

SECTION 1: Identification

1.1 Product identifier

| | |
|-------------------|----------------------|
| Trade name | RoQuest™ 6000 |
| CAS number | none |

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

| | |
|---------------------------------|---|
| Relevant identified uses | Water treatment chemical MMF Multimedia Filtration |
|---------------------------------|---|

1.3 Details of the supplier of the safety data sheet

Avista Technologies, Inc.
140 Bosstick Blvd.
92069 San Marcos
United States

Telephone: +1 (760) 744 0536
e-mail: regulatory@avistatech.com
Website: AvistaMembraneSolutions.com

1.4 Emergency telephone number

| | |
|-----------------------------------|--|
| Emergency Number (USA, Canada): | 1 (800) 424-9300 (ChemTrec) |
| Emergency Number (International): | 1 (703) 527-3887 (International Collect) |

1.5 Registration



CERTIFIED BY NSF INTERNATIONAL TO NSF/ANSI 60 AS A STANDARD
DRINKING WATER TREATMENT CHEMICAL FOR USE IN REVERSE
OSMOSIS SYSTEMS AT A MAXIMUM LEVEL OF 285 mg/L.

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

| <i>Hazard class</i> | <i>Category</i> | <i>Hazard statement</i> |
|--|-----------------|-------------------------|
| skin corrosion/irritation | 1C | H314 |
| serious eye damage/eye irritation | 1 | H318 |
| substance or mixture corrosive to metals | 1 | H290 |

For full text of abbreviations: see SECTION 16.

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2.2 Label elements

Signal word danger

Pictograms

GHS05



Hazard statements

H290 May be corrosive to metals.
 H314 Causes severe skin burns and eye damage.

Precautionary statements

P234 Keep only in original container.
 P260 Do not breathe dusts or mists.
 P280 Wear 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/shower.
 P304+P340 If inhaled: Remove person to fresh air and keep 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/doctor.
 P363 Wash contaminated clothing before reuse.
 P390 Absorb spillage to prevent material damage.
 P405 Store locked up.
 P406 Store in corrosive resistant container with a resistant inner liner.
 P501 Dispose of contents/container to industrial combustion plant.

2.3 Other hazards

Hazards not otherwise classified

May be harmful if swallowed (GHS category 5: acutely toxic - oral).
 May be harmful in contact with skin (GHS category 5: acutely toxic - dermal).

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Mixtures

Hazardous ingredients

| <i>Name of substance</i> | <i>Identifier</i> | <i>Wt%</i> | <i>Classification acc. to GHS</i> |
|--------------------------|-----------------------|------------|---|
| Coagulant B | CAS No Proprietary | 1 – < 5 | |
| Coagulant A | CAS No Proprietary | 1 – < 5 | |
| Water | 7732-18-5 | 40 – < 50 | Not established |
| Iron salt A | Proprietary | 40 – < 50 | Acute Tox. 4 / H302 Skin Irrit. 2 / H315 Eye Dam. 1 / H318 Met. Corr. 1 / H290 |

For full text of abbreviations: see SECTION 16.
 Specific chemical identity and concentration of some ingredients are protected as Trade Secret information.

SECTION 4: First-aid measures**4.1 Description of first-aid measures****General notes**

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

In case of respiratory tract irritation, consult a physician.

Following skin contact

Rinse skin with water/shower. After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Immediately call a doctor. In all cases of doubt, or when symptoms persist, seek medical advice.

Following eye contact

Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Immediately call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns and eye damage. Splashes cause strong tearing, pain, may cause permanent visual impairment. Prolonged contact may cause dryness, redness, burns, blistering and ulceration. Can be partially absorbed by the skin. Ingestion causes pain, burns, abdominal pain, possible general impact (shock).

4.3 Indication of any immediate medical attention and special treatment needed

No specific antidote is known. Treatment of the symptoms.

SECTION 5: Fire-fighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Non-combustible. Coordinate firefighting measures to the fire surroundings. Water spray, Alcohol resistant foam, Fire extinguishing powder, Carbon dioxide (CO₂)

Unsuitable extinguishing media

None

5.2 Special hazards arising from the substance or mixture

Substance or mixture corrosive to metals.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO₂)

5.3 Advice for firefighters

Keep containers cool with water spray. In case of fire and/or explosion do not breathe fumes. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

Chemical protection suit, Use suitable breathing apparatus

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Aqueous solutions or powders that become wet produce extremely slippery conditions.

