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Safety Data Sheet acc. to OSHA HCS

Printing date 04/21/2022 Reviewed on 04/21/2022

1 Identification

· Product identifier

· Trade name: <u>ICP-SSWS-M</u> · Article number: ICP-SS-WS-M

· Details of the supplier of the safety data sheet

· Manufacturer/Supplier:

High-Purity Standards

7221 Investment Drive, North Charleston, SC 29418 United States

Telephone: +1-843-767-7900 Fax: +1-843-767-7906 highpuritystandards.com

Email: info@highpuritystandards.com

· Information department: Product safety department

· Emergency telephone number:

INFOTRAC

Emergency telephone numbers 1-800-535-5053 Other emergency telephone numbers 1-352-323-3500

2 Hazard(s) identification

· Classification of the substance or mixture



GHS05 Corrosion

Met. Corr.1 H290 May be corrosive to metals.

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H312 Harmful in contact with skin.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms





GHS05

GHS07

- · Signal word Danger
- · Hazard-determining components of labeling: nitric acid

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hydrogen fluoride

· Hazard statements

H290 May be corrosive to metals.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

· Precautionary statements

Keep only in original container.

Do not breathe dusts or mists.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

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.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

Wash contaminated clothing before reuse.

Absorb spillage to prevent material damage.

Store locked up.

Store in corrosive resistant container with a resistant inner liner.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 3Fire = 0

Reactivity = 0

· HMIS-ratings (scale 0 - 4)



3 Health = 3

Fire = 0

· Other hazards

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · **vPvB**: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Mixtures
- · **Description:** Mixture of the substances listed below with nonhazardous additions.

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Dangerou	s components:	
7697-37-2	nitric acid	2.0
7664-39-3	hydrogen fluoride	0.49
Chemical	identification of the substance/preparation	
7732-18-5	water, distilled, conductivity or of similar purity	97.4228
7429-90-5	aluminium	0.02%
7440-39-3	barium	0.02%
7439-89-6	iron	0.01%
7439-96-5	manganese	0.0059
7440-02-0	nickel	0.0059
7440-36-0	antimony	0.0059
7440-48-4	cobalt	0.0059
7440-66-6	zinc	0.0059
7803-55-6	Ammonium Vanadate	0.0059
7440-50-8	copper	0.0025
7440-47-3	chromium	0.0029
7440-22-4	silver	0.0005
7440-28-0	thallium	0.0005
7440-41-7	beryllium	0.0005
7440-43-9	cadmium	0.0005
7440-38-2	arsenic	0.0004
7439-92-1	lead	0.0002
7782-49-2	selenium	0.0001

4 First-aid measures

- · Description of first aid measures
- · General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- · After swallowing: Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- · Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.

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· Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture

During heating or in case of fire poisonous gases are produced.

- · Advice for firefighters
- · Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

- Environmental precautions: Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

<i>PAC-1</i> :		
7697-37-2	nitric acid	0.16 ppm
7664-39-3	hydrogen fluoride	1.0 ppm
7440-39-3	barium	1.5 mg/m^3
7439-89-6	iron	3.2 mg/m^3
7439-96-5	manganese	3 mg/m^3
7440-02-0	nickel	4.5 mg/m^3
7440-36-0	antimony	1.5 mg/m^3
7440-48-4	cobalt	0.18 mg/m^3
7440-66-6	zinc	6 mg/m ³
7803-55-6	Ammonium Vanadate	0.01 mg/m^3
7440-50-8	copper	3 mg/m^3
7440-47-3	chromium	1.5 mg/m^3
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7.440.22.4		(Contd. of page
7440-22-4 silver		0.3 mg/m^3
7440-28-0 thalliu		0.06 mg/m^3
7440-41-7 beryll		0.0023 mg/m
7440-43-9 cadmi		0.10 mg/m^3
7440-38-2 arseni		1.5 mg/m^3
7439-92-1 lead		0.15 mg/m^3
7782-49-2 seleni	ım	0.6 mg/m^3
PAC-2:		
7697-37-2 nitric		24 ppm
7664-39-3 hydrog		24 ppm
7440-39-3 bariun	ı	180 mg/m^3
7439-89-6 iron		35 mg/m³
7439-96-5 manga	nese	5 mg/m ³
7440-02-0 nickel		50 mg/m³
7440-36-0 antime	ny	13 mg/m³
7440-48-4 cobalt		2 mg/m ³
7440-66-6 zinc		21 mg/m³
7803-55-6 Ammo	nium Vanadate	0.11 mg/m^3
7440-50-8 coppe		33 mg/m^3
7440-47-3 chrom	ium	17 mg/m³
7440-22-4 silver		170 mg/m^3
7440-28-0 thalliu	m	3.3 mg/m^3
7440-41-7 berylli	um	0.025 mg/m
7440-43-9 cadmi	ım	0.76 mg/m^3
7440-38-2 arseni		17 mg/m³
7439-92-1 lead		120 mg/m³
7782-49-2 selenii	ım	6.6 mg/m^3
PAC-3:		·
7697-37-2 nitric	acid	92 ppm
7664-39-3 hydro	gen fluoride	44 ppm
7440-39-3 bariun		1,100 mg/m
7439-89-6 iron		150 mg/m^3
7439-96-5 manga	nese	1,800 mg/m
7440-02-0 nickel		99 mg/m³
7440-36-0 antime	ny	80 mg/m³
7440-48-4 cobalt		20 mg/m^3
7440-66-6 zinc		120 mg/m^3





