



# SAFETY DATA SHEET

Issue Date 21-Aug-2026

Revision Date 21-Aug-2026

Version 1

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

### Product identifier

#### Product Name

Nickel/Cobalt Alloy Respirable Powder Cat 4

### Other means of identification

#### Product Code

PM034

#### UN/ID No.

3077

#### Synonyms

Nickel / Cobalt Alloy Respirable Powder Cat 4 including but not limited to: ATI Ni-15Co PM™ Powder, ATI 247LC™ Powder, ATI 718Plus® Alloy Powder, ATI LR PM™ Powder, ATI® Astroloy PM Powder, ATI 10 PM™ Powder, ATI Rene 95™ Powder, ATI 939 Alloy Powder, ATI 720 PM™ Powder, ATI 1700™ Powder, ATI GTD-222™ Alloy Powder, Rene 65™ Alloy Powder, Rene 88DT Powder, ATI ME16 Powder, Waspalloy Powder, and MISC-N Powder

### Recommended use of the chemical and restrictions on use

#### Recommended Use

Alloy product manufacture.

#### Uses advised against

### Details of the supplier of the safety data sheet

#### Manufacturer Address

ATI Specialty Materials, 2020 Ashcraft Avenue, Monroe, NC 28110 USA

#### Emergency telephone number

#### Company Phone Number

ATI SDS Manager: 1-412-225-4911

#### Emergency Telephone

Chemtrec: 1-800-424-9300

## 2. HAZARDS IDENTIFICATION

### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

|                                                    |             |
|----------------------------------------------------|-------------|
| Acute toxicity - Oral                              | Category 4  |
| Acute toxicity - Inhalation (Dusts/Mists)          | Category 4  |
| Serious eye damage/eye irritation                  | Category 2  |
| Respiratory sensitization                          | Category 1  |
| Skin sensitization                                 | Category 1  |
| Germ cell mutagenicity                             | Category 2  |
| Carcinogenicity                                    | Category 1B |
| Reproductive toxicity                              | Category 1B |
| Specific target organ toxicity (repeated exposure) | Category 1  |
| Acute aquatic toxicity                             | Category 1  |
| Chronic aquatic toxicity                           | Category 1  |

### Label elements

#### Emergency Overview

Danger

**Hazard statements**

Harmful if swallowed

Harmful if inhaled

Causes serious eye irritation

May cause allergy or asthma symptoms or breathing difficulties if inhaled

May cause an allergic skin reaction

May cause cancer

Suspected of causing genetic defects

May damage fertility or the unborn child

Causes damage to the respiratory tract through prolonged or repeated exposure if inhaled

Very toxic to aquatic life

Very toxic to aquatic life with long lasting effects

**Appearance** Powder**Physical state** Solid**Odor** Odorless**Precautionary Statements - Prevention**

Do not handle until all safety precautions have been read and understood

Use personal protective equipment as required

Wear protective gloves

Wash hands thoroughly after handling

Do not eat, drink or smoke when using this product

Avoid breathing dust/fume

In case of inadequate ventilation wear respiratory protection

Avoid release to the environment

**Precautionary Statements - Response**

Collect spillage

Wash contaminated clothing before reuse

If skin irritation or rash occurs: Get medical advice/attention

If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

If eye irritation persists: Get medical advice/attention

IF ON SKIN: Wash with plenty of soap and water

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Not applicable

**Other Information**

When product is subjected to welding, burning, melting, sawing, brazing, grinding, buffing, polishing, or other similar heat-generating processes, the following potentially hazardous airborne particles and/or fumes may be generated:

Titanium dioxide an IARC Group 2B carcinogen. Hexavalent Chromium (Chromium VI) may cause lung, nasal, and/or sinus cancer. Vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) affects eyes, skin, respiratory system. Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Synonyms**

Nickel / Cobalt Alloy Respirable Powder, Cat 4, including but not limited to: ATI Ni-15Co PM™ Powder, ATI 247LC™ Powder, ATI 718Plus® Alloy Powder, ATI LR PM™ Powder, ATI® Astroloy PM Powder, ATI 10 PM™ Powder, ATI Rene 95™ Powder, ATI 939 Alloy Powder, ATI 720 PM™ Powder, ATI 1700™ Powder, ATI GTD-222™ Alloy Powder, Rene 65™ Alloy Powder, Rene 88DT Powder, ATI ME16 Powder, Waspalloy Powder, and MISC-N Powder.

