

SAFETY DATA SHEET

Revision Date 01-Apr-2024

Revision Number 4

1. Identification

| | |
|-----------------------------|---|
| Product Name | Multi-Element QC-21 Check Standard Solution, Specpure® |
| Cat No. : | 41328 |
| 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

Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757

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

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|--|--------------|
| Corrosive to metals | Category 1 |
| Skin Corrosion/Irritation | Category 1 A |
| Serious Eye Damage/Eye Irritation | Category 1 |
| Specific target organ toxicity (single exposure) | Category 3 |
| Target Organs - Respiratory system. | |

Label Elements

Signal Word

Danger

Hazard Statements

May be corrosive to metals
Causes severe skin burns and eye damage
May cause respiratory irritation



Precautionary Statements

Prevention

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

Response

Immediately call a POISON CENTER or doctor/physician

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Ingestion

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Spills

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

Hazards not otherwise classified (HNOC)

None identified

3. Composition/Information on Ingredients

| Component | CAS No | Weight % |
|-----------------------------|-----------|----------|
| Water | 7732-18-5 | 94.80 |
| Nitric acid ...% [C ≤ 70 %] | 7697-37-2 | 5.00 |
| Tartaric acid (d, l) | 87-69-4 | 0.10 |
| Hydrogen fluoride | 7664-39-3 | 0.10 |

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. |
| Ingestion | Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately. |
| Most important symptoms and effects | 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 |
| Notes to Physician | Treat symptomatically |

5. Fire-fighting measures

| | |
|---|--|
| Suitable Extinguishing Media | Not combustible. CO ₂ , dry chemical, dry sand, alcohol-resistant foam. |
| Unsuitable Extinguishing Media | No information available |
| Flash Point | No information available |
| Method - | No information available |
| Autoignition Temperature | No information available |
| Explosion Limits | |
| Upper | No data available |
| Lower | No data available |
| Sensitivity to Mechanical Impact | No information available |
| Sensitivity to Static Discharge | 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

Carbon monoxide (CO). Carbon dioxide (CO₂). Nitrogen oxides (NO_x). Hydrogen fluoride.

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 | Flammability | Instability | Physical hazards |
| 3 | 0 | 0 | - |

6. Accidental release measures

| | |
|---|---|
| Personal Precautions | Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. |
| Environmental Precautions | Should not be released into the environment. See Section 12 for additional Ecological Information. |
| Methods for Containment and Clean Up | Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. |

7. Handling and storage

| | |
|-----------------|--|
| Handling | 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.

Storage.

Corrosives area. Keep containers tightly closed in a dry, cool and well-ventilated place.
Incompatible Materials. Strong bases.

8. Exposure controls / personal protection

Exposure Guidelines

| Component | ACGIH TLV | OSHA PEL | NIOSH | Mexico OEL (TWA) |
|-----------------------------|---|---|--|---|
| Nitric acid ...% [C ≤ 70 %] | TWA: 2 ppm STEL: 4 ppm | (Vacated) TWA: 2 ppm (Vacated) TWA: 5 mg/m ³ (Vacated) STEL: 4 ppm (Vacated) STEL: 10 mg/m ³ TWA: 2 ppm TWA: 5 mg/m ³ | IDLH: 25 ppm TWA: 2 ppm TWA: 5 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³ | TWA: 2 ppm STEL: 4 ppm |
| Hydrogen fluoride | TWA: 0.5 ppm TWA: 2.5 mg/m ³ Ceiling: 2 ppm Skin | (Vacated) TWA: 3 ppm (Vacated) TWA: 2.5 mg/m ³ (Vacated) STEL: 6 ppm TWA: 3 ppm | IDLH: 30 ppm IDLH: 250 mg/m ³ TWA: 3 ppm TWA: 2.5 mg/m ³ Ceiling: 6 ppm Ceiling: 5 mg/m ³ | TWA: 0.5 ppm TWA: 2.5 mg/m ³ Ceiling: 2 ppm |

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

Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type:

Particulates filter conforming to EN 143.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

| | |
|--------------------------|--------------------------|
| Physical State | Liquid |
| Appearance | No information available |
| Odor | No information available |
| Odor Threshold | No information available |
| pH | 1 |
| Melting Point/Range | No data available |
| Boiling Point/Range | No information available |
| 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 |
| 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 |
| Molecular Formula | Matrix: 5% HN O3 /tr. F/tr. tartaric acid |

10. Stability and reactivity

| | |
|---|--|
| Reactive Hazard | None known, based on information available |
| Stability | Stable under normal conditions. |
| Conditions to Avoid | Incompatible products. |
| Incompatible Materials | Strong bases |
| Hazardous Decomposition Products | Carbon monoxide (CO), Carbon dioxide (CO ₂), Nitrogen oxides (NO _x), Hydrogen fluoride |
| 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.

Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-----------------------------|------------|---------------------------|------------------------------|
| Water | - | - | - |
| Nitric acid ...% [C ≤ 70 %] | Not listed | Not listed | LC50 = 2500 ppm. (Rat) 1h |
| Tartaric acid (d, l) | Not listed | LD50 > 2000 mg/kg (Rat) | Not listed |
| Hydrogen fluoride | 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 ...% [C ≤ 70 %] | 7697-37-2 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Tartaric acid (d, l) | 87-69-4 | Not listed | Not listed | Not listed | Not listed | Not listed |

| | | | | | | |
|-------------------|-----------|------------|------------|------------|------------|------------|
| Hydrogen fluoride | 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 (d, l) | - | - | - | EC50=230 mg/L 48h |
| Hydrogen fluoride | 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 ...% [C ≤ 70 %] | -2.3 |
| Tartaric acid (d, l) | -1.7 |
| Hydrogen fluoride | -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 |
|-------------------------------|------------------------|------------------------|
| Hydrogen fluoride - 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, Hydrofluoric acid) |
| 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

United States of America Inventory

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | TSCA - EPA Regulatory Flags |
|-----------------------------|-----------|------|---|-----------------------------|
| Water | 7732-18-5 | X | ACTIVE | - |
| Nitric acid ...% [C ≤ 70 %] | 7697-37-2 | X | ACTIVE | - |
| Tartaric acid (d, l) | 87-69-4 | X | ACTIVE | - |
| Hydrogen fluoride | 7664-39-3 | X | ACTIVE | - |

Legend:

TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

- - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component | CAS No | DSL | NDSL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|-----------------------------|-----------|-----|------|-----------|-------|------|------|------|-------|----------|
| Water | 7732-18-5 | X | - | 231-791-2 | X | X | | X | X | KE-35400 |
| Nitric acid ...% [C ≤ 70 %] | 7697-37-2 | X | - | 231-714-2 | X | X | X | X | X | KE-25911 |
| Tartaric acid (d, l) | 87-69-4 | X | - | 201-766-0 | X | X | X | X | X | KE-10801 |
| Hydrogen fluoride | 7664-39-3 | X | - | 231-634-8 | X | X | X | X | X | KE-20198 |

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

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

| Component | CAS No | Weight % | SARA 313 - Threshold Values % | SARA 313 - Reporting thresholds |
|-----------------------------|-----------|----------|-------------------------------|---------------------------------|
| Nitric acid ...% [C ≤ 70 %] | 7697-37-2 | 5.00 | 1.0 % | - |
| Hydrogen fluoride | 7664-39-3 | 0.10 | 1.0 % | - |

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

| Component | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|-----------------------------|----------------------------|-----------------------------|------------------------|---------------------------|
| Nitric acid ...% [C ≤ 70 %] | X | 1000 lb | - | - |
| Hydrogen fluoride | X | 100 lb | - | - |

Clean Air Act

| Component | HAPS Data | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|-------------------|-----------|-------------------------|-------------------------|
| Hydrogen fluoride | X | | - |

OSHA - Occupational Safety and Health Administration Not applicable

| Component | Specifically Regulated Chemicals | Highly Hazardous Chemicals |
|-----------------------------|----------------------------------|----------------------------|
| Nitric acid ...% [C ≤ 70 %] | - | TQ: 500 lb |
| Hydrogen fluoride | - | TQ: 1000 lb |

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

| Component | Hazardous Substances RQs | CERCLA Extremely Hazardous Substances RQs | SARA Reportable Quantity (RQ) |
|-----------------------------|--------------------------|---|-------------------------------|
| Nitric acid ...% [C ≤ 70 %] | 1000 lb | 1000 lb | 1000 lb 454 kg |
| Hydrogen fluoride | 100 lb | 100 lb | 100 lb 45.4 kg |

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|-----------------------------|---------------|------------|--------------|----------|--------------|
| Water | - | - | X | - | - |
| Nitric acid ...% [C ≤ 70 %] | X | X | X | X | X |
| Hydrogen fluoride | X | X | X | X | X |

U.S. Department of Transportation

Reportable Quantity (RQ): Y
 DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product contains the following DHS chemicals:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

| Component | DHS Chemical Facility Anti-Terrorism Standard |
|-----------------------------|---|
| Nitric acid ...% [C ≤ 70 %] | Release STQs - 15000lb Theft STQs - 400lb |
| Hydrogen fluoride | Release STQs - 1000lb (concentration >=50%) Release STQs - 1000lb (anhydrous) Theft STQs - 45lb (anhydrous) |

Other International Regulations**Mexico - Grade** No information available**Authorisation/Restrictions according to EU REACH**

| Component | CAS No | 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) |
|-----------------------------|-----------|---|---|---|
| Water | 7732-18-5 | - | - | - |
| Nitric acid ...% [C ≤ 70 %] | 7697-37-2 | - | Use restricted. See item 75. (see link for restriction details) | - |
| Tartaric acid (d, l) | 87-69-4 | - | - | - |
| Hydrogen fluoride | 7664-39-3 | - | 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 ...% [C ≤ 70 %] | 7697-37-2 | Listed | Not applicable | Not applicable | Not applicable |
| Tartaric acid (d, l) | 87-69-4 | Listed | Not applicable | Not applicable | Not applicable |
| Hydrogen fluoride | 7664-39-3 | Listed | Not applicable | Not applicable | Not applicable |

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Other International Regulations

| 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 ...% [C ≤ 70 %] | 7697-37-2 | Not applicable | Not applicable | Not applicable | Annex I - Y34 |
| Tartaric acid (d, l) | 87-69-4 | Not applicable | Not applicable | Not applicable | Not applicable |
| Hydrogen fluoride | 7664-39-3 | Not applicable | Not applicable | Not applicable | Annex I - Y34 |

16. Other information**Prepared By**Health, Safety and Environmental Department
Email: chem.techinfo@thermofisher.com
www.thermofisher.com**Revision Date**

01-Apr-2024

Print Date

01-Apr-2024

Revision Summary

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