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	(Contd. of page
7803-55-6 Ammonium Vanadate	80 mg/m^3
7440-50-8 copper	200 mg/m^3
7440-47-3 chromium	99 mg/m³
7440-22-4 silver	990 mg/m³
7440-28-0 thallium	20 mg/m^3
7440-41-7 beryllium	0.1 mg/m^3
7440-43-9 cadmium	4.7 mg/m^3
7440-38-2 arsenic	100 mg/m^3
7439-92-1 lead	700 mg/m^3
7782-49-2 selenium	40 mg/m^3

7 Handling and storage

- · Handling:
- Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

- · Information about protection against explosions and fires: Keep respiratory protective device available.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters

· Components	with	limit	values	that	reauire	monitoring	at the	workplace:
Components	Truit !		ruincs	unu i	<i>cymii</i> c	monuon me	ui iii	wormpiace.

7697-37-2 nitric acid

PEL Long-term value: 5 mg/m³, 2 ppm REL Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm

TLV Short-term value: 4 ppm Long-term value: 2 ppm

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7664-39-3 hydrogen fluoride

PEL Long-term value: 1* mg/m³, 3 ppm

as F, *sulfuric acid

REL Long-term value: 2.5 mg/m³, 3 ppm Ceiling limit value: 5* mg/m³, 6* ppm

*15-min. as F

TLV Long-term value: 0.5 ppm Ceiling limit value: 2 ppm

as F; Skin, BEI

· Ingredients with biological limit values:

7664-39-3 hydrogen fluoride

BEI 3 mg/g creatinine

Medium: urine Time: prior to shift

Parameter: Fluorides (background, nonspecific)

10 mg/g creatinine Medium: urine Time: end of shift

Parameter: Fluorides (background, nonspecific)

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles

9 Physical and chemical	l properties	
· Information on basic phys · General Information	ical and chemical properties	
· Appearance:		
Form:	Liquid	

Color: According to product specification

• Odor: Characteristic
• Odor threshold: Not determined.

· pH-value: Not determined.
· Change in condition

Melting point/Melting range:Undetermined.Boiling point/Boiling range:100 °C (212 °F)

Flash point: Not applicable.
 Flammability (solid, gaseous): Not applicable.

• Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

• Danger of explosion: Product does not present an explosion hazard.

Explosion limits:

Lower: Not determined. Upper: Not determined.

• Vapor pressure at 20 °C (68 °F): 23 hPa (17.3 mm Hg)

• Density at 20 °C (68 °F): 1.00897 g/cm³ (8.41985 lbs/gal)

Bulk density: 1,008 kg/m³
 Relative density Not determined.
 Vapor density Not determined.
 Evaporation rate Not determined.

· Solubility in / Miscibility with

Water: Not miscible or difficult to mix.

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	(Contd. of pag
· Partition coefficient (n-octan	ol/water): Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Water:	97.4 %
VOC content:	0.00 %
	0.0 g/l / 0.00 lb/gal
Solids content:	0.1 %
· Other information	No further relevant information available.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · LD/LC50 values that are relevant for classification:

7664-39-3 hydrogen fluoride

Oral LD50 1,276 mg/kg (rat)

- · Primary irritant effect:
- · on the skin: Strong caustic effect on skin and mucous membranes.
- on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

- Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Harmful

Corrosive

Irritant

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Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

IARC (Inte	ernational Agency for Research on Cancer)	
7440-02-0	nickel	21
7440-48-4	cobalt	21
7440-47-3	chromium	3
7440-41-7	beryllium	1
7440-43-9	cadmium	1
7440-38-2	arsenic	1
7439-92-1	lead	21
7782-49-2	selenium	3
NTP (Nati	onal Toxicology Program)	
7440-02-0	nickel	F
7440-48-4	cobalt	F
7440-41-7	beryllium	,
7440-43-9	cadmium	,
7440-38-2	arsenic	F
7439-92-1	lead	I
OSHA-Ca	(Occupational Safety & Health Administration)	
7440-43-9	cadmium	
7440-38-2	arsenic	

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.

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· Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.

1 / 70			
14 11	ransport	intor	mation

	T T A T 1
•	UN-Number

· **DOT**, **ADR**, **IMDG**, **IATA** UN3264

· UN proper shipping name

DOT Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrogen

fluoride)

· ADR 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.