For non-emergency personnel

Follow emergency procedures such as the need to evacuate the danger area or to consult an expert. Remove persons to safety. Prevent skin contact. Avoid inhaling sprayed product. Aqueous solutions or powders that become wet produce extremely slippery conditions.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases. Wear personal protective equipment/face protection. Aqueous solutions or powders that become wet produce extremely slippery conditions. Special danger of slipping by leaking/spilling product.

Suitable fabric for personal protective clothing

PE: polyethylene, NR: natural rubber, latex, CR: chloroprene (chlorobutadiene) rubber

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority. Disposal considerations: see section 13. Chemicals generally shouldn't reach surface water.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: Absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.)

Appropriate containment techniques

Neutralization techniques. Decontamination techniques. Use of adsorbent materials. Vacuuming techniques.

Equipment required for containment/clean-up

Approved industrial vacuum cleaner, Absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.), Sweeping compounds (oil absorbing), Shovel, Drain seal, Collecting container, Protective gloves, Eye protection (e.g. protective goggles), Personal protective equipment: see section 8

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Section 7: Handling and storage. See also to sections 8 and 13 of the safety data sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.

Handling of incompatible substances or mixtures

Do not mix with other chemicals.

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Keep away from

Bases, Caustic solutions, Alkalis, Strong oxidizers, Other chemicals

Measures to protect the environment

Do not empty into drains; dispose of this material and its container at hazardous or special waste collection point.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities**Managing of associated risks****Corrosive conditions**

Store in corrosive resistant container with a resistant inner liner.

Consideration of other advice

Store between 5°C and 40°C. Avoid freezing.

Specific designs for storage rooms or vessels

No special measures are necessary. Keep container tightly closed.

Packaging compatibilities

Keep only in original container.

7.3 Specific end use(s)

Water treatment chemical. MMF Multimedia Filtration.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****National limit values****Occupational Exposure Limits: PELs, TLVs, etc**

These information are not available.

8.2 Exposure controls**Appropriate engineering controls**

General ventilation.

Individual protection measures (personal protective equipment)

Guarantee that the eye flushing systems and safety showers are closely located to the working place.

Eye/face protection

Wear eye/face protection.

Skin protection

Chemical resistant protective clothing.

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Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. In case of spray contact at least protection index 2 recommended, according to more than 30 min. penetration time (EN 374).

Layer thickness of gloves at least: 0.4 mm

In case of prolonged and intensive contact protection index 6 recommended, according to more than 480 min. penetration time (EN 374).

Layer thickness of gloves at least: 0.7 mm.

Type of material

PVC: polyvinyl chloride, PE: polyethylene, CR: chloroprene (chlorobutadiene) rubber, NBR: acrylonitrile-butadiene rubber, IIR: isobutene-isoprene (butyl) rubber, FKM: fluoro-elastomer

Breakthrough times of the glove material

Breakthrough times and swelling properties of the material must be taken into consideration

Other protection measures

Wash hands thoroughly after handling.

Respiratory protection

Not necessary under normal conditions and provided good general ventilation. In case of inadequate ventilation wear respiratory protection. Type : E (against acidic gases like sulfur dioxide or hydrogen chloride, color code: Yellow).

Environmental exposure controls

Disposal considerations: see section 13.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

| | |
|----------------|-----------------------------------|
| Physical state | liquid |
| Color | clear , amber liquid - dark brown |
| Odor | characteristic |
| Odor threshold | no data available |

Other safety parameters

| | |
|---|---|
| pH (value) | ca. 2 – 3 (in aqueous solution: 1 wt%, 25 °C) |
| Melting point/freezing point | ca. <0 °C at 1 atm |
| Initial boiling point and boiling range | ca. >100 °C at 1 atm |
| Flash point | not applicable |
| Evaporation rate | <1 (water = 1) |
| Flammability (solid, gas) | not applicable |

