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SAFETY DATA SHEET

100 ppm Iron Standard Solution

1. Product Identification

1.1. Product Identifiers

- 1.1.1. Name:
100 ppm Iron Standard Solution
- 1.1.2. Part Number:
1471
- 1.1.3. CAS Number:
7439-89-6, 7697-37-2, & 7732-18-5

1.2. Relevant Identified Uses and Uses Advised Against

- 1.2.1. Identified Uses:
Laboratory chemical

1.3. Details of Supplier of Safety Data Sheet

- 1.3.1. Company:
ARTMS Inc
8575 Commerce Court
Burnaby, BC, V5A 4N5
Canada
- 1.3.2. Phone Number:
+1 (604) 228 4016


1.4. Emergency Contact Phone Number

- 1.4.1. Emergency Phone Number:
1-888-CANUTEC (226-8832) (North American use) and/or 1-613-996-6666 (International use)

2. Hazard Identification

2.1. Classification of Substance/Mixture

GHS Classification in accordance with Hazardous Products Regulations (HPR) (SOR/2015-17)
Corrosive to Metals (Category 1), H290
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
For the full text of the H-Statements mentioned in this Section, see Section 16.

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2.2. GHS Label Elements, Including Primary Statements

2.2.1. Pictogram:



2.2.2. Signal Word:

Danger

2.2.3. Hazard statement(s):

H290: May be corrosive to metals.

H315: Causes skin irritation.

H319: Causes serious eye irritation.

2.2.4. Precautionary statement(s):

P234: Keep only in original packaging.

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): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P310: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

P305 + P351 + P338 + P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

P363: Wash contaminated clothing before reuse.

P390: Absorb spillage to prevent material damage.

P405: Store locked up.

P501: Dispose of contents/ container to an approved waste disposal plant.

2.3. Hazards Not Otherwise Classified (HNOC) or covered by GHS

None

3. Composition/Information on Ingredients

3.1. Substances/Mixtures

- 3.1.1. Nitric Acid
 - 3.1.1.1. Formula: HNO₃
 - 3.1.1.2. Molecular Weight: 63.01 g/mol
- 3.1.2. Iron Metal
 - 3.1.2.1. Formula: Fe
 - 3.1.2.2. Molecular weight: 55.85 g/mol

Substance	Composition (%)	CAS Number	EC Number	Classification
Water	99.59 %	7732-18-5	231-791-2	N/A
Nitric acid	0.4	7697-37-2	231-714-2	H Ox. Liq. 2; Met. Corr. 1; Acute Tox. 3; Skin Corr. 1A; Eye Dam. 1; H272, H290, H331, H314, H318
Iron Metal	0.01	7439-89-6	231-096-4	N/A

4. First Aid Measures

4.1. Description of First Aid Measures

- 4.1.1. General Advice:


Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
- 4.1.2. If inhaled:

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary, also oxygen
- 4.1.3. In case of skin contact:

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.
- 4.1.4. In case of eye contact:

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
- 4.1.5. If swallowed:

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralize.

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4.2. Most Important Symptoms and Effects (Both Acute and Delayed)

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3. Indication of and Immediate Medical Attention and Special Treatment Needed

No data available.

5. Fire Fighting Measures

5.1. Extinguishing Media

5.1.1. Suitable extinguishing media

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

5.1.2. Unsuitable extinguishing media

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

5.2. Special Hazards Arising from the Substance/Mixture

Nitrogen oxides (NO_x)

Not combustible.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of: nitrous gases, nitrogen oxides

5.3. Advice for Firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4. Further Information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

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


For personal protection see section 8.

6.2. Environmental Precautions

Do not let product enter drains.

6.3. Methods and Materials for Containment and Cleaning

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. Chemisorb® H⁺, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

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6.4. Reference to Data Sheet Sections

For disposal see section 13.

7. Handling and Storage

7.1. Precautions for Safe Handling

Advice on safe handling:

Observe label precautions.

Hygiene measures:

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

No metal or light-weight metal containers.

Tightly closed.

Recommended storage temperature, see product label.

Storage class (TRGS 510): 8A: Combustible, corrosive hazardous materials.

7.3. Specific End Use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. Exposure Controls/Personal Protection

8.1. Control Parameters

Component	CAS Number	Value	Control Parameters	Basis
Nitric Acid	7697-37-2	TWA	2 ppm 5.2 mg/m ³	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		STEL	4 ppm 10 mg/m ³	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWA	2 ppm	Canada. British Columbia OE
		STEL	4 ppm	Canada. British Columbia OE
		STEV	4 ppm 10 mg/m ³	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWAEV	2 ppm 5.2 mg/m ³	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
		STEL	4 ppm	USA. ACGIH Threshold Limit Values (TLV)

8.2. Derived No Effect Level (DNEL)

Application Area	Routes of exposure	Health effect	Value
Workers	Inhalation	Acute local effects	2.6 mg/m ³
Workers	Inhalation	Long-term local effects	1.3 mg/m ³
Consumers	Inhalation	Acute local effects	1.3 mg/m ³
Consumers	Inhalation	Long-term local effects	0.65 mg/m ³

8.3. Exposure Controls

8.3.1. Appropriate engineering controls:

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

8.3.2. Personal Protective Equipment:

8.3.2.1. Eye/face protection:

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

8.3.2.2. Skin protection:

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

8.3.2.3. Body protection:

acid-resistant protective clothing, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

8.3.2.4. Respiratory protection:

Required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

8.3.2.5. Control of environmental exposure:

Do not let product enter drains.


