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1 Identification · Product identifier • Trade name: Soil Solution A. · Article number: CRM-SOIL-A • 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

Corrosive to Metals 1 H290 May be corrosive to metals.

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

Eye Damage 1 H318 Causes serious eye damage.

· Label elements

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



· Signal word Danger

• *Hazard-determining components of labeling: nitric acid*

• *Hazard statements* H290 May be corrosive to metals. H314 Causes severe skin burns and eye damage.

• **Precautionary statements** Keep only in original container.

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7429-90-5 aluminium

7440-70-2 calcium

7439-89-6 iron

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(Contd. of page 1) 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). 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 = 0Reactivity = 0· HMIS-ratings (scale 0 - 4) HEALTH ³ Health = 3FIRE 0 Fire = 0**REACTIVITY O** Reactivity = 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. · Dangerous components: 7697-37-2 nitric acid 4.0% · Chemical identification of the substance/preparation 7732-18-5 water, distilled, conductivity or of similar purity 95.5592% 7440-21-3 silicon 0.3%

0.05%

0.035%

0.02% (Contd. on page 3)



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		(Contd. of page 2)
7440-09-7	potassium	0.02%
7439-95-4	magnesium	0.007%
7440-23-5	sodium	0.007%
7722-76-1	Ammonium dihydrogenphosphate	0.001%
7440-39-3	barium	0.0005%
7440-66-6	zinc	0.0001%
7440-38-2	arsenic	0.00002%
7440-43-9	cadmium	0.0000003%
7440-50-8	copper	0.00003%
7439-96-5	manganese	0.00001%
7440-02-0	nickel	0.00003%
7439-92-1	lead	0.00004%
7440-36-0	antimony	0.000003%
7782-49-2	selenium	0.000001%
7440-29-1	thorium	0.00001%
7440-61-1	uranium	0.000001%
7440-62-2	vanadium	0.00001%

4 First-aid measures

• Description of first aid measures

- · General information: Immediately remove any clothing soiled by the product.
- 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.
- · 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.

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• Advice for firefighters

• **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

	piratory protective device. Active equipment. Keep unprotected persons away.	
	ental precautions: Do not allow to enter sewers/ surface or ground water.	
Methods an	nd material for containment and cleaning up:	
	h liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).	
	lizing agent.	
	ntaminated material as waste according to item 13.	
	equate ventilation. to other sections	
	7 for information on safe handling.	
	a 8 for information on personal protection equipment.	
	n 13 for disposal information.	
	Action Criteria for Chemicals	
PAC-1:		
	nitric acid	0.16 ppm
7440-21-3	silicon	45 mg/m ³
7439-89-6	iron	3.2 mg/m ³
7440-09-7	potassium	2.3 mg/m ³
7439-95-4	magnesium	18 mg/m³
7440-23-5	sodium	13 mg/m ³
7722-76-1	Ammonium dihydrogenphosphate	17 mg/m ³
7440-39-3	barium	1.5 mg/m ³
7440-66-6	zinc	6 mg/m ³
7439-92-1	lead	0.15 mg/m
7440-02-0	nickel	4.5 mg/m ³
7440-50-8	copper	3 mg/m ³
7440-38-2	arsenic	1.5 mg/m ³
7439-96-5	manganese	3 mg/m ³
7440-29-1	thorium	30 mg/m ³
7440-36-0	antimony	1.5 mg/m ³
7440-61-1	uranium	0.6 mg/m ³
7440-62-2	vanadium	3 mg/m ³
7782-49-2	selenium	0.6 mg/m ³
7 4 40 42 0	cadmium	0.10 mg/m

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<i>PAC-2:</i>	
7697-37-2 nitric acid	24 ppm
7440-21-3 silicon	100 mg/m
7439-89-6 iron	35 mg/m ³
7440-09-7 potassium	25 mg/m ³
7439-95-4 magnesium	200 mg/m
7440-23-5 sodium	140 mg/m
7722-76-1 Ammonium dihydrogenphosphate	190 mg/m
7440-39-3 barium	180 mg/m
7440-66-6 zinc	21 mg/m ³
7439-92-1 lead	120 mg/m
7440-02-0 nickel	50 mg/m ³
7440-50-8 copper	33 mg/m ³
7440-38-2 arsenic	17 mg/m ³
7439-96-5 manganese	$5 mg/m^3$
7440-29-1 thorium	330 mg/m
7440-36-0 antimony	13 mg/m ³
7440-61-1 uranium	$5 mg/m^3$
7440-62-2 vanadium	5.8 mg/m ³
7782-49-2 selenium	6.6 mg/m ³
7440-43-9 cadmium	0.76 mg/m
<i>PAC-3:</i>	
7697-37-2 nitric acid	92 ppm
7440-21-3 silicon	630 mg/m ³
7439-89-6 iron	150 mg/m ³
7440-09-7 potassium	150 mg/m ³
7439-95-4 magnesium	1,200 mg/m
7440-23-5 sodium	870 mg/m ³
7722-76-1 Ammonium dihydrogenphosphate	1,100 mg/m
7440-39-3 barium	1,100 mg/m
7440-66-6 zinc	120 mg/m ³
7439-92-1 lead	700 mg/m ³
7440-02-0 nickel	99 mg/m ³
7440-50-8 copper	200 mg/m ³
7440-38-2 arsenic	100 mg/m ³
7439-96-5 manganese	1,800 mg/m
7440-29-1 thorium	2,000 mg/m

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7440-36-0	antimony	80 mg/m^3
7440-61-1	uranium	30 mg/m ³
7440-62-2	vanadium	35 mg/m ³
7782-49-2	selenium	40 mg/m ³
7440-43-9	cadmium	$4.7 mg/m^3$

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 require monitoring at the workplace:

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) NIC-0.025* ppm Long-term value: (2) ppm *inh. fraction + vapor

• *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.

