

## SAFETY DATA SHEET

Revision Date 01-April-2024

Revision Number 4

### 1. Identification

**Product Name** Multi-element standard solution

**Cat No. :** 96786

**Synonyms** No information available

**Recommended Use** Laboratory chemicals.

**Uses advised against** Food, drug, pesticide or biocidal product use.

#### Details of the supplier of the safety data sheet

##### Company

##### **Importer/Distributor**

Fisher Scientific  
112 Colonnade Road,  
Ottawa, ON K2E 7L6,  
Canada  
Tel: 1-800-234-7437

##### **Emergency Telephone Number**

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) identification

#### Classification

**WHMIS 2015 Classification** Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

<b>Corrosive to metals</b>	Category 1
<b>Acute Inhalation Toxicity</b>	Category 4
<b>Skin Corrosion/Irritation</b>	Category 1 A
<b>Serious Eye Damage/Eye Irritation</b>	Category 1
<b>Specific target organ toxicity (single exposure)</b>	Category 3
Target Organs - Respiratory system.	

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

May be corrosive to metals  
Harmful if inhaled

Causes severe skin burns and eye damage  
May cause respiratory irritation

**Precautionary Statements****Prevention**

Keep only in original container  
Do not breathe dust/fumes/gas/mist/vapours/spray  
Wash face, hands and any exposed skin thoroughly after handling  
Use only outdoors or in a well-ventilated area  
Wear protective gloves/protective clothing/eye protection/face protection

**Response**

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower  
IF INHALED: Remove person to fresh air and keep comfortable for breathing  
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  
Wash contaminated clothing before reuse  
Absorb spillage to prevent material damage

**Storage**

Store locked up  
Store in a well-ventilated place. Keep container tightly closed  
Store in corrosive resistant polypropylene container with a resistant inliner  
Store in a dry place

**Disposal**

Dispose of contents/container to an approved waste disposal plant

### 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Water	7732-18-5	93.65
Nitric acid	7697-37-2	5
(+)-Tartaric acid	87-69-4	1
Potassium chloride	7447-40-7	0.2
Hydrofluoric acid	7664-39-3	0.15

### 4. First-aid measures

**General Advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

**Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

**Inhalation**

If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration

	with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.
<b>Ingestion</b>	Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.
<b>Most important symptoms/effects</b>	Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
<b>Notes to Physician</b>	Treat symptomatically

## 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	No information available
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	No information available
<b>Explosion Limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

### Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

### Hazardous Combustion Products

Nitrogen oxides (NO<sub>x</sub>). Hydrogen fluoride. Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Potassium oxides.

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

### NFPA

**Health**  
3

**Flammability**  
0

**Instability**  
0

**Physical hazards**  
-

## 6. Accidental release measures

<b>Personal Precautions</b>	Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
<b>Environmental Precautions</b>	Should not be released into the environment.
<b>Methods for Containment and Clean Up</b>	Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

## 7. Handling and storage

<b>Handling</b>	Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.
<b>Storage.</b>	Corrosives area. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. .