| Chemical Name       | CAS No.   | Weight-%   |
|---------------------|-----------|------------|
| Nickel              | 7440-02-0 | 49 - 68    |
| Chromium            | 7440-47-3 | 0 - 32     |
| Cobalt              | 7440-48-4 | 2.5 - 24.9 |
| Iron                | 7439-89-6 | 0 - 19     |
| Molybdenum          | 7439-98-7 | 0 - 10     |
| Tungsten            | 7440-33-7 | 0 - 10     |
| Niobium (Columbium) | 7440-03-1 | 0 - 10     |
| Tantalum            | 7440-25-7 | 0 - 6      |
| Titanium            | 7440-32-6 | 0 - 6      |
| Aluminum            | 7429-90-5 | 0 - 6      |
| Hafnium             | 7440-58-6 | 0 - 2      |
| Vanadium            | 7440-62-2 | 0 - 2      |

#### 4. FIRST AID MEASURES

**First aid measures****Eye contact**

In the case of particles coming in contact with eyes during processing, treat as with any foreign object.

**Skin Contact**

In the case of skin allergic reactions see a physician. Wash off immediately with soap and plenty of water.

**Inhalation**

If excessive amounts of smoke, fume, or particulate are inhaled during processing, remove to fresh air and consult a qualified health professional. In the case of asthma symptoms or breathing difficulties call a physician:

**Ingestion**

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

**Most important symptoms and effects, both acute and delayed****Symptoms**

May cause allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause acute gastrointestinal effects if swallowed.

**Indication of any immediate medical attention and special treatment needed****Note to physicians**

Treat symptomatically.

#### 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**

Product not flammable in the form as distributed, flammable as finely divided particles or pieces resulting from processing of this product. Isolate large fires and allow to burn out. Smother small fires with salt (NaCl).

**Unsuitable extinguishing media**

Do not spray water on burning metal as an explosion may occur. This explosive characteristic is caused by the hydrogen and steam generated by the reaction of water with the burning material.

**Specific hazards arising from the chemical**

Intense heat. Very fine, high surface area material resulting from processing this product may ignite spontaneously at room

temperature. WARNING: Fine particles of this product may form combustible dust-air mixtures. Keep particles away from all ignition sources including heat, sparks, and flame. Prevent dust accumulations to minimize combustible dust hazard.

**Hazardous combustion products** Titanium dioxide an IARC Group 2B carcinogen. Hexavalent Chromium (Chromium VI) may cause lung, nasal, and/or sinus cancer. Vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) affects eyes, skin, respiratory system. Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

**Explosion data**

**Sensitivity to Mechanical Impact** None.

**Sensitivity to Static Discharge** None.

**Protective equipment and precautions for firefighters**

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions** Use personal protective equipment as required.

**For emergency responders** Use personal protective equipment as required. Follow Emergency Response Guidebook, Guide No. 171, EXCEPT for FIRE follow Emergency Response Guidebook, Guide No. 170.

**Environmental precautions**

**Environmental precautions** Collect spillage to prevent release to the environment.

**Methods and material for containment and cleaning up**

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Sweep or shovel material into dry containers. Avoid creating uncontrolled dust.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**

**Advice on safe handling** Very fine, high surface area material resulting from grinding, buffing, polishing, or similar processes of this product may ignite spontaneously at room temperature. WARNING: Fine particles of this product may form combustible dust-air mixtures. Keep particles away from all ignition sources including heat, sparks, and flame. Prevent dust accumulations to minimize combustible dust hazard.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions** Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity).