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• 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.

· 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

Information on basic physical and General Information	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.	

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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):	1.02658 g/cm ³ (8.56681 lbs/gal)	
Bulk density:	1,025 kg/m ³	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Not miscible or difficult to mix.	
Partition coefficient (n-octanol/wate	er): Not determined.	
Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
Solvent content:		
Water:	95.6 %	
VOC content:	0.00 %	
	0.0 g/l / 0.00 lb/gal	
Solids content:	0.4 %	
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.

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11 Toxicological information

· Information	on	toxico	logical	effects
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- Acute toxicity:
- · 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: Corrosive

Irritant

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

· Carcinogenic categories

•			
· IARC (Inte	ernational Agency for Research on Cancer)		
7439-92-1	lead	2B	
7440-02-0	nickel	2B	
7440-38-2	arsenic	1	
7440-29-1	thorium	1	
7782-49-2	selenium	3	
7440-43-9	cadmium	1	
· NTP (Nati	onal Toxicology Program)		
7439-92-1	lead	R	
7440-02-0	nickel	R	
7440-38-2	arsenic	K	
7440-43-9	cadmium	K	
· OSHA-Ca	(Occupational Safety & Health Administration)		
7440-38-2	arsenic		
7440-43-9	cadmium		

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.

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• 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.
- · 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.*

UN-Number DOT, ADR, IMDG, IATA	UN3264
UN proper shipping name	
DOT	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
ADR	3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S
IMDG, IATA	(NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRI ACID)
Transport hazard class(es)	
DOT	
DORROSIVE 8	
Class	8 Corrosive substances
Label	8

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ADR	
\wedge	
<u> </u>	
Class	8 (C1) Corrosive substances
Label	8
IMDG, IATA	
\wedge	
8	
Class	8 Corrosive substances
Label	8
Packing group	
DOT, ADR, IMDG, IATA	III
Environmental hazards:	Not applicable.
Special precautions for user	Warning: Corrosive substances
Hazard identification number (Kemler code):	
EMS Number:	F-A,S-B
Segregation groups	(SGG1) 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	On passenger aircraft/rail: 5 L
	On cargo aircraft only: 60 L
ADR	
Excepted quantities (EQ)	Code: E1
	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
Enception quantumes (DQ)	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
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· UN "Model Regulation":

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

15 Regulatory information

Section 35.	5 (extremely hazardous substances):
7697-37-2	nitric acid
Section 31.	3 (Specific toxic chemical listings):
7697-37-2	nitric acid
7429-90-5	aluminium
7440-39-3	barium
7440-66-6	zinc
7439-92-1	lead
7440-02-0	nickel
7440-50-8	copper
7440-38-2	arsenic
7439-96-5	manganese
7440-36-0	antimony
7440-62-2	vanadium
7782-49-2	selenium
7440-43-9	cadmium
TSCA (Tox	xic Substances Control Act):
All compon	nents have the value ACTIVE.
Hazardous	s Air Pollutants
7439-92-1	lead
7439-96-5	manganese
Proposition	n 65
Chemicals	known to cause cancer:
7439-92-1	lead
7440-02-0	nickel
7440-38-2	
7440-43-9	cadmium



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	known to cause reproductive toxicity for males:	
7439-92-1	lead	
7440-43-9	cadmium	
Chemicals	known to cause developmental toxicity:	
7439-92-1	lead	
7440-43-9	cadmium	
Carcinoge	iic categories	
EPA (Envi	ronmental Protection Agency)	
7440-39-3	barium	D, CBD(inh), NL(oral
7440-66-6	zinc	D, I, II
7439-92-1	lead	<i>B2</i>
7440-50-8	copper	D
7440-38-2	arsenic	A
7439-96-5	manganese	D
7782-49-2	selenium	D
7440-43-9	cadmium	B1
TLV (Thre	shold Limit Value)	
7429-90-5	aluminium	A
7440-39-3	barium	A
7439-92-1	lead	A.
7440-02-0	nickel	A
7440-38-2	arsenic	A
7440-61-1	uranium	A
7440-43-9	cadmium	A
NIOSH-Ca	(National Institute for Occupational Safety and He	alth)
7440-02-0	nickel	
7440-38-2	arsenic	
7440-61-1	uranium	
	cadmium	

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



· Signal word Danger

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· Hazard-determining components of labeling: nitric acid · Hazard statements H290 May be corrosive to metals. 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). 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 · Date of preparation / last revision 10/19/2022 · 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) PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety

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OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit Corrosive to Metals 1: Corrosive to metals – Category 1 Skin Corrosion 1A: Skin corrosion/irritation – Category 1A Eye Damage 1: Serious eye damage/eye irritation – Category 1 Page 15/15

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