable in an undecomposed state at normal pressure.

Viscosity, dynamic: No information available.

Explosive properties: Not classified as explosive.

Oxidizing properties: The substance or mixture is classified as oxidizing with the category 3.

Ignition temperature: Not applicable.

Corrosion: May be corrosive to metals.

SECTION 10. Stability and reactivity

Reactivity: strong oxidizing agent

Chemical stability: The product is chemically stable under standard ambient conditions (room temperature).

Possibility of hazardous reactions:
Risk of explosion with:
formaldehyde, glycerol, sulfuric acid, hydrogen iodide, chlorates, Organic Substances, carbon/soot, Hydrocarbons, Alkali metals, lithium silicide, organic solvent, phosphorus, pyridine, sulfur dioxide, hydrogen sulfide, hydrogen peroxide, acetonitrile, acetylidene, Alcohols, anilines, antimony hydride, arsenic hydride, Amines, Ammonia, combustible substances, phosphides, Aldehydes, dichloromethane, hydrazines, Dioxane, acetic acid, Acetone, Acetic anhydride, Fluorine, Powdered metals

Violent reactions possible with:
Nitriles, antimony, arsenic, Boron, ferric oxide, alkalines, sodium hypochlorite

Conditions to avoid:
no information available

Incompatible materials:
Cellulose, Metals
Contact with metals may lead to the formation of nitrous gases and hydrogen.

Hazardous decomposition products:
SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure
Inhalation, Eye contact, Skin contact

Target Organs
Eyes
Skin
Respiratory system
teeth

Acute oral toxicity
Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute inhalation toxicity
Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:; damage of respiratory tract, After a latency period:; Inhalation may lead to the formation of oedemas in the respiratory tract.

Skin irritation
Mixture causes severe burns.

Eye irritation
Mixture causes serious eye damage. Risk of blindness!

Specific target organ systemic toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC
No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
Further information
After uptake:
Bloody vomiting, strong pain (risk of perforation!), tissue damage, death
The following applies to nitrites/nitrates in general: methemoglobinemia after the uptake of large quantities.
Handle in accordance with good industrial hygiene and safety practice.

Ingredients

Nitric acid

Skin irritation
Rabbit
Result: Causes severe burns.
(IUCLID)

Eye irritation
Rabbit
Result: Causes burns.
(IUCLID)

Germ cell mutagenicity
Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

SECTION 12. Ecological information

Ecotoxicity
No information available.

Persistence and degradability
Biodegradability
The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential
No information available.

Mobility in soil
No information available.

Additional ecological information
Biological effects:
 Harmful effect due to pH shift. Forms corrosive mixtures with water even if diluted. Does not cause biological oxygen deficit. Hazard for drinking water supplies. Discharge into the environment must be avoided.

Ingredients

Nitric acid

Toxicity to fish
LC50 Gambusia affinis (Mosquito fish): 72 mg/l; 96 h (IUCLID)
Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Henry constant
2482 Pa*m³/mol
Method: (calculated)
(Lit.) Distribution preferentially in air.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)
- UN number: UN 2031
- Proper shipping name: NITRIC ACID
- Class: 8 (5.1)
- Packing group: II
- Environmentally hazardous: --

Air transport (IATA)
- UN number: UN 2031
- Proper shipping name: NITRIC ACID
- Class: 8 (5.1)
- Packing group: II
- Environmentally hazardous: --
- Special precautions for user: yes, Not permitted for transport

Sea transport (IMDG)
- UN number: UN 2031
- Proper shipping name: NITRIC ACID WITH AT LEAST 65% BUT NOT MORE THAN 70%
- Class: 8 (5.1)
- Packing group: II
- Environmentally hazardous: --
- Special precautions for user: yes
- EmS: F-A S-Q
SECTION 15. Regulatory information

United States of America

SARA 313
The following components are subject to reporting levels established by SARA Title III, Section 313:

Ingredients
nitric acid 7697-37-2 65 %

SARA 302
The following components are subject to reporting levels established by SARA Title III, Section 302:

Ingredients
nitric acid 7697-37-2

Clean Water Act
The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Ingredients
nitric acid

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Ingredients
nitric acid

DEA List I
Not listed

DEA List II
Not listed

US State Regulations

Massachusetts Right To Know

Ingredients
nitric acid

Pennsylvania Right To Know

Ingredients
nitric acid

New Jersey Right To Know

Ingredients
nitric acid

California Prop 65 Components
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.
SAFETY DATA SHEET
according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number: NX0407
Product name: Nitric Acid 67 - 70% OmniTrace®
Version: 1.1

Notification status
TSCA: All components of the product are listed in the TSCA-inventory.
DSL: All components of this product are on the Canadian DSL.
KOREA: Not in compliance with the inventory

SECTION 16. Other information

Training advice
Provide adequate information, instruction and training for operators.

Labeling
Hazard pictograms

Signal Word
Danger

Hazard Statements
H272 May intensify fire; oxidizer.
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

Precautionary Statements
Prevention
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Full text of H-Statements referred to under sections 2 and 3.
H272 May intensify fire; oxidizer.
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.
SAFETY DATA SHEET
according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number  NX0407  Version 1.1
Product name  Nitric Acid 67 - 70% OmniTrace®

Revision Date 01/26/2015

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

All rights reserved. Millipore and the "M" Mark are registered trademarks of Merck KGaA, Darmstadt, Germany.