**Incompatible materials** Dissolves in hydrofluoric acid. Ignites in the presence of fluorine. When heated above 200°C, reacts exothermically with the following:: chlorine, bromine, halocarbons, carbon tetrachloride, carbon tetrafluoride, and freon.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

| Chemical Name       | ACGIH TLV                                     | OSHA PEL                 |
|---------------------|-----------------------------------------------|--------------------------|
| Nickel<br>7440-02-0 | TWA: 1.5 mg/m <sup>3</sup> inhalable fraction | TWA: 1 mg/m <sup>3</sup> |

|                                  |                                                                                                                |                                                                                                 |
|----------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Chromium<br>7440-47-3            | TWA: 0.5 mg/m <sup>3</sup>                                                                                     | TWA: 1 mg/m <sup>3</sup>                                                                        |
| Cobalt<br>7440-48-4              | TWA: 0.02 mg/m <sup>3</sup> TWA: 0.02 mg/m <sup>3</sup> Co                                                     | TWA: 0.1 mg/m <sup>3</sup> dust and fume                                                        |
| Iron<br>7439-89-6                | -                                                                                                              | -                                                                                               |
| Tungsten<br>7440-33-7            | STEL: 10 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup> W<br>TWA: 5 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup> W | (vacated) STEL: 10 mg/m <sup>3</sup> (vacated) STEL:<br>10 mg/m <sup>3</sup> W                  |
| Niobium (Columbium)<br>7440-03-1 | -                                                                                                              | -                                                                                               |
| Molybdenum<br>7439-98-7          | TWA: 10 mg/m <sup>3</sup> inhalable fraction<br>TWA: 3 mg/m <sup>3</sup> respirable fraction                   | -                                                                                               |
| Titanium<br>7440-32-6            | -                                                                                                              | -                                                                                               |
| Tantalum<br>7440-25-7            | -                                                                                                              | TWA: 5 mg/m <sup>3</sup>                                                                        |
| Aluminum<br>7429-90-5            | TWA: 1 mg/m <sup>3</sup> respirable fraction                                                                   | TWA: 15 mg/m <sup>3</sup> total dust<br>TWA: 5 mg/m <sup>3</sup> respirable fraction            |
| Vanadium<br>7440-62-2            | -                                                                                                              | Ceiling: 0.5 mg/m <sup>3</sup> V2O5 respirable dust<br>Ceiling: 0.1 mg/m <sup>3</sup> V2O5 fume |
| Hafnium<br>7440-58-6             | TWA: 0.5 mg/m <sup>3</sup> TWA: 0.5 mg/m <sup>3</sup> Hf                                                       | TWA: 0.5 mg/m <sup>3</sup>                                                                      |

**Appropriate engineering controls**

**Engineering Controls** Avoid generation of uncontrolled particles.

**Individual protection measures, such as personal protective equipment**

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye/face protection</b>      | When airborne particles may be present, appropriate eye protection is recommended. For example, tight-fitting goggles, foam-lined safety glasses or other protective equipment that shield the eyes from particles.                                                                                                                                                                                     |
| <b>Skin and body protection</b> | Fire/flame resistant/retardant clothing may be appropriate during hot work with the product. Wear protective gloves.                                                                                                                                                                                                                                                                                    |
| <b>Respiratory protection</b>   | Product contains respirable cobalt. When particulates/fumes/gases are generated and if exposure limits are exceeded or irritation is experienced, proper approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations. |

**General Hygiene Considerations** Handle in accordance with good industrial hygiene and safety practice.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

|                                  |                             |                                                                                                                                             |                |
|----------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Physical state</b>            | Solid                       | <b>Odor</b>                                                                                                                                 | Odorless       |
| <b>Appearance</b>                | Powder                      | <b>Odor threshold</b>                                                                                                                       | Not applicable |
| <b>Color</b>                     | Metallic gray or silver     |                                                                                                                                             |                |
| <b>Property</b>                  | <b>Values</b>               | <b>Remarks • Method</b>                                                                                                                     |                |
| pH                               | -                           | Not applicable                                                                                                                              |                |
| Melting point / freezing point   | 1400-1540 °C / 2560-2800 °F |                                                                                                                                             |                |
| Boiling point / boiling range    | -                           |                                                                                                                                             |                |
| Flash point                      | -                           |                                                                                                                                             |                |
| Evaporation rate                 | -                           | Not applicable                                                                                                                              |                |
| Flammability (solid, gas)        | -                           | Product not flammable in the form as distributed, flammable as finely divided particles or pieces resulting from processing of this product |                |
| <b>Flammability Limit in Air</b> |                             |                                                                                                                                             |                |