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| | |
|--|-----------------------------------|
| Upper/lower flammability or explosive limits | not determined |
| Vapor pressure | ca. 18 – 21 Pa at 20 °C |
| Vapor density | this information is not available |
| Density | not determined |
| Relative density | 1.35 – 1.6 at 25 °C (water = 1) |

Solubility(ies)

| | |
|-------------------------|----------------------------|
| Water solubility | miscible in any proportion |
|-------------------------|----------------------------|

Partition coefficient

| | |
|----------------------------|-----------------------------------|
| -n-Octanol/water (log KOW) | this information is not available |
| Auto-ignition temperature | not determined not applicable |
| Decomposition temperature | not determined |
| Viscosity | not determined |
| Explosive properties | none |
| Oxidizing properties | none |

9.2 Other information

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

Substance or mixture corrosive to metals.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

Incompatible materials.

10.5 Incompatible materials

Bases, Oxidizers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information**11.1 Information on toxicological effects**

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Acute toxicity

Shall not be classified as acutely toxic.

| Acute toxicity of components of the mixture | | | | |
|---|-----------------------|-----------------|--------------|----------------|
| <i>Name of substance</i> | <i>Exposure route</i> | <i>Endpoint</i> | <i>Value</i> | <i>Species</i> |
| Iron salt A | oral | LD50 | 1,300 mg/kg | mouse |
| Iron salt A | dermal | LD50 | >2,000 mg/kg | rat |

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitization

Shall not be classified as a respiratory or skin sensitizer.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

SECTION 12: Ecological information**12.1 Toxicity**

Shall not be classified as hazardous to the aquatic environment.

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Not applicable.

12.6 Other adverse effects

Data are not available.

Remarks

Do not empty into drains or surface water.

SECTION 13: Disposal considerations**13.1 Waste treatment methods**

Do not empty into drains; dispose of this material and its container at hazardous or special waste collection point. Dispose of waste according to applicable legislation.

Waste treatment of containers/packages

Only packagings which are approved (e.g. acc. to DOT) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Avoid release to the environment.




SECTION 14: Transport information

| | |
|--|---|
| 14.1 UN number | 3264 |
| 14.2 UN proper shipping name | Corrosive liquid, acidic, inorganic, n.o.s. |
| Technical name (hazardous ingredients) | contains: (diiron(3+) trisulfate) |
| 14.3 Transport hazard class(es) | |
| Class | 8 |
| 14.4 Packing group | III |
| 14.5 Environmental hazards | non-environmentally hazardous acc. to the dangerous goods regulations |
| 14.6 Special precautions for user | |
| | There is no additional information. |
| 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code | |
| | The cargo is not intended to be carried in bulk. |

Information for each of the UN Model Regulations**Transport of dangerous goods by road or rail (49 CFR US DOT)**

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| | |
|---|--|
| Index number | 3264 |
| Proper shipping name | Corrosive liquid, acidic, inorganic, n.o.s. |
| Particulars in the shipper's declaration | UN3264, Corrosive liquid, acidic, inorganic, n.o.s., (diiron(3+) trisulfate), 8, III |
| Class | 8 |
| Packing group | III |
| Danger label(s) | 8 |
|  | |
| Special provisions (SP) | IB3, T7, TP1, TP28 |
| ERG No | 154 |
| International Maritime Dangerous Goods Code (IMDG) | |
| UN number | 3264 |
| Proper shipping name | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. |
| Particulars in the shipper's declaration | UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (diiron(3+) trisulfate), 8, III |
| Class | 8 |
| Marine pollutant | - |
| Packing group | III |
| Danger label(s) | 8 |
|  | |
| EmS | F-A, S-B |
| Segregation group | 1 - Acids |
| Segregation codes | SG36, SG49 |
| International Civil Aviation Organization (ICAO-IATA/DGR) | |
| UN number | 3264 |
| Proper shipping name | Corrosive liquid, acidic, inorganic, n.o.s. |
| Particulars in the shipper's declaration | UN3264, Corrosive liquid, acidic, inorganic, n.o.s., (diiron(3+) trisulfate), 8, III |
| Class | 8 |
| Environmental hazards | no |
| Packing group | III |
| Danger label(s) | 8 |
|  | |

