

## 1 Identification

- **Product identifier**
- **Trade name:** Trace Minerals for an Ultra Clean Environment
- **Article number:** 960264
- **Application of the substance / the mixture** For Research Use Only
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
MP Biomedicals, LLC  
29525 Fountain Parkway  
Solon, OH 44139  
United States  
www.mpbio.com
- **Information department:** Quality Control Department
- **Emergency telephone number:** CHEMTREC: 1-800-424-9300 (1-703-527-3887)

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Carc. 1B H350 May cause cancer.

Repr. 1 H360 May damage fertility or the unborn child.



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**



GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
Cobalt Chloride Hexahydrate  
nickel dichloride
- **Hazard statements**  
May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
May cause an allergic skin reaction.  
May cause cancer.  
May damage fertility or the unborn child.
- **Precautionary statements**  
[In case of inadequate ventilation] wear respiratory protection.  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Wear protective gloves/protective clothing/eye protection/face protection.

(Contd. on page 2)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/14/2017

Reviewed on 03/14/2017

**Trade name: Trace Minerals for an Ultra Clean Environment**

(Contd. of page 1)

Contaminated work clothing must not be allowed out of the workplace.  
 Obtain special instructions before use.  
 Do not handle until all safety precautions have been read and understood.  
 Specific treatment (see on this label).  
 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.  
 Wash contaminated clothing before reuse.  
 If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.  
 IF exposed or concerned: Get medical advice/attention.  
 If skin irritation or rash occurs: Get medical advice/attention.  
 IF ON SKIN: Wash with plenty of water.  
 Store locked up.  
 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **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 substances listed below with nonhazardous additions.

Mixture: consisting of the following components.

· **Dangerous components:**

|   |                             |            |
|---|-----------------------------|------------|
| CAS: 9004-34-6<br>EINECS: 232-674-9<br>RTECS: FJ5691460 | Alphacel                    | 50-90%     |
| CAS: 7791-13-1<br>EINECS: 231-589-4                     | Cobalt Chloride Hexahydrate | 0.1-<1%    |
| CAS: 7718-54-9<br>EINECS: 231-743-0                     | nickel dichloride           | 0.01-<0.1% |

· **Non-Hazardous Ingredients**

|   |                                      |        |
|---|--------------------------------------|--------|
| CAS: 7631-86-9<br>EINECS: 231-545-4<br>RTECS: EU8655000 | silicon dioxide, chemically prepared | 10-50% |
|---|--------------------------------------|--------|

US

(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/14/2017

Reviewed on 03/14/2017

**Trade name: Trace Minerals for an Ultra Clean Environment**

(Contd. of page 2)

## 4 First-aid measures

- **Description of first aid measures**
- **After inhalation:**  
Supply fresh air and to be sure call for a doctor.  
If breathed in, supply fresh air. If not breathing, give artificial respiration. Consult a Doctor.
- **After skin contact:** Wash off with soap and plenty of water. Consult a Doctor.
- **After eye contact:** Flush eyes with running water as a precaution.
- **After swallowing:** If symptoms persist consult 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** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.  
For personal protection see section 8.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Pick up mechanically, dispose contaminated material as waste according to Section 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:**

|            |                                      |                        |
|------------|--------------------------------------|------------------------|
| 7631-86-9  | silicon dioxide, chemically prepared | 18 mg/m <sup>3</sup>   |
| 7791-13-1  | Cobalt Chloride Hexahydrate          | 0.24 mg/m <sup>3</sup> |
| 7718-54-9  | nickel dichloride                    | 0.66 mg/m <sup>3</sup> |
| 7681-49-4  | Sodium Fluoride                      | 17 mg/m <sup>3</sup>   |
| 13106-76-8 | ammonium molybdate(VI)               | 3.1 mg/m <sup>3</sup>  |
| 7440-31-5  | tin                                  | 6 mg/m <sup>3</sup>    |

- **PAC-2:**

|           |                                      |                       |
|-----------|--------------------------------------|-----------------------|
| 7631-86-9 | silicon dioxide, chemically prepared | 740 mg/m <sup>3</sup> |
| 7791-13-1 | Cobalt Chloride Hexahydrate          | 25 mg/m <sup>3</sup>  |
| 7718-54-9 | nickel dichloride                    | 22 mg/m <sup>3</sup>  |

