1 Identification

- **Product identifier**
- **Trade name:** Trace Metals on Filter Media
- **Article number:** QC-TMFM-F
- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:** High-Purity Standards
    - P.O. Box 41727
    - Charleston, SC 29423
    - Telephone: (843) 767-7900
    - FAX: (843) 767-7906
  - **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**
  - The product is not classified, according to the Globally Harmonized System (GHS).

- **Label elements**
  - **GHS label elements** Void
  - **Hazard pictograms** Void
  - **Signal word** Void
  - **Hazard statements** Void
  - **Classification system:**
    - **NFPA ratings (scale 0 - 4)**
      - Health = 0
      - Fire = 0
      - Reactivity = 0
    - **HMIS-ratings (scale 0 - 4)**
      - HEALTH Health = 0
      - FIRE Fire = 0
      - REACTIVITY 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.
Trade name: Trace Metals on Filter Media

4 First-aid measures

· Description of first aid measures
· General information: No special measures required.
· After inhalation: Supply fresh air; consult doctor in case of complaints.
· After skin contact: Generally the product does not irritate the skin.
· After eye contact: Rinse opened eye for several minutes under running water.
· 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** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** Pick up mechanically.
- **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**

<table>
<thead>
<tr>
<th>PAC-1:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-38-2 arsenic</td>
<td>1.5 mg/m³</td>
</tr>
<tr>
<td>7440-47-3 chromium</td>
<td>1.5 mg/m³</td>
</tr>
<tr>
<td>7440-48-4 cobalt</td>
<td>0.18 mg/m³</td>
</tr>
<tr>
<td>7440-50-8 copper</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td>7439-89-6 iron</td>
<td>3.2 mg/m³</td>
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<tr>
<td>7439-92-1 lead</td>
<td>0.15 mg/m³</td>
</tr>
<tr>
<td>7440-02-0 nickel</td>
<td>4.5 mg/m³</td>
</tr>
<tr>
<td>7440-28-0 thallium</td>
<td>0.06 mg/m³</td>
</tr>
<tr>
<td>10102-06-4 Uranyl nitrate</td>
<td>0.99 mg/m³</td>
</tr>
<tr>
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<td>3 mg/m³</td>
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<tr>
<td>7440-66-6 zinc</td>
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<tr>
<td>7440-39-3 barium</td>
<td>1.5 mg/m³</td>
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<tr>
<td>7440-22-4 silver</td>
<td>0.3 mg/m³</td>
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<tr>
<td>7439-96-5 manganese</td>
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<tr>
<td>7440-41-7 beryllium</td>
<td>0.0023 mg/m³</td>
</tr>
<tr>
<td>7440-43-9 cadmium (non-pyrophoric)</td>
<td>0.10 mg/m³</td>
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<table>
<thead>
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<tr>
<td>7440-02-0 nickel</td>
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<tr>
<td>7440-28-0 thallium</td>
<td>3.3 mg/m³</td>
</tr>
<tr>
<td>10102-06-4 Uranyl nitrate</td>
<td>5.5 mg/m³</td>
</tr>
<tr>
<td>7440-62-2 vanadium</td>
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<tr>
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<tr>
<td>7439-96-5 manganese</td>
<td>3 mg/m³</td>
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(Contd. on page 4)
## Trade name: Trace Metals on Filter Media

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Substance</th>
<th>Limit Value (mg/m³)</th>
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<tbody>
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<td>7440-41-7</td>
<td>beryllium</td>
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<td>7440-43-9</td>
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<td>100</td>
</tr>
<tr>
<td>7440-47-3</td>
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<td>copper</td>
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</tr>
<tr>
<td>7439-89-6</td>
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<td>thallium</td>
<td>20</td>
</tr>
<tr>
<td>10102-06-4</td>
<td>Uranyl nitrate</td>
<td>33</td>
</tr>
<tr>
<td>7440-62-2</td>
<td>vanadium</td>
<td>35</td>
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<tr>
<td>7440-66-6</td>
<td>zinc</td>
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</tr>
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<td>7440-22-4</td>
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</tr>
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<td>manganese</td>
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<tr>
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<td>beryllium</td>
<td>0.1</td>
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<tr>
<td>7440-43-9</td>
<td>cadmium (non-pyrophoric)</td>
<td>4.7</td>
</tr>
</tbody>
</table>

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling:** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **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:** None.
- **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:**
  - The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
  - 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.
  - At this time, the other constituents have no known exposure limits.
· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**
  The usual precautionary measures for handling chemicals should be followed.

· **Breathing equipment:** Not required.

· **Protection of hands:**
  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:** Not required.

## 9 Physical and chemical properties

### Information on basic physical and chemical properties

· **General Information**

· **Appearance:**
  - Form: Solid
  - Color: Whitish

· **Odor:** Characteristic

· **Odor threshold:** Not determined.

· **pH-value:** Not applicable.

· **Change in condition**
  - Melting point/Melting range: Undetermined.
  - Boiling point/Boiling range: Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.

· **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:** Not applicable.

· **Density:** Not determined.