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

National regulations (United States)

Toxic Substance Control Act (TSCA) all ingredients are listed or exempt from listing

Superfund Amendment and Reauthorization Act (SARA TITLE III)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

none of the ingredients are listed

Specific Toxic Chemical Listings (EPCRA Section 313)

none of the ingredients are listed

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

| Name of substance | Statutory code | Final RQ pounds (Kg) |
|-------------------|----------------|----------------------|
| Iron salt A | 1 | 1000 (454) |

Legend

1 "1" indicates that the statutory source is section 311(b)(2) of the Clean Water Act

Clean Air Act

none of the ingredients are listed

New Jersey Worker and Community Right to Know Act

| NJ-RTK List |
|-------------------|
| Name of substance |
| Iron salt A |

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

none of the ingredients are listed

Industry or sector specific available guidance(s)

NPCA-HMIS® III

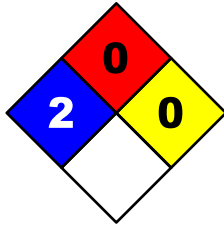
Hazardous Materials Identification System. American Coatings Association.

| | | |
|----------------------------|---|----------|
| HEALTH | / | 2 |
| FLAMMABILITY | | 0 |
| PHYSICAL HAZARD | | 0 |
| PERSONAL PROTECTION | | D |

A "*" on the health line indicates a chronic health hazard is present.

NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).



Additional information

Substance is listed in the following national inventories:

The contained substances are listed in the following national inventories:

AICS (Australia)
 ASIA-PAC (Asia-Pacific Region)
 DSL (Canada)
 NDSL (Canada)
 DSL/NDSL (Canada)
 IECS (China)
 EINECS/ELINCS/NLP (Europe)
 EINECS (European Union)
 REACH (Europe)
 ENCS, class 1 and 2 (MITI-inventory, Japan)
 CSCL-ENCS (Japan)
 ISHA-ENCS (Japan)
 KECL (Republic of Korea)
 INSQ (Mexico)
 NZIoC (New Zealand)
 PICCS (Philippines)
 CICR (Turkey)
 TCSI (Taiwan)
 TSCA (United States)

15.2 Chemical Safety Assessment

Chemical Safety Assessment: No.

SECTION 16: Other information, including date of preparation or last revision

Abbreviations and acronyms

| <i>Abbr.</i> | <i>Descriptions of used abbreviations</i> |
|---------------|---|
| 49 CFR US DOT | 49 CFR U.S. Department of Transportation |
| Acute Tox. | Acute toxicity |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |
| DOT | Department of Transportation (USA) |
| EC No | The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union) |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |

| <i>Abbr.</i> | <i>Descriptions of used abbreviations</i> |
|----------------|--|
| EmS | Emergency Schedule |
| ERG No | Emergency Response Guidebook - Number |
| Eye Dam. | Seriously damaging to the eye |
| Eye Irrit. | Irritant to the eye |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IATA | International Air Transport Association |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA) |
| ICAO | International Civil Aviation Organization |
| IMDG | International Maritime Dangerous Goods Code |
| LD50 | Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval |
| MARPOL | International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant") |
| Met. Corr. | Substance or mixture corrosive to metals |
| NJ-RTK List | Hazardous Substance List (NJ-RTK) |
| NLP | No-Longer Polymer |
| NPCA-HMIS® III | National Paint and Coatings Association: Hazardous Materials Identification System - HMIS® III, Third Edition |
| OSHA | Occupational Safety and Health Administration (United States) |
| PBT | Persistent, Bioaccumulative and Toxic |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| Skin Corr. | Corrosive to skin |
| Skin Irrit. | Irritant to skin |
| vPvB | Very Persistent and very Bioaccumulative |

Key literature references and sources for data

ECHA: European Chemicals Agency, <http://echa.europa.eu/>.

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

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List of relevant phrases (code and full text as stated in section 2 and 3)

| <i>Code</i> | <i>Text</i> |
|-------------|--|
| H290 | May be corrosive to metals. |
| H302 | Harmful if swallowed. |
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation. |
| H318 | Causes serious eye damage. |

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.