## 8. Exposure controls / personal protection

### Exposure Guidelines

Component	Alberta	British Columbia	Ontario TWAEV	Quebec	ACGIH TLV	OSHA PEL	NIOSH
Nitric acid	TWA: 2 ppm TWA: 5.2 mg/m <sup>3</sup> STEL: 4 ppm STEL: 10 mg/m <sup>3</sup>	TWA: 2 ppm STEL: 4 ppm	TWA: 2 ppm STEL: 4 ppm	TWA: 2 ppm TWA: 5.2 mg/m <sup>3</sup> STEL: 4 ppm STEL: 10 mg/m <sup>3</sup>	TWA: 2 ppm STEL: 4 ppm	(Vacated) TWA: 2 ppm (Vacated) TWA: 5 mg/m <sup>3</sup> (Vacated) STEL: 4 ppm (Vacated) STEL: 10 mg/m <sup>3</sup> TWA: 2 ppm TWA: 5 mg/m <sup>3</sup>	IDLH: 25 ppm TWA: 2 ppm TWA: 5 mg/m <sup>3</sup> STEL: 4 ppm STEL: 10 mg/m <sup>3</sup>
Hydrofluoric acid	Ceiling: 2 ppm Ceiling: 1.6 mg/m <sup>3</sup> TWA: 0.5 ppm TWA: 0.4 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup>	TWA: 2.5 mg/m <sup>3</sup> Ceiling: 2 ppm Skin	TWA: 0.5 ppm TWA: 2.5 mg/m <sup>3</sup> CEV: 2 ppm Skin	TWA: 2.5 mg/m <sup>3</sup> Ceiling: 3 ppm Ceiling: 2.6 mg/m <sup>3</sup>	TWA: 0.5 ppm TWA: 2.5 mg/m <sup>3</sup> Ceiling: 2 ppm Skin	(Vacated) TWA: 3 ppm (Vacated) TWA: 2.5 mg/m <sup>3</sup> (Vacated) STEL: 6 ppm TWA: 3 ppm	IDLH: 30 ppm IDLH: 250 mg/m <sup>3</sup> TWA: 3 ppm TWA: 2.5 mg/m <sup>3</sup> Ceiling: 6 ppm Ceiling: 5 mg/m <sup>3</sup>

#### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

### Engineering Measures

None under normal use conditions. Ensure that eyewash stations and safety showers are close to the workstation location.

### Personal protective equipment

#### Eye Protection

Goggles

#### Hand Protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Glove material	Breakthrough time	Glove thickness	Glove comments
Natural rubber Nitrile rubber Neoprene PVC	See manufacturers recommendations	-	Splash protection only

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

#### Respiratory Protection

No protective equipment is needed under normal use conditions.

**Recommended Filter type:** Particle filter

### Environmental exposure controls

No information available.

### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

## 9. Physical and chemical properties

Physical State	Liquid
Appearance	No information available
Odor	Characteristic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available
Boiling Point/Range	No information available approx °C / °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	No information available g/cm3
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available

## 10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products.
Incompatible Materials	
Hazardous Decomposition Products	Nitrogen oxides (NOx), Hydrogen fluoride, Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Potassium oxides
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Product Information

##### Oral LD50

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

##### Dermal LD50

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

##### Vapor LC50

Based on ATE data, the classification criteria are not met. ATE > 20 mg/l. Category 4. ATE = 10 - 20 mg/l.

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-
Nitric acid	Not listed	Not listed	LC50 = 2500 ppm. (Rat) 1h
(+)-Tartaric acid	Not listed	LD50 > 2000 mg/kg ( Rat )	Not listed
Potassium chloride	LD50 = 2600 mg/kg ( Rat )	Not listed	Not listed
Hydrofluoric acid	Not listed	Not listed	LC50 = 0.79 mg/L ( Rat ) 1 h

**Toxicologically Synergistic Products** No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation** No information available

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Nitric acid	7697-37-2	Not listed	Not listed	Not listed	Not listed	Not listed
(+)-Tartaric acid	87-69-4	Not listed	Not listed	Not listed	Not listed	Not listed
Potassium chloride	7447-40-7	Not listed	Not listed	Not listed	Not listed	Not listed
Hydrofluoric acid	7664-39-3	Not listed	Not listed	Not listed	Not listed	Not listed

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Respiratory system

**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
(+)-Tartaric acid	-	-	-	EC50=230 mg/L 48h
Potassium chloride	EC50: 2500 mg/L/72h	Lepomis macrochirus: LC50: 1060 mg/L /96h Pimephales promelas: LC50: 750 - 1020 mg/L /96h	Not listed	EC50: 825 mg/L/48h
Hydrofluoric acid	Not listed	LC50 = 660 mg/L, 48h (Leuciscus idus)	Not listed	EC50 = 270 mg/L, 48h (Daphnia species)

**Persistence and Degradability** Miscible with water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Nitric acid	-2.3
(+)-Tartaric acid	-1.7
Hydrofluoric acid	-1.4

### 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Hydrofluoric acid - 7664-39-3	U134	-

### 14. Transport information

#### DOT

UN-No UN3264  
 Proper Shipping Name CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.  
 Technical Name Nitric acid, Hydrogen fluoride  
 Hazard Class 8  
 Packing Group III