|                              |                |                |
|------------------------------|----------------|----------------|
| Upper flammability limit:    | -              |                |
| Lower flammability limit:    | -              |                |
| Vapor pressure               | -              | Not applicable |
| Vapor density                | -              | Not applicable |
| Specific Gravity             | 8.0-8.5        |                |
| Water solubility             | Insoluble      |                |
| Solubility in other solvents | -              |                |
| Partition coefficient        | -              | Not applicable |
| Autoignition temperature     | -              | Not applicable |
| Decomposition temperature    | -              | Not applicable |
| Kinematic viscosity          | -              | Not applicable |
| Dynamic viscosity            | -              | Not applicable |
| Explosive properties         | Not applicable |                |
| Oxidizing properties         | Not applicable |                |

**Other Information**

|                  |                |
|------------------|----------------|
| Softening point  | -              |
| Molecular weight | -              |
| VOC Content (%)  | Not applicable |
| Density          | -              |
| Bulk density     | -              |

**10. STABILITY AND REACTIVITY****Reactivity**

Not applicable

**Chemical stability**

Stable under normal conditions.

**Possibility of Hazardous Reactions**

None under normal processing.

**Hazardous polymerization**

Hazardous polymerization does not occur.

**Conditions to avoid**

Dust formation and dust accumulation.

**Incompatible materials**

Dissolves in hydrofluoric acid. Ignites in the presence of fluorine. When heated above 200°C, reacts exothermically with the following:: chlorine, bromine, halocarbons, carbon tetrachloride, carbon tetrafluoride, and freon.

**Hazardous Decomposition Products**

When product is subjected to welding, burning, melting, sawing, brazing, grinding, buffing, polishing, or other similar heat-generating processes, the following potentially hazardous airborne particles and/or fumes may be generated: Titanium dioxide an IARC Group 2B carcinogen. Hexavalent Chromium (Chromium VI) may cause lung, nasal, and/or sinus cancer. Vanadium pentoxide (V2O5) affects eyes, skin, respiratory system. Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

**11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure****Product Information****Inhalation**

May cause cancer. Cobalt-containing powders may be harmful if inhaled. Cobalt-containing alloys may cause sensitization by inhalation. Causes damage to the respiratory tract through prolonged or repeated exposure if inhaled.

|                     |                                          |
|---------------------|------------------------------------------|
| <b>Eye contact</b>  | Causes serious eye irritation.           |
| <b>Skin Contact</b> | May cause sensitization by skin contact. |
| <b>Ingestion</b>    | Harmful if swallowed.                    |

| Chemical Name                    | Oral LD50         | Dermal LD50     | Inhalation LC50 |
|----------------------------------|-------------------|-----------------|-----------------|
| Nickel<br>7440-02-0              | > 9000 mg/kg bw   | -               | > 10.2 mg/L     |
| Chromium<br>7440-47-3            | > 3400 mg/kg bw   | -               | > 5.41 mg/L     |
| Cobalt<br>7440-48-4              | 550 mg/kg bw      | >2000 mg/kg bw  | <0.05 mg/L      |
| Iron<br>7439-89-6                | 98,600 mg/kg bw   | -               | > 0.25 mg/L     |
| Tungsten<br>7440-33-7            | > 2000 mg/kg bw   | > 2000 mg/kg bw | > 5.4 mg/L      |
| Niobium (Columbium)<br>7440-03-1 | > 10,000 mg/kg bw | > 2000 mg/kg bw | -               |
| Molybdenum<br>7439-98-7          | > 2000 mg/kg bw   | > 2000 mg/kg bw | > 5.10 mg/L     |
| Titanium<br>7440-32-6            | > 5000 mg/kg bw   | -               | -               |
| Tantalum<br>7440-25-7            | > 2000 mg/kg bw   | > 2000 mg/kg bw | > 5.18 mg/L     |
| Aluminum<br>7429-90-5            | 15,900 mg/kg bw   | -               | > 1 mg/L        |
| Vanadium<br>7440-62-2            | > 2000 mg/kg bw   | -               | -               |
| Hafnium<br>7440-58-6             | > 5000 mg/kg bw   | -               | >4.3mg/L        |

#### Information on toxicological effects

**Symptoms** May cause sensitization by skin contact. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause acute gastrointestinal effects if swallowed.