· **Relative density** Not determined.
Trade name: Trace Metals on Filter Media

- Vapor density: Not applicable.
- Evaporation rate: Not applicable.
- Solubility in / Miscibility with Water: Insoluble.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not applicable.
  - Kinematic: Not applicable.
- Solvent content: 0.00 %
- VOC content: 0.0 g/l / 0.00 lb/gal
- Solids content: 80.1-90.1 %
- 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:
  - Primary irritant effect:
    - on the skin: No irritant effect.
    - on the eye: No irritating effect.
  - Sensitization: No sensitizing effects known.
  - Additional toxicological information:
    The product is not subject to classification according to internally approved calculation methods for preparations:
    When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
  - Carcinogenic categories
    - IARC (International Agency for Research on Cancer)
      7440-38-2 arsenic 1
      7440-47-3 chromium 3
      7440-48-4 cobalt 2B
      7439-92-1 lead 2B

(Contd. on page 7)
Safety Data Sheet
acc. to OSHA HCS

Trade name: Trace Metals on Filter Media

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
<th>HCS Class</th>
</tr>
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<tbody>
<tr>
<td>7440-02-0</td>
<td>nickel</td>
<td>2B</td>
</tr>
<tr>
<td>7440-41-7</td>
<td>beryllium</td>
<td>1</td>
</tr>
<tr>
<td>7440-43-9</td>
<td>cadmium (non-pyrophoric)</td>
<td>1</td>
</tr>
</tbody>
</table>

- NTP (National Toxicology Program)
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-38-2</td>
<td>arsenic</td>
</tr>
<tr>
<td>7440-48-4</td>
<td>cobalt</td>
</tr>
<tr>
<td>7439-92-1</td>
<td>lead</td>
</tr>
<tr>
<td>7440-02-0</td>
<td>nickel</td>
</tr>
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<td>beryllium</td>
</tr>
<tr>
<td>7440-43-9</td>
<td>cadmium (non-pyrophoric)</td>
</tr>
</tbody>
</table>

- OSHA-Ca (Occupational Safety & Health Administration)
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-38-2</td>
<td>arsenic</td>
</tr>
<tr>
<td>7440-43-9</td>
<td>cadmium (non-pyrophoric)</td>
</tr>
</tbody>
</table>

12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
  - Behavior in environmental systems:
  - Bioaccumululative 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: Smaller quantities can be disposed of with household waste.
- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
- DOT, ADR, IMDG, IATA: not regulated
<table>
<thead>
<tr>
<th>Trade name: Trace Metals on Filter Media</th>
</tr>
</thead>
</table>

- **UN proper shipping name**
  - DOT, ADR, IMDG, IATA: *not regulated*

- **Transport hazard class(es)**
  - DOT, ADR, IMDG, IATA: *not regulated*

- **Packing group**
  - DOT, ADR, IMDG, IATA: *not regulated*

- **Environmental hazards:**
  - Not applicable.

- **Special precautions for user**
  - Not applicable.

- **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
  - Not applicable.

- **UN "Model Regulation":**
  - *not regulated*

---

### 15 Regulatory information

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

- **Section 355 (extremely hazardous substances):**
  - None of the ingredients is listed.

- **Section 313 (Specific toxic chemical listings):**
  - 7440-38-2 arsenic
  - 7440-47-3 chromium
  - 7440-48-4 cobalt
  - 7440-50-8 copper
  - 7439-92-1 lead
  - 7440-02-0 nickel
  - 7440-28-0 thallium
  - 7440-62-2 vanadium
  - 7440-66-6 zinc
  - 7440-39-3 barium
  - 7440-22-4 silver
  - 7439-96-5 manganese
  - 7440-41-7 beryllium
  - 7440-43-9 cadmium (non- pyrophoric)

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

- **Proposition 65**
  - **Chemicals known to cause cancer:**
    - 7440-38-2 arsenic
## Trade name: Trace Metals on Filter Media

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-48-4</td>
<td>cobalt</td>
</tr>
<tr>
<td>7439-92-1</td>
<td>lead</td>
</tr>
<tr>
<td>7440-02-0</td>
<td>nickel</td>
</tr>
<tr>
<td>7440-41-7</td>
<td>beryllium</td>
</tr>
<tr>
<td>7440-43-9</td>
<td>cadmium (non-pyrophoric)</td>
</tr>
</tbody>
</table>

- **Chemicals known to cause reproductive toxicity for females:**
  - 7439-92-1 lead

- **Chemicals known to cause reproductive toxicity for males:**
  - 7439-92-1 lead
  - 7440-43-9 cadmium (non-pyrophoric)

- **Chemicals known to cause developmental toxicity:**
  - 7439-92-1 lead
  - 7440-43-9 cadmium (non-pyrophoric)

### Carcinogenic categories

#### EPA (Environmental Protection Agency) (Substances not listed)

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>9004-70-0</td>
<td>nitrocellulose, dry or wetted with less than 25% water (or alcohol), by mass</td>
</tr>
<tr>
<td>9004-35-7</td>
<td>Cellulose Acetate</td>
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<tr>
<td>7440-48-4</td>
<td>cobalt</td>
</tr>
<tr>
<td>7439-89-6</td>
<td>iron</td>
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<tr>
<td>7440-02-0</td>
<td>nickel</td>
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<tr>
<td>7440-28-0</td>
<td>thallium</td>
</tr>
<tr>
<td>10102-06-4</td>
<td>Uranyl nitrate</td>
</tr>
<tr>
<td>7440-62-2</td>
<td>vanadium</td>
</tr>
</tbody>
</table>

#### TLV (Threshold Limit Value established by ACGIH)

<table>
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<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>TLV Code</th>
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<td>7440-38-2</td>
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#### NIOSH-Ca (National Institute for Occupational Safety and Health)

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<td>beryllium</td>
</tr>
<tr>
<td>7440-43-9</td>
<td>cadmium (non-pyrophoric)</td>
</tr>
</tbody>
</table>

### GHS label elements

- **Void**
- **Hazard pictograms**: Void
- **Signal word**: Void
- **Hazard statements**: Void
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: 12/06/2018 / -

· 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