(NITRIC ACID, HYDROGEN FLUORIDE)

· IMDG, IATA CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC

ACID, HYDROGEN FLUORIDE)

- · Transport hazard class(es)
- $\cdot DOT$



· Class 8 Corrosive substances

· Label

 \cdot ADR



· Class 8 (C1) Corrosive substances

Label

(Contd. on page 12)





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· IMDG, IATA



· Class	8 Corrosive substances
· Label	8
· Packing group	

· DOT, ÄDR, İMDG, IATA	III

Environmental hazards:	Not applicable.
Special precautions for user	Warning: Corrosive substances

Hazard identification number (Kemler code): 80			
EMS Number:	F-A,S-B		
· Segregation groups	Acids		
· Stowage Category	A		

Stowage Code SW2 Clear of living quarters.

Transport in bulk according to Annex II of	
MARPOL73/78 and the IBC Code	Not applicable.

· Transport/Additional information:

· DOT	
· Quantity	limitations

ty limitations	On passenger aircraft/rail: 5 L
	On cargo aircraft only: 60 L

· ADR

· Excepted quantities (EQ) Code: El

Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

· IMDG

· Limited quantities (LQ) 5L

· Excepted quantities (EQ) Code: E1

Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

• UN "Model Regulation":

UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
(NITRIC ACID, HYDROGEN FLUORIDE), 8, III

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

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Sara	(Contd. of pa
~	5 (extremely hazardous substances):
	nitric acid
	hydrogen fluoride
	3 (Specific toxic chemical listings):
	nitric acid
7664-39-3	hydrogen fluoride
	aluminium
7440-39-3	barium
7439-96-5	manganese
7440-02-0	
7440-36-0	antimony
7440-48-4	cobalt
7440-66-6	zinc
7803-55-6	Ammonium Vanadate
7440-50-8	copper
7440-47-3	chromium
7440-22-4	silver
7440-28-0	thallium
7440-41-7	beryllium
7440-43-9	cadmium
7440-38-2	arsenic
7439-92-1	lead
7782-49-2	selenium
TSCA (To.	xic Substances Control Act):
	nents have the value ACTIVE.
Hazardous	s Air Pollutants
7664-39-3	hydrogen fluoride
7439-96-5	manganese
7440-48-4	cobalt
7439-92-1	lead
Propositio	n 65
Chemicals	known to cause cancer:
7440-02-0	nickel
7440-48-4	
7440-41-7	beryllium
	cadmium

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7440-41-7 beryllium

7440-43-9 cadmium

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(Contd. of page 13) 7440-38-2 arsenic 7439-92-1 lead · Chemicals known to cause reproductive toxicity for females: 7439-92-1 lead · Chemicals known to cause reproductive toxicity for males: 7440-43-9 cadmium 7439-92-1 lead · Chemicals known to cause developmental toxicity: 7440-43-9 cadmium 7439-92-1 lead · Carcinogenic categories · EPA (Environmental Protection Agency) 7440-39-3 barium D, CBD(inh), NL(oral)7439-96-5 manganese D 7440-66-6 zinc D, I, II 7440-50-8 copper D 7440-47-3 chromium D 7440-22-4 silver D7440-41-7 beryllium B1, K/L(inh), CBD(oral)7440-43-9 cadmium B17440-38-2 arsenic \overline{A} 7439-92-1 lead В2 7782-49-2 selenium D · TLV (Threshold Limit Value) 7429-90-5 aluminium A47440-39-3 barium A47440-02-0 nickel A57440-48-4 cobalt A3 7440-47-3 chromium A4

7440-38-2	arsenic	AI
7439-92-1	lead	<i>A3</i>
· NIOSH-Ca (National Institute for Occupational Safety and Health)		
7440-02-0	nickel	
7440-41-7	·	
7440-43-9	cadmium	
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7440-38-2 arsenic

- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms





GHS05 GHS

- · Signal word Danger
- · Hazard-determining components of labeling:

nitric acid

hvdrogen fluoride

· Hazard statements

H290 May be corrosive to metals.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

· Precautionary statements

Keep only in original container.

Do not breathe dusts or mists.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

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.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

Wash contaminated clothing before reuse.

Absorb spillage to prevent material damage.

Store locked up.

Store in corrosive resistant container with a resistant inner liner.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- · Department issuing SDS: Environment protection department.
- · Contact:

High-Purity Standards Tel: 843-767-7900 Fax: 843-767-7906

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Date of preparation / last revision 04/21/2022 / -

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Met. Corr.1: Corrosive to metals – Category 1

Acute Tox. 4: Acute toxicity - Category 4

Skin Corr. 1A: Skin corrosion/irritation – Category 1A Eye Dam. 1: Serious eye damage/eye irritation – Category 1