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Acute toxicity** Harmful if swallowed. Cobalt-containing powders may be harmful if inhaled.  
**Skin corrosion/irritation** Product not classified.  
**Serious eye damage/eye irritation** Causes serious eye irritation.  
**Sensitization** May cause sensitization by skin contact. Cobalt-containing alloys may cause sensitization by inhalation.  
**Germ cell mutagenicity** Contains a suspected mutagen.  
**Carcinogenicity** May cause cancer.

| Chemical Name         | ACGIH | IARC                 | NTP                             | OSHA |
|-----------------------|-------|----------------------|---------------------------------|------|
| Nickel<br>7440-02-0   |       | Group 1<br>Group 2B  | Known<br>Reasonably Anticipated | X    |
| Chromium<br>7440-47-3 |       | Group 3              |                                 |      |
| Cobalt<br>7440-48-4   | A3    | Group 2A<br>Group 2B | Known                           | X    |

**Reproductive toxicity** Contains a known or suspected reproductive toxin.  
**STOT - single exposure** Product not classified.  
**STOT - repeated exposure** Causes disorder and damage to the: Respiratory System.  
**Aspiration hazard** Product not classified.

## 12. ECOLOGICAL INFORMATION

This product contains a chemical which, although not listed, meets the IMDG criteria for being a severe marine pollutant.

### Ecotoxicity

This product as shipped is classified for aquatic acute toxicity. This product as shipped is classified for aquatic chronic toxicity.

