Safety Data Sheet
acc. to OSHA HCS

Printing date 08/18/2017 Reviewed on 08/18/2017

1 Identification

· **Product identifier**

· **Product Name: Custom Claritas Standard**

· **Part Number:** ZPURDIN-53-100
· **Application of the substance / the mixture** Certified Reference Material

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
SPEX CertiPrep, LLC.
203 Norcross Ave, Metuchen,
NJ 08840 USA

· **Information department:** product safety department
· **Emergency telephone number:**
Emergency Phone Number (24 hours)
CHEMTREC (800-424-9300)
Outside US: 703-527-3887

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS08 Health hazard

Carc. 1A H350 May cause cancer.

GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

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

GHS05 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
nitric acid
Beryllium from Beryllium Acetate
nickel
· **Hazard statements**
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H350 May cause cancer.
· **Precautionary statements**
Do not breathe dusts or mists.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/18/2017 Reviewed on 08/18/2017

Product Name: Custom Claritas Standard

(Contd. of page 1)

· **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.

· **Dangerous components:**		
7697-37-2	nitric acid	5.0%
7440-02-0	nickel	0.1%
7440-41-7	Beryllium from Beryllium Acetate	0.1%

· **Chemical identification of the substance/preparation**		
7664-39-3	hydrofluoric acid	<0.9%
7440-70-2	Calcium from Calcium carbonate	0.1%
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate	0.1%
7439-89-6	iron	0.1%
7440-09-7	Potassium from Potassium nitrate	0.1%
7439-95-4	magnesium	0.1%
7439-96-5	manganese	0.1%
7440-23-5	Sodium from Sodium carbonate	0.1%
7723-14-0	Phosphorus from Ammonium dihydrogenorthophosphate	0.1%
7440-24-6	Strontium from Strontium carbonate	0.1%
7440-32-6	titanium	0.1%
7440-66-6	zinc powder -zinc dust (stabilized)	0.1%
7440-39-3	Barium from Barium carbonate	0.1%
7429-90-5	aluminium	0.1%
7732-18-5	water, distilled, conductivity or of similar purity	92.6%

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:**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
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:**
Immediately call a doctor.
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.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Product Name: Custom Claritas Standard

(Contd. of page 2)

· **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** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
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**

· **PAC-1:**		
7697-37-2	nitric acid	0.16 ppm
7664-39-3	hydrofluoric acid	1.0 ppm
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate	1.5 mg/m3
7439-89-6	iron	3.2 mg/m3
7440-09-7	Potassium from Potassium nitrate	2.3 mg/m3
7439-95-4	magnesium	18 mg/m3
7439-96-5	manganese	3 mg/m3
7440-23-5	Sodium from Sodium carbonate	13 mg/m3
7440-02-0	nickel	4.5 mg/m3
7723-14-0	Phosphorus from Ammonium dihydrogenorthophosphate	0.27 mg/m3
7440-24-6	Strontium from Strontium carbonate	30 mg/m3
7440-32-6	titanium	30 mg/m3
7440-66-6	zinc powder -zinc dust (stabilized)	6 mg/m3
7440-39-3	Barium from Barium carbonate	1.5 mg/m3
7440-41-7	Beryllium from Beryllium Acetate	0.0023 mg/m3

· **PAC-2:**		
7697-37-2	nitric acid	24 ppm
7664-39-3	hydrofluoric acid	24 ppm
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate	17 mg/m3
7439-89-6	iron	35 mg/m3
7440-09-7	Potassium from Potassium nitrate	25 mg/m3
7439-95-4	magnesium	200 mg/m3
7439-96-5	manganese	5 mg/m3
7440-23-5	Sodium from Sodium carbonate	140 mg/m3
7440-02-0	nickel	50 mg/m3
7723-14-0	Phosphorus from Ammonium dihydrogenorthophosphate	3 mg/m3
7440-24-6	Strontium from Strontium carbonate	330 mg/m3
7440-32-6	titanium	330 mg/m3
7440-66-6	zinc powder -zinc dust (stabilized)	21 mg/m3
7440-39-3	Barium from Barium carbonate	180 mg/m3
7440-41-7	Beryllium from Beryllium Acetate	0.025 mg/m3

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Product Name: Custom Claritas Standard

(Contd. of page 3)

· **PAC-3:**		
7697-37-2	nitric acid	92 ppm
7664-39-3	hydrofluoric acid	44 ppm
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate	99 mg/m3
7439-89-6	iron	150 mg/m3
7440-09-7	Potassium from Potassium nitrate	150 mg/m3
7439-95-4	magnesium	1,200 mg/m3
7439-96-5	manganese	1,800 mg/m3
7440-23-5	Sodium from Sodium carbonate	870 mg/m3
7440-02-0	nickel	99 mg/m3
7723-14-0	Phosphorus from Ammonium dihydrogenorthophosphate	18 mg/m3
7440-24-6	Strontium from Strontium carbonate	2,000 mg/m3
7440-32-6	titanium	2,000 mg/m3
7440-66-6	zinc powder -zinc dust (stabilized)	120 mg/m3
7440-39-3	Barium from Barium carbonate	1,100 mg/m3
7440-41-7	Beryllium from Beryllium Acetate	0.1 mg/m3

