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Safety Data Sheet acc. to OSHA HCS

Printing date 03/16/2020 Reviewed on 03/16/2020

1 Identification

· Product identifier

· Trade name: Trace Metals in Mixed Food Diet

· Article number: CRM-MFD

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.

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



GHS05

- · 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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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 = 3 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)



Health = 3 Fire = 0 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.

	is components:		
7697-37-2	nitric acid		2.0%
· Chemical	identification of the substance/preparation		
7732-18	water, distilled, conductivity or of similar purity	97.96	66%
	potassium nitrate	0.01	6%
497-19-0	sodium carbonate	0.00	6%
7722-76	Ammonium dihydrogenphosphate	0.00	6%
471-34-	calcium carbonate	0.00	4%
	•	(Contd. or	n page 3)



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		(Contd. of page 2)
7439-95-4	magnesium	0.0012%
7429-90-5	aluminium	0.00001%
7440-38-2	arsenic	0.000002%
7440-43-9	cadmium	0.0000008%
7440-48-4	cobalt	0.00000008%
7440-47-3	chromium	0.0000002%
7440-50-8	copper	0.000006%
7439-89-6	iron	0.00008%
6156-78-1	Manganese(II) acetate tetrahydrate	0.00002%
7439-98-7	molybdenum	0.0000006%
7440-02-0	nickel	0.000002%
7782-49-2	selenium	0.0000005%
7440-66-6	zinc	0.00003%

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.
- 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.

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- Environmental precautions: Dilute with plenty of 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

7697-37-2 nitric acid	0.16 ppm
7757-79-1 potassium nitrate	9 mg/m³
497-19-8 sodium carbonate	7.6 mg/m ³
7722-76-1 Ammonium dihydrogenphosphate	17 mg/m^3
471-34-1 calcium carbonate	$45 mg/m^3$
7439-95-4 magnesium	18 mg/m³
7439-89-6 iron	3.2 mg/m ³
7440-66-6 zinc	6 mg/m³
6156-78-1 Manganese(II) acetate tetrahydrate	13 mg/m³
7439-98-7 molybdenum	30 mg/m^3
7440-02-0 nickel	4.5 mg/m ²
7440-38-2 arsenic	1.5 mg/m ²
7440-43-9 cadmium	0.10 mg/n
7440-47-3 chromium	1.5 mg/m ²
7440-48-4 cobalt	0.18 mg/n
7440-50-8 copper	3 mg/m^3
7782-49-2 selenium	0.6 mg/m ⁻
PAC-2:	•
7697-37-2 nitric acid	24 ppm
7757-79-1 potassium nitrate	100 mg/m
497-19-8 sodium carbonate	83 mg/m³
7722-76-1 Ammonium dihydrogenphosphate	190 mg/m
471-34-1 calcium carbonate	210 mg/m
7439-95-4 magnesium	200 mg/m
7439-89-6 iron	35 mg/m ³
7440-66-6 zinc	21 mg/m³
6156-78-1 Manganese(II) acetate tetrahydrate	22 mg/m³





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7439-98-7	molybdenum	(Contd. of page 330 mg/s
7440-02-0	•	50 mg/m
7440-38-2		17 mg/m
7440-43-9		0.76 mg/m
7440-47-3		17 mg/m
7440-48-4		$\frac{17 \text{ mg/m}^3}{2 \text{ mg/m}^3}$
7440-50-8		33 mg/m
7782-49-2		6.6 mg/n
PAC-3:	Scientiani	0.0 mg/m
7697-37-2	nitric acid	92 ppm
	potassium nitrate	600 mg/m
ľ	sodium carbonate	500 mg/m
7722-76-1	Ammonium dihydrogenphosphate	1,100 mg/
	calcium carbonate	1,300 mg/
7439-95-4	magnesium	1,200 mg/
7439-89-6	iron	150 mg/m
7440-66-6	zinc	120 mg/m
6156-78-1	Manganese(II) acetate tetrahydrate	740 mg/m
7439-98-7	molybdenum	2,000 mg/
7440-02-0	nickel	99 mg/m³
7440-38-2	arsenic	100 mg/m
7440-43-9	cadmium	4.7 mg/m°
7440-47-3	chromium	99 mg/m³
7440-48-4	cobalt	20 mg/m³
7440-50-8	copper	200 mg/m
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.

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· 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: 10 mg/m³, 4 ppm
Long-term value: 5.2 mg/m³, 2 ppm

- 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.

· 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.

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· Eye protection:



Tightly sealed goggles

9 Physical	l and ci	hemical	pro	perties
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Information on basic physical and chemical properties

· General Information

· Appearance:

Form:
Color:
Color:
Codor:
Characteristic
Not determined.

PH-value:
Not determined.

· Change in condition

Melting point/Melting range:

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.

Undetermined.

· 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): 1.01008 g/cm³ (8.42912 lbs/gal)

Bulk density: 1,010 kg/m³
 Relative density Not determined.
 Vapor density Not determined.
 Evaporation rate Not determined.

· Solubility in / Miscibility with

Water: Fully miscible.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic: Not determined.