| Chemical Name                    | Algae/aquatic plants                                                                                                                                                                                 | Fish                                                                                                                                                                                                            | Toxicity to microorganisms                                                            | Crustacea                                                                                                                                                                                      |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nickel<br>7440-02-0              | NOEC/EC10 values range from 12.3 µg/l for <i>Scenedesmus accuminatus</i> to 425 µg/l for <i>Pseudokirchneriella subcapitata</i> .                                                                    | The 96h LC50s values range from 0.4 mg Ni/L for <i>Pimephales promelas</i> to 320 mg Ni/L for <i>Brachydanio rerio</i> .                                                                                        | The 30 min EC50 of nickel for activated sludge was 33 mg Ni/L.                        | The 48h LC50s values range from 0.013 mg Ni/L for <i>Ceriodaphnia dubia</i> to 4970 mg Ni/L for <i>Daphnia magna</i> .                                                                         |
| Chromium<br>7440-47-3            | -                                                                                                                                                                                                    | -                                                                                                                                                                                                               | -                                                                                     | -                                                                                                                                                                                              |
| Cobalt<br>7440-48-4              | The 72 h EC50 of cobalt dichloride to <i>Pseudokirchneriella subcapitata</i> was 144 µg of Co/L.                                                                                                     | The 96h LC50 of cobalt dichloride ranged from 1.5 mg Co/L for <i>Oncorhynchus mykiss</i> to 85 mg Co/L for <i>Danio rerio</i> .                                                                                 | The 3 h EC50 of cobalt dichloride for activated sludge was 120 mg of Co/L.            | The 48 h LC50 of cobalt dichloride ranged from 0.61 mg Co/L for <i>Ceriodaphnia dubia</i> tested in soft, DOM-free water to >1800mg Co/L for <i>Tubifex tubifex</i> in very hard water.        |
| Iron<br>7439-89-6                | -                                                                                                                                                                                                    | The 96 h LC50 of 50% iron oxide black in water to <i>Danio rerio</i> was greater than 10,000 mg/L.                                                                                                              | The 3 h EC50 of iron oxide for activated sludge was greater than 10,000 mg/L.         | The 48 h EC50 of iron oxide to <i>Daphnia magna</i> was greater than 100 mg/L.                                                                                                                 |
| Tungsten<br>7440-33-7            | The 72 h EC50 of sodium tungstate to <i>Pseudokirchneriella subcapitata</i> was 31.0 mg of W/L.                                                                                                      | The 96 h LC50 of sodium tungstate to <i>Danio rerio</i> was greater than 106 mg of W/L.                                                                                                                         | The 30 min EC50 of sodium tungstate for activated sludge were greater than 1000 mg/L. | The 48 h EC50 of sodium tungstate to <i>Daphnia magna</i> was greater than 96 mg of W/L.                                                                                                       |
| Niobium (Columbium)<br>7440-03-1 | -                                                                                                                                                                                                    | -                                                                                                                                                                                                               | -                                                                                     | -                                                                                                                                                                                              |
| Molybdenum<br>7439-98-7          | The 72 h EC50 of sodium molybdate dihydrate to <i>Pseudokirchneriella subcapitata</i> was 362.9 mg of Mo/L.                                                                                          | The 96 h LC50 of sodium molybdate dihydrate to <i>Pimephales promelas</i> was 644.2 mg/L                                                                                                                        | The 3 h EC50 of molybdenum trioxide for activated sludge was 820 mg/L.                | The 48 h LC50 of sodium molybdate dihydrate to <i>Ceriodaphnia dubia</i> was 1,015 mg/L.<br>The 48 h LC50 of sodium molybdate dihydrate to <i>Daphnia magna</i> was greater than 1,727.8 mg/L. |
| Titanium<br>7440-32-6            | The 72 h EC50 of titanium dioxide to <i>Pseudokirchneriella subcapitata</i> was 61 mg of TiO2/L.                                                                                                     | The 96 h LC50 of titanium dioxide to <i>Cyprinodon variegatus</i> was greater than 10,000 mg of TiO2/L.<br>The 96 h LC50 of titanium dioxide to <i>Pimephales promelas</i> was greater than 1,000 mg of TiO2/L. | The 3 h EC50 of titanium dioxide for activated sludge were greater than 1000 mg/L.    | The 48 h EC50 of titanium dioxide to <i>Daphnia magna</i> was greater than 1000 mg of TiO2/L.                                                                                                  |
| Tantalum<br>7440-25-7            | -                                                                                                                                                                                                    | -                                                                                                                                                                                                               | -                                                                                     | -                                                                                                                                                                                              |
| Aluminum<br>7429-90-5            | The 96-h EC50 values for reduction of biomass of <i>Pseudokirchneriella subcapitata</i> in AAP-Medium at pH 6, 7, and 8 were estimated as 20.1, 5.4, and 150.6 µg/L, respectively, for dissolved Al. | The 96 h LC50 of aluminum to <i>Oncorhynchus mykiss</i> was 7.4 mg of Al/L at pH 6.5 and 14.6 mg of Al/L at pH 7.5                                                                                              | -                                                                                     | The 48-hr LC50 for <i>Ceriodaphnia dubia</i> exposed to Aluminum chloride increased from 0.72 to greater than 99.6 mg/L with water hardness increasing from 25 to 200 mg/L.                    |
| Vanadium<br>7440-62-2            | The 72 h EC50 of vanadium pentoxide to <i>Desmodesmus subspicatus</i> was 2,907 µg of V/L.                                                                                                           | The 96 h LC50 of vanadium pentoxide to <i>Pimephales promelas</i> was 1,850 µg of V/L.                                                                                                                          | The 3 h EC50 of sodium metavanadate for activated sludge was greater than 100 mg/L.   | The 48 h EC50 of sodium vanadate to <i>Daphnia magna</i> was 2,661 µg of V/L.                                                                                                                  |
| Hafnium                          | The 72 h EC50 of hafnium                                                                                                                                                                             | The 96 h LC50 of Hafnium                                                                                                                                                                                        | -                                                                                     | The 48 h EC50 of Hafnium                                                                                                                                                                       |

|           |                                                                                           |                                                                                          |                                                                                  |
|-----------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 7440-58-6 | to Pseudokirchneriella subcapitata was great than 8 ug of Hf/L (100% saturated solution). | dioxide in water to Danio rerio was greater than the solubility limit of 0.007 mg Hf/L . | dioxide to Daphnia magna was greater than the solubility limit of 0.007 mg Hf/L. |
|-----------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|

**Persistence and degradability****Bioaccumulation****Other adverse effects****13. DISPOSAL CONSIDERATIONS****Waste treatment methods**

**Disposal of wastes** Disposal should be in accordance with applicable regional, national and local laws and regulations.