#### TDG

UN-No UN3264  
 Proper Shipping Name CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.  
 Hazard Class 8  
 Packing Group III

#### IATA

UN-No UN3264  
 Proper Shipping Name CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.  
 Hazard Class 8  
 Packing Group III

#### IMDG/IMO

UN-No UN3264  
 Proper Shipping Name CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.  
 Hazard Class 8  
 Packing Group III

### 15. Regulatory information

All of the components in the product are on the following Inventory lists: China X = listed Australia U.S.A. (TSCA) Canada (DSL/NDL) Europe (EINECS/ELINCS/NLP) Australia (AICS) Korea (KECL) China (IECSC) Japan (ENCS) Philippines (PICCS)

#### International Inventories

Component	CAS-No	DSL	NDL	TSCA	TSCA Inventory notification - Active-Inactive	EINECS	ELINCS	NLP
Water	7732-18-5	X	-	X	ACTIVE	231-791-2	-	-
Nitric acid	7697-37-2	X	-	X	ACTIVE	231-714-2	-	-
(+)-Tartaric acid	87-69-4	X	-	X	ACTIVE	201-766-0	-	-
Potassium chloride	7447-40-7	X	-	X	ACTIVE	231-211-8	-	-
Hydrofluoric acid	7664-39-3	X	-	X	ACTIVE	231-634-8	-	-

Component	CAS-No	IECSC	KECL	ENCS	ISHL	TCSI	AICS	NZIoC	PICCS
Water	7732-18-5	X	KE-35400	X	-	X	X	X	X
Nitric acid	7697-37-2	X	KE-25911	X	X	X	X	X	X
(+)-Tartaric acid	87-69-4	X	KE-10801	X	X	X	X	X	X
Potassium chloride	7447-40-7	X	KE-29086	X	X	X	X	X	X
Hydrofluoric acid	7664-39-3	X	KE-20198	X	X	X	X	X	X

#### Legend:

X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances  
 ENCS - Japanese Existing and New Chemical Substances  
 AICS - Australian Inventory of Chemical Substances  
 PICCS - Philippines Inventory of Chemicals and Chemical Substances

## Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

Component	Canada - National Pollutant Release Inventory (NPRI)	Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances	Canada's Chemicals Management Plan (CEPA)
Nitric acid	Part 1, Group A Substance		
Hydrofluoric acid	Part 1, Group A Substance		

**Legend** NPRI - National Pollutant Release Inventory

## Other International Regulations

### Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Nitric acid	-	Use restricted. See item 75. (see link for restriction details)	-
Hydrofluoric acid	-	Use restricted. See item 75. (see link for restriction details)	-

### REACH links

<https://echa.europa.eu/substances-restricted-under-reach>

### Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Water	7732-18-5	Listed	Not applicable	Not applicable	Not applicable
Nitric acid	7697-37-2	Listed	Not applicable	Not applicable	Not applicable
(+)-Tartaric acid	87-69-4	Listed	Not applicable	Not applicable	Not applicable
Potassium chloride	7447-40-7	Listed	Not applicable	Not applicable	Not applicable
Hydrofluoric acid	7664-39-3	Listed	Not applicable	Not applicable	Not applicable

Component	CAS-No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Water	7732-18-5	Not applicable	Not applicable	Not applicable	Not applicable
Nitric acid	7697-37-2	Not applicable	Not applicable	Not applicable	Annex I - Y34
(+)-Tartaric acid	87-69-4	Not applicable	Not applicable	Not applicable	Not applicable
Potassium chloride	7447-40-7	Not applicable	Not applicable	Not applicable	Not applicable
Hydrofluoric acid	7664-39-3	Not applicable	Not applicable	Not applicable	Annex I - Y34

## 16. Other information

### Prepared By

Product Safety Department  
 Email: chem.techinfo@thermofisher.com  
 www.thermofisher.com



<b>Revision Date</b>	01-April-2024
<b>Print Date</b>	01-April-2024
<b>Revision Summary</b>	New emergency telephone response service provider.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**