

Safety Data Sheet

1. Product and company identification

Product name : Nitric acid 1.42
Name of manufacturer : KANTO CHEMICAL CO., INC.
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Name of section : Electronic materials division technical department
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SDS No. : GE00248

2. Summary of danger and Hazard

GHS classification

Physical and chemical hazard

Explosives : Out of category
Flammable liquids : Out of category
Pyrophoric liquids : Out of category
Self-heating substances and mixtures : Out of category
Oxidizing liquids : Category 1
Corrosive to metals : Category 1

Human health hazard

Acute toxicity(inhalation:vapors) : Category 1
Skin corrosion/irritation : Category 1B
Serious eye damage/eye irritation : Category 1
Specific target organ systemic toxicity(single exposure) : Category 1
Specific target organ systemic toxicity(repeated exposure) : Category 1

Environmental hazard

Hazardous to the aquatic environment-acute hazard : Category 3
Hazardous to the aquatic environment-chronic hazard : Out of category

Pictogram or symbol



Signal word : Danger

- Hazard statement : May cause fire or explosion : strong oxidizer
May be corrosive to metals
Fatal if inhaled
Causes severe skin burns and eye damage
Causes serious eye damage
Causes damage to organs (respiratory organs)
Causes damage to organs (respiratory organs, tooth) through prolonged or repeated exposure
Harmful to aquatic life
- Cautions
- Safety measurements : Keep away from heat.
Keep away from combustible substances.
Keep only in original container.
Do not breathe dust, mist, and vapor.
Use only in a well-ventilated area.
Avoid release to the environment.
Do not eat, drink or smoke when using this product.
Wear appropriate protective gloves, glasses, clothing, face shield, or mask.
Wash protective equipment thoroughly after use.
Wash hands thoroughly after handling.
- First-aid measures : If inhaled : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately get medical treatment.
If swallowed: Rinse mouth, do not induce vomiting. Immediately get medical treatment.
If in eyes : Rinse cautiously with water for several minutes. Get medical treatment.
If on skin : Remove contaminated clothing and the substance. Immediately get medical treatment.
If on clothing : Immediately wash contaminated clothing and skin before putting off clothing.
If exposed, get medical treatment.
Get medical treatment, if you feel unwell.
In case of major fire or a large stock, evacuate area. Fight fire with normal precautions from a reasonable distance.
Absorb spillage to prevent material damage.
- Storage : Keep away from combustible substances.
Keep in corrosive resistant container.
Tightly container closed and store in a well-ventilated area.
Store locked up.
- Disposal : Dispose of contents and containers appropriately in accordance with related regulations.

3. Composition/Information on ingredients

- Substance/Mixture : Substance
Chemical name or commercial name
: Nitric acid

Ingredients and composition

: 70-71% Nitric acid in water
Chemical formula : HNO₃
CAS No. : 7697-37-2
TSCA Inventory : Registered
EINECS No. : 2317142
Dangerous and hazardous ingredients
: Nitric acid

4. First aid measures

Inhalation : Remove the victim to fresh air, and make him blow his nose and gargle. If necessary, get medical treatment.
Skin contact : Wash the affected areas under running water.
Eye contact : Wash the affected areas under running water for at least 15 minutes. Get medical treatment.
Ingestion : Rinse mouth with water. Give the victim one or two glasses of water or milk. Do not induce vomiting. Get medical treatment as soon as possible.

Anticipated acute and delayed symptoms

: If inhaled, cause burning sensation and ache of throat, cough, shortness of breath, and pulmonary edema. These symptoms may appear in delaying. If contacted with skin, cause redness, ache, severe burns, and blister. If contacted with eyes, cause redness, ache, blurred vision, and severe burning.

Protection for first aid person

: Rescuers should wear proper protective equipment like rubber gloves, goggles.

5. Fire fighting measures

Extinguishing media : This product is noncombustible.
Prohibited extinguishing media
: None
Particular fire fighting : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.

Protection for firefighters

: Firefighters should wear protective equipment.

6. Accidental release measures

Cautions for personnel : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Keep away personnel except for authorized ones from spillage area by stretching ropes.
Cautions for environment : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.

Removal measure : Remove the spillage by absorption with diatomaceous earth or dry sand. Or else dilute with water gradually and neutralize with calcium hydroxide solution or sodium carbonate solution then wash thoroughly with water.