(Contd. on page 4)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/14/2017

Reviewed on 03/14/2017

**Trade name: Trace Minerals for an Ultra Clean Environment**

(Contd. of page 3)

|                 |                                      |                         |
|-----------------|--------------------------------------|-------------------------|
| 7681-49-4       | Sodium Fluoride                      | 90 mg/m <sup>3</sup>    |
| 13106-76-8      | ammonium molybdate(VI)               | 22 mg/m <sup>3</sup>    |
| 7440-31-5       | tin                                  | 67 mg/m <sup>3</sup>    |
| <b>· PAC-3:</b> |                                      |                         |
| 7631-86-9       | silicon dioxide, chemically prepared | 4,500 mg/m <sup>3</sup> |
| 7791-13-1       | Cobalt Chloride Hexahydrate          | 150 mg/m <sup>3</sup>   |
| 7718-54-9       | nickel dichloride                    | 130 mg/m <sup>3</sup>   |
| 7681-49-4       | Sodium Fluoride                      | 1,100 mg/m <sup>3</sup> |
| 13106-76-8      | ammonium molybdate(VI)               | 130 mg/m <sup>3</sup>   |
| 7440-31-5       | tin                                  | 400 mg/m <sup>3</sup>   |

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace. Avoid direct contact with skin and eyes.
- **Information about protection against explosions and fires:** No special requirements.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:** 15 - 30 °C
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **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 Section 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**  
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.  
At this time, the remaining constituent has no known exposure limits.

### 9004-34-6 Alphacel

PEL Long-term value: 15\* 5\*\* mg/m<sup>3</sup>  
\*total dust \*\*respirable fraction

REL Long-term value: 10\* 5\*\* mg/m<sup>3</sup>  
\*total dust \*\*respirable fraction

TLV Long-term value: 10 mg/m<sup>3</sup>

### 7718-54-9 nickel dichloride

PEL Long-term value: 1 mg/m<sup>3</sup>  
as Ni

REL Long-term value: 0.015 mg/m<sup>3</sup>  
as Ni; See Pocket Guide App. A

TLV Long-term value: 0.1 mg/m<sup>3</sup>  
as Ni; inhalable fraction

- **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

Printing date 03/14/2017

Reviewed on 03/14/2017

**Trade name: Trace Minerals for an Ultra Clean Environment**

(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.
- **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:**

|               |                                    |
|---------------|------------------------------------|
| <b>Form:</b>  | Powder                             |
| <b>Color:</b> | According to product specification |
- **Odor:** Indeterminate
- **Odor threshold:** Not determined.
- **pH-value:** Not applicable.
- **Change in condition**

|                                     |               |
|-------------------------------------|---------------|
| <b>Boiling point/Boiling range:</b> | Undetermined. |
|-------------------------------------|---------------|
- **Flash point:** Not applicable.
- **Flammability (solid, gaseous):** Not determined.
- **Ignition temperature:** 340 °C (644 °F)

(Contd. on page 6)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/14/2017

Reviewed on 03/14/2017

**Trade name: Trace Minerals for an Ultra Clean Environment**

(Contd. of page 5)

|   |  |
|---|--|
| · <b>Decomposition temperature:</b>               | Not determined.                            |
| · <b>Auto igniting:</b>                           | Product is not selfigniting.               |
| · <b>Danger of explosion:</b>                     | See section 10                             |
| · <b>Explosion limits:</b>                        |  |
| <b>Lower:</b>                                     | Not Applicable                             |
| <b>Upper:</b>                                     | Not Applicable                             |
| · <b>Vapor pressure:</b>                          | Not applicable.                            |
| · <b>Density:</b>                                 | Not Applicable                             |
| · <b>Relative density</b>                         | Not determined.                            |
| · <b>Vapor density</b>                            | Not applicable.                            |
| · <b>Evaporation rate</b>                         | Not applicable.                            |
| · <b>Solubility in / Miscibility with</b>         | Not Determined                             |
| · <b>Water:</b>                                   | Insoluble.                                 |
| · <b>Partition coefficient (n-octanol/water):</b> | Not determined.                            |
| · <b>Viscosity:</b>                               |  |
| <b>Dynamic:</b>                                   | Not applicable.                            |
| <b>Kinematic:</b>                                 | Not applicable.                            |
| · <b>Solvent content:</b>                         |  |
| <b>Organic solvents:</b>                          | 0.0 %                                      |
| <b>VOC content:</b>                               | 0.0 g/l / 0.00 lb/gl                       |
| <b>Solids content:</b>                            | 100.0 %                                    |
| · <b>Other information</b>                        | 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:**

7718-54-9 nickel dichloride

|      |      |                 |
|------|------|-----------------|
| Oral | LD50 | 105 mg/kg (rat) |
|------|------|-----------------|

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Irritant and potentially harmful
- **Sensitization:**
- Sensitization possible through inhalation.