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Not determined.	
98.0 %	
0.00 %	
0.0 g/l / 0.00 lb/gal	
0.0 %	
No further relevant information available.	
	Not determined. 98.0 % 0.00 % 0.0 g/l / 0.00 lb/gal 0.0 %

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:
- · 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	rnational Agency for Research on Cancer)	
7440-02-0	nickel	2B
7440-38-2		1
7440-43-9	cadmium	1
7440-47-3	chromium	3
7440-48-4	cobalt	2B

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		(Contd. of page 8)
7782-49-2	selenium	3
· NTP (Nati	onal Toxicology Program)	
7440-02-0	nickel	R
7440-38-2	arsenic	K
7440-43-9	cadmium	K
7440-48-4	cobalt	R
· 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.
- · Additional ecological information:
- · General notes:

Not hazardous for water.

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.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

- · UN-Number
- · DOT, ADR, IMDG, IATA

UN3264

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· UN proper shipping name

 $\cdot DOT$ Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)

 $\cdot ADR$ 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.

(NITRIC ACID)

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

ACID)

· Transport hazard class(es)

 $\cdot DOT$



· Class 8 Corrosive substances

·Label

 $\cdot ADR$



· Class 8 (C1) Corrosive substances

·Label

· IMDG, IATA



· Class 8 Corrosive substances

· Label

· Packing group

· DOT, ADR, IMDG, IATA III

· Environmental hazards: Not applicable.

Warning: Corrosive substances · Special precautions for user

· Hazard identification number (Kemler code): 80 · EMS Number: F-A,S-BAcids· Segregation groups

· Stowage Category

SW2 Clear of living quarters. · Stowage Code

· Transport in bulk according to Annex II of

MARPOL73/78 and the IBC Code Not applicable.

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Transport/Additional information:	(Contd. of page 1
· 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
	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.
	(NITRIC ACID), 8, III

Safety, hea Sara	alth and environmental regulations/legislation specific for the substan	ce or mixture
Section 35.	5 (extremely hazardous substances):	
7697-37-2	nitric acid	
Section 31.	3 (Specific toxic chemical listings):	
7697-37-2	nitric acid	
7757-79-1	potassium nitrate	
7440-66-6	zinc	
7429-90-5	aluminium	
7440-02-0	nickel	
7440-38-2	arsenic	
7440-43-9	cadmium	
7440-47-3	chromium	
7440-48-4	cobalt	
7440-50-8	copper	
7782-49-2	selenium	
TSCA (Tox	xic Substances Control Act):	
7732-18-5	water, distilled, conductivity or of similar purity	ACTIV
7697-37-2	nitric acid	ACTIV
7757-79-1	potassium nitrate	ACTIV





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105 10 5		(Contd. of pag
	sodium carbonate	ACTI
	Ammonium dihydrogenphosphate	ACTI
	calcium carbonate	ACTI
	magnesium	ACTI
7439-89-6		ACTI
7440-66-6		ACTI
7429-90-5	aluminium	ACTI
7439-98-7	molybdenum	ACTI
7440-02-0		ACTI
7440-38-2	arsenic	ACTI
7440-43-9	cadmium	ACTI
7440-47-3	chromium	ACTI
7440-48-4	cobalt	ACTI
7440-50-8	copper	ACTI
7782-49-2	selenium	ACTI
Hazardous	s Air Pollutants	,
7440-48-4	cobalt	
Proposition	n 65	
Chemicals	known to cause cancer:	
7440-02-0	nickel	
7440-38-2	arsenic	
7440-43-9	cadmium	
7440-48-4	cobalt	
Chemicals	known to cause reproductive toxicity for females:	
None of the	e ingredients is listed.	
Chemicals	known to cause reproductive toxicity for males:	
7440-43-9	cadmium	
	known to cause developmental toxicity:	
Chemicals	cadmium	
Chemicals 7440-43-9	[
7440-43-9		
7440-43-9 Carcinoge	nic categories ironmental Protection Agency)	
7440-43-9 Carcinoge	nic categories ironmental Protection Agency)	D, I
7440-43-9 Carcinoge EPA (Envi	nic categories ironmental Protection Agency) zinc	D, I
7440-43-9 Carcinoge EPA (Envi	nic categories ironmental Protection Agency) zinc arsenic	
7440-43-9 Carcinoge EPA (Envi 7440-66-6 7440-38-2 7440-43-9	nic categories ironmental Protection Agency) zinc arsenic	A
7440-43-9 Carcinoge EPA (Envi 7440-66-6 7440-38-2 7440-43-9	nic categories ironmental Protection Agency) zinc arsenic cadmium chromium	BI



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(Contd. of page 12) · TLV (Threshold Limit Value established by ACGIH) 7429-90-5 aluminium A47439-98-7 molybdenum A3 7440-02-0 nickel A57440-38-2 arsenic A17440-43-9 cadmium A27440-47-3 chromium A47440-48-4 cobalt A3· NIOSH-Ca (National Institute for Occupational Safety and Health) 7440-02-0 nickel 7440-38-2 arsenic 7440-43-9 cadmium

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



GHS05

- · 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.

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.

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· 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 03/16/2020 / -
- · Abbreviations and acronyms:

ADR: Accord européen sur le transport 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

ACGIH: American Conference of Governmental Industrial Hygienists

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

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

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

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Eye Dam. 1: Serious eye damage/eye irritation – Čategory 1

-US