7. Cautions of handling and storage

Handling

Engineering measures : Wear proper protective equipment to avoid contact with skin or inhalation of vapor.

Cautions : The substance is an oxidizer. Avoid contact with organic substances.

Storage

Adequate storage condition

: Store in a dark, cool place and tightly closed.

Safety adequate container materials

: Glass, Fluorine resin, Polyethylene

8. Exposure control/Personal protection

Engineering measures : Use with an enclosed system or a local exhaust ventilation.

Control parameters

ACGIH(2015) : 2ppm(TLV-TWA)
4ppm (TLV-STEL)

Protective equipment

Respiration protective equipment

: Chemical cartridge respirator with acids vapor cartage or airline respirator

Hands protective equipment

: Impervious protective gloves

Eyes protective equipment

: Safety goggles

Skin and body protective equipment

: Protective clothing, protective boots

9. Physical and chemical properties

Appearance : Liquid

Color : Colorless

Odor : Acrid odor

pH : Strong acidity

Boiling point : 121.2°C

Melting point : -38°C

Vapor pressure : 11.99hPa (25°C)

Density : 1.42g/cm³ (20°C)

Solubility

Solubility in solvents : Water ; Miscible

10. Stability and reactivity

Stability : Decomposed partly by light.

This material is a respiratory tract irritation. In humans, there is the description that causes cough, headache, nausea, chest pain, dyspnea, bronchoconstriction, respiratory failure, pulmonary edema by inhalation exposure. And there is the description that oral cavity, esophagus, stomach corrosion necrosis, pneumonia were reported by oral exposure. In laboratory animals, there is the report of a wide range of inflammation of the airways, rhinitis, bronchitis, pneumonia by inhalation exposure of 8 ppm (0.02 mg/L) to rat. These symptoms were observed at doses in the range which corresponds to Category 1. From above results, since the substance affects the respiratory tract, it was classified as Category 1 (respiratory organs).

Specific target organ systemic toxicity repeated exposure

: Cause damage to organs (respiratory organs, tooth) through prolonged or repeated exposure(category 1)

There is the description that the dental erosion of teeth in 3 people of 32 people who are occupationally inhalation exposure to nitric acid (the control group was without the onset in 293 patients) was observed. and as well as chronic bronchitis was observed by repeated exposure to nitric acid vapor and mist. There is the description that with further results in a chemical pneumonia in severe exposure cases some teeth, especially the description of that erode the canines and incisors. Based on the the knowledge of occupational exposure in humans, it was classified into category 1(respiratory organ, tooth).

Aspiration hazard : Not possible to classify because of insufficient data.

12. Ecological information

Ecotoxicity

Fish toxicity : Harmful to aquatic life(category 3)
Chronic aquatic toxicity : Out of category
Fish(Gambusia affinis) LC50=72mg/L/96H

Persistence and degradability

: Not available

Bioaccumulative potential : Not available

13. Disposal consideration

Residual disposal : Add alkali such as calcium hydroxide, sodium carbonate gradually to neutralize and then flush in a drain with a large amount of water. Or entrust approved waste disposal companies with the disposal.

Containers : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

UN class : Class 8(Corrosive substances) P. G. I

UN number : 2031

Marine regulation information

UN No. : 2031
Proper shipping name : NITRIC ACID
Class : 8
Sub risk : 5.1
Packing group : I
Marine pollutant : Not applicable

Aviation regulation information

UN No. : 2031
Proper shipping name : Nitric acid
Class : 8
Sub risk : 5.1
Packing group : I

15. Regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

References

Handbook of dangerous and hazardous chemicals, Japan Industrial Safety & Health Association. (2000-2001)
Dangerous Properties of Industrial Materials, 6th ed. N. I. Sax Van Nostrand Reinhold Company (1984)
Handbook of Dangerous Substances Springer-Verlag Tokyo (1991)
Handbook of 16817 Chemical Products, The Chemical Daily Co. (2017)
Handbook of Poisonous and Deleterious substances, revised and enlarged edition, Yakumu Kohosa (2000)

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet (SDS) is prepared based on JIS Z7253, and it has the same required elements on the Material Safety Data Sheet (MSDS) which is prepared based on JIS Z7250:2010.