(Contd. on page 7)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/14/2017

Reviewed on 03/14/2017

**Trade name: Trace Minerals for an Ultra Clean Environment**

(Contd. of page 6)

*Sensitization possible through skin contact.*

· **Additional toxicological information:**

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

*Harmful*

*Irritant*

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

|           |                                      |   |
|-----------|--------------------------------------|---|
| 7631-86-9 | silicon dioxide, chemically prepared | 3 |
| 7718-54-9 | nickel dichloride                    | 1 |
| 7681-49-4 | Sodium Fluoride                      | 3 |

· **NTP (National Toxicology Program)**

|           |                   |   |
|-----------|-------------------|---|
| 7718-54-9 | nickel dichloride | 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.*

· **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.*

· **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:**

*Can not be disposed together with household garbage. Do not allow product to reach sewage system.*

· **Uncleaned packagings:**

· **Recommendation:** *Discard must be made according to official regulations.*

## 14 Transport information

· **UN-Number**

· **DOT, ADR, ADN, IMDG, IATA** *Not regulated*

· **UN proper shipping name**

· **DOT, ADR, ADN, IMDG, IATA** *Not regulated*

(Contd. on page 8)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/14/2017

Reviewed on 03/14/2017

**Trade name: Trace Minerals for an Ultra Clean Environment**

(Contd. of page 7)

- |  |                 |
|--|-----------------|
| <b>· Transport hazard class(es)</b>  |                 |
| <b>· DOT, ADR, ADN, IMDG, IATA</b>   |                 |
| <b>· Class</b>   | Not regulated   |
| <b>· Packing group</b>   |                 |
| <b>· DOT, ADR, IMDG, IATA</b>  | Not regulated   |
| <b>· Environmental hazards:</b>  |                 |
| <b>· Marine pollutant:</b>   | No              |
| <b>· Special precautions for user</b>  | Not applicable. |
| <b>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable. |
| <b>· UN "Model Regulation":</b>  | Not regulated   |

## 15 Regulatory information

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

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

None of the ingredients is listed.

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

7718-54-9 nickel dichloride

**· TSCA (Toxic Substances Control Act):**

9004-34-6 Alphacel

7631-86-9 silicon dioxide, chemically prepared

7718-54-9 nickel dichloride

7681-49-4 Sodium Fluoride

13106-76-8 ammonium molybdate(VI)

7440-31-5 tin

**· Proposition 65**

**· Chemicals known to cause cancer:**

7718-54-9 nickel dichloride

**· 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)**

None of the ingredients is listed.

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

7718-54-9 nickel dichloride

A4

(Contd. on page 9)



# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/14/2017

Reviewed on 03/14/2017

**Trade name: Trace Minerals for an Ultra Clean Environment**

(Contd. of page 8)

|            |                        |    |
|------------|------------------------|----|
| 7681-49-4  | Sodium Fluoride        | A4 |
| 13106-76-8 | ammonium molybdate(VI) | A3 |

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

|           |                   |
|-----------|-------------------|
| 7718-54-9 | nickel dichloride |
|-----------|-------------------|

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



GHS08

- **Signal word** *Danger*
- **Hazard-determining components of labeling:**  
Cobalt Chloride Hexahydrate  
nickel dichloride
- **Hazard statements**  
May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
May cause an allergic skin reaction.  
May cause cancer.  
May damage fertility or the unborn child.
- **Precautionary statements**  
[In case of inadequate ventilation] wear respiratory protection.  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Wear protective gloves/protective clothing/eye protection/face protection.  
Contaminated work clothing must not be allowed out of the workplace.  
Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Specific treatment (see on this label).  
If experiencing respiratory symptoms: Call a POISON CENTER/doctor.  
Wash contaminated clothing before reuse.  
If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.  
If exposed or concerned: Get medical advice/attention.  
If skin irritation or rash occurs: Get medical advice/attention.  
IF ON SKIN: Wash with plenty of water.  
Store locked up.  
Dispose of contents/container in accordance with local/regional/national/international regulations.
- **National regulations:**
- **Additional classification according to Decree on Hazardous Materials:**  
Carcinogenic hazardous material group III (dangerous).
- **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:** Quality Control Dept.
- **Date of preparation / last revision** 03/14/2017 / -

(Contd. on page 10)

**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 03/14/2017

Reviewed on 03/14/2017

**Trade name: Trace Minerals for an Ultra Clean Environment**

(Contd. of page 9)

**· 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)*  
*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*  
*Resp. Sens. 1: Respiratory sensitisation – Category 1*  
*Skin Sens. 1: Skin sensitisation – Category 1*  
*Carc. 1B: Carcinogenicity – Category 1B*  
*Repr. 1: Reproductive toxicity – Category 1*

US