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
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: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 2 ppm
7440-02-0 nickel	
PEL	Long-term value: 1 mg/m³
REL	Long-term value: 0.015 mg/m³ as Ni; See Pocket Guide App. A
TLV	Long-term value: 1.5* mg/m³ elemental, *inhalable fraction
7440-41-7 Beryllium from Beryllium Acetate	
PEL	Long-term value: 0.002 mg/m³ Ceiling limit value: 0.005; 0.025* mg/m³ as Be; *30 min peak per 8-hr shift
REL	Ceiling limit value: 0.0005 mg/m³ as Be; See Pocket Guide App. A
TLV	Long-term value: 0.00005 mg/m³ as Be; inhalable; RSEN; soluble comp.: Skin, DSEN

· **Additional information:** The lists that were valid during the creation were used as basis.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Product Name: Custom Claritas Standard

(Contd. of page 4)

· **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.
Store protective clothing separately.
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.
· **Eye protection:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	According to product specification
· **Odor:**	Characteristic
· **Odour Threshold:**	Not applicable.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	83 °C (181 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	
Decomposition temperature:	Not applicable.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not applicable.
Upper:	Not applicable.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17 mm Hg)
· **Density**	Not applicable.
· **Relative density**	Not applicable.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Product Name: Custom Claritas Standard

(Contd. of page 5)

· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not applicable.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
Organic solvents:	0.0 %
Water:	92.6 %
Solids content:	1.5 %
· **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 hydrofluoric acid		
Oral	LD50	1276 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** Caustic effect on skin and mucous membranes.
· **on the eye:** Strong caustic effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Corrosive
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
Carcinogenic.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate	3
7440-02-0	nickel	2B
7440-41-7	Beryllium from Beryllium Acetate	1

· **NTP (National Toxicology Program)**		
7440-02-0	nickel	R
7440-41-7	Beryllium from Beryllium Acetate	K

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

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.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Product Name: Custom Claritas Standard

(Contd. of page 6)

· **Additional ecological information:**
· **General notes:**
Water hazard class 3 (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even extremely small quantities leak into the ground.
· **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.

14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN3264
· **UN proper shipping name**	
· **DOT**	Corrosive liquid, acidic, inorganic, n.o.s. (hydrofluoric acid, Nitric acid solution)
· **ADR**	3264 Corrosive liquid, acidic, inorganic, n.o.s. (hydrofluoric acid, Nitric acid solution)
· **IMDG, IATA**	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (hydrofluoric acid, NITRIC ACID SOLUTION)
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	8 Corrosive substances
· **Label**	8
· **ADR, IMDG, IATA**	

· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	III
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Corrosive substances
· **Danger code (Kemler):**	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.

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/18/2017 Reviewed on 08/18/2017

Product Name: Custom Claritas Standard

(Contd. of page 7)

· **Transport/Additional information:**

· **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.S. (HYDROFLUORIC ACID, NITRIC ACID SOLUTION), 8, III

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**

7697-37-2	nitric acid
7664-39-3	hydrofluoric acid
7723-14-0	Phosphorus from Ammonium dihydrogenorthophosphate

· **Section 313 (Specific toxic chemical listings):**

7697-37-2	nitric acid
7664-39-3	hydrofluoric acid
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate
7439-96-5	manganese
7440-02-0	nickel
7723-14-0	Phosphorus from Ammonium dihydrogenorthophosphate
7440-66-6	zinc powder -zinc dust (stabilized)
7440-39-3	Barium from Barium carbonate
7440-41-7	Beryllium from Beryllium Acetate
7429-90-5	aluminium

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

7440-02-0	nickel
7440-41-7	Beryllium from Beryllium Acetate

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

7439-96-5	manganese	D
7440-66-6	zinc powder -zinc dust (stabilized)	D, I, II
7440-39-3	Barium from Barium carbonate	D, CBD(inh), NL(oral)
7440-41-7	Beryllium from Beryllium Acetate	B1, K/L(inh), CBD(oral)

· **TLV (Threshold Limit Value established by ACGIH)**

7440-02-0	nickel	A5
7440-39-3	Barium from Barium carbonate	A4
7429-90-5	aluminium	A4

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/18/2017 *Reviewed on 08/18/2017*

Product Name: Custom Claritas Standard

(Contd. of page 8)

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**	
7440-02-0	nickel

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

GHS05 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
nitric acid
Beryllium from Beryllium Acetate
nickel
· **Hazard statements**
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H350 May cause cancer.
· **Precautionary statements**
Do not breathe dusts or mists.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.
· **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:** product safety department
· **Contact:**
SPEX CertiPrep, LLC.
1-732-549-7144
· **Date of preparation / last revision** 08/18/2017 / -
· **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)
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
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 1A: Carcinogenicity – Category 1A