9. Physical and Chemical Properties

9.1. Information on Basic Physical and Chemical Properties

Property	Data/Value
Appearance	Colorless Liquid
Odor	of nitric acid
Odor Threshold	No data available
pH	No data available
Melting/Freezing Point	No data available
Initial Boiling Point and Range	No data available
Flash Point	No data available
Evaporation Rate	No data available
Flammability	Not flammable
Upper/Lower Flammability/Explosive Limits	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Relative Density	1 g/cm ³ at 25 °C (77 °F)
Water Solubility	Soluble
Partition Coefficient: n-octanol/water	No data available
Auto-Ignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	Not applicable
Oxidizing Properties	Oxidizing potential

9.2. Other Safety Information

No other data available.

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10. Stability and Reactivity

10.1. Reactivity

Oxidizing agents

10.2. Chemical Stability

The product is chemically stable under standard ambient conditions (room temperature).
Stable under recommended storage conditions.


10.3. Possibility of Hazardous Reactions

Risk of ignition or formation of inflammable gases or vapours with:

Metals
Alkali metals
Alkaline earth metals
metal alloys
metallic oxides
Alcohols
Aldehydes
Amines
anhydrides
anilines
Ammonia
alkalines
hydrides
halogen compounds
nonmetallic oxides
nonmetallic halides
nonmetallic hydrogen compounds
nonmetals
phosphides
nitrides
lithium silicide
hydrogen peroxide
organic combustible substances
oxidisable substances
organic solvent
Ketones
Nitriles
organic nitro compounds
hydrazine and derivatives
acetylidene
Acids
Fluorine
Generates dangerous gases or fumes in contact with:
Copper
Mercury

10.4. Conditions to Avoid

May discolor on exposure to air and light.

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10.5. Incompatible Materials

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

10.6. Hazardous Decomposition Properties

In the event of fire: see section 5

11. Toxicology

11.1. Information on Toxicological Effects

11.1.1. Acute 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 toxicity estimate Inhalation - 4 h - 40 mg/l - vapor (Calculation method)

Symptoms: Possible symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages: damage of respiratory tract

Dermal: No data available

11.1.2. Inhalation:

No data available

11.1.3. Dermal:

No data available.

11.1.4. Skin corrosion/irritation:

Remarks: Mixture causes severe burns.

11.1.5. Serious eye damage/eye irritation:

Remarks: Mixture causes serious eye damage.

Risk of blindness!

11.1.6. Respiratory or skin sensitization:

No data available.

11.1.7. Germ cell mutagenicity:

No data available.

11.1.8. Carcinogenicity

No data available.

11.1.9. Reproductive toxicity


No data available.

11.1.10. Specific target organ toxicity - single exposure

No data available.

11.1.11. Specific target organ toxicity - repeated exposure

No data available.

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11.1.12. Aspiration hazard

No data available.

11.2. Additional information:

RTECS: QU5775000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties cannot be excluded.

Handle in accordance with good industrial hygiene and safety practice.

11.3. Components (Nitric Acid)

11.3.1. Acute toxicity:

Oral: No data available

Acute toxicity estimate: Inhalation - 4 h - 2.65 mg/l - vapor
(Expert judgment)

Dermal: No data available

11.3.2. Inhalation:

No data available

11.3.3. Dermal:

No data available.

11.3.4. Skin corrosion/irritation:

Skin - Rabbit

Result: Causes severe burns.

Remarks: (IUCLID)

Remarks: Causes poorly healing wounds.

11.3.5. Serious eye damage/eye irritation:

Eyes - Rabbit

Result: Causes burns.

Remarks: (IUCLID)

Remarks: Causes serious eye damage.

11.3.6. Respiratory or skin sensitization:

No data available.

11.3.7. Carcinogenicity:

No data available.

11.3.8. Reproductive toxicity:


No data available.

11.3.9. Specific target organ toxicity – single exposure:

No data available.

11.3.10. Specific target organ toxicity – repeated exposure:

No data available.

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11.3.11. Aspiration hazard:
No data available.

12. Ecological Information

12.1. Toxicity

No data available.

12.2. Persistence and Degradability

No data available.

12.3. Bio-accumulative Potential

No data available.

12.4. Mobility in Soil

No data available.

12.5. Results of PBT and vPvB Assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6. Other Adverse Effects

May be harmful to aquatic organisms due to the shift of the pH. Do not empty into drains.

13. Disposal Considerations

13.1. Waste Treatment Methods

13.1.1. Product:

Waste material must be disposed of in accordance with the national and local regulations. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

14. Transport Information

14.1. TDG


UN number: 2031 Class: 8 (5.1) Packing group: II
 Proper shipping name: NITRIC ACID
 Subsidiary risk : 5.1
 Labels: 8
 (5.1)ERG Code: 157
 Marine pollutant: no

14.2. IMDG

UN number: 2031 Class: 8 (5.1) Packing group: II EMS-No: F-A, S-B
 Proper shipping name: NITRIC ACID

14.3. IATA

UN number: 2031 Class: 8 (5.1) Packing group: II

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Proper shipping name: Nitric acid

15. Regulatory Information

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

16. Other Information

16.1. Further Information

No further data available.

Disclaimer:

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product regarding appropriate safety precautions. It does not represent any guarantee of the properties of the product. ARTMS Inc. shall not be held liable for any damage resulting from handling or from contact with the above product.

END OF SDS