**Contaminated packaging** Disposal should be in accordance with applicable regional, national and local laws and regulations.

| Chemical Name         | RCRA - D Series Wastes    |
|-----------------------|---------------------------|
| Chromium<br>7440-47-3 | 5.0 mg/L regulatory level |

This product contains one or more substances that are listed with the State of California as a hazardous waste.

**14. TRANSPORT INFORMATION****DOT**

**UN/ID No.** 3077  
**Proper shipping name** Environmentally hazardous substance, solid, n.o.s. (cobalt alloy powder) [include "nickel" and ", RQ" if RQ is exceeded]  
**Hazard Class** 9  
**Packing Group** III  
**Reportable Quantity (RQ)** "(RQ)", if quantity with particles smaller than 100 micrometers (0.004 inches) in an individual package equals or exceeds the reportable quantity (RQ) of 5000 pounds of chromium or 100 pounds of nickel.  
**Special Provisions** 8, 146, 335, A112, B54, B120, IB8, IP3, N20, N91, T1, TP33  
**Marine pollutant** This product contains a chemical which, although not listed, meets the IMDG criteria for being a severe marine pollutant.  
**Emergency Response Guide Number** Guide No. 171, Except for FIRE follow Guide No. 170

**15. REGULATORY INFORMATION****International Inventories**

|               |            |
|---------------|------------|
| TSCA          | Complies   |
| DSL/NDL       | Complies   |
| EINECS/ELINCS | Complies   |
| ENCS          | Complies   |
| IECSC         | Complies   |
| KECL          | Complies   |
| PICCS         | Not Listed |
| AICS          | Not Listed |

**Legend:**

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

**US Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

| Chemical Name        | CAS No.   | Weight-%   | SARA 313 - Threshold Values % |
|----------------------|-----------|------------|-------------------------------|
| Nickel - 7440-02-0   | 7440-02-0 | 49 - 68    | 0.1                           |
| Chromium - 7440-47-3 | 7440-47-3 | 0 - 32     | 1.0                           |
| Cobalt - 7440-48-4   | 7440-48-4 | 2.5 - 24.9 | 0.1                           |

**SARA 311/312 Hazard Categories**

|                                   |     |
|-----------------------------------|-----|
| Acute health hazard               | Yes |
| Chronic Health Hazard             | Yes |
| Fire hazard                       | No  |
| Sudden release of pressure hazard | No  |
| Reactive Hazard                   | No  |

**CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

| Chemical Name         | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|-----------------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Nickel<br>7440-02-0   |                             | X                      | X                         |                            |
| Chromium<br>7440-47-3 |                             | X                      | X                         |                            |

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Chemical Name         | Hazardous Substances RQs |
|-----------------------|--------------------------|
| Nickel<br>7440-02-0   | 100 lb                   |
| Chromium<br>7440-47-3 | 5000 lb                  |

**US State Regulations****California Proposition 65**

This product contains the Proposition 65 chemicals listed below. Proposition 65 warning label available at ATImaterials.com.

| Chemical Name      | California Proposition 65 |
|--------------------|---------------------------|
| Nickel - 7440-02-0 | Carcinogen                |
| Cobalt - 7440-48-4 | Carcinogen                |

**U.S. State Right-to-Know Regulations**

| Chemical Name | New Jersey | Massachusetts | Pennsylvania |
|---------------|------------|---------------|--------------|
|---------------|------------|---------------|--------------|

|                         |   |   |   |
|-------------------------|---|---|---|
| Nickel<br>7440-02-0     | X | X | X |
| Chromium<br>7440-47-3   | X | X | X |
| Cobalt<br>7440-48-4     | X | X | X |
| Tungsten<br>7440-33-7   | X | X | X |
| Molybdenum<br>7439-98-7 | X | X | X |
| Titanium<br>7440-32-6   | X |   |   |
| Tantalum<br>7440-25-7   | X | X | X |
| Aluminum<br>7429-90-5   | X | X | X |
| Vanadium<br>7440-62-2   | X | X | X |
| Hafnium<br>7440-58-6    | X | X | X |

**U.S. EPA Label Information**

EPA Pesticide Registration Number Not applicable

**16. OTHER INFORMATION**

**NFPA** Health hazards 1 Flammability 0 Instability 0 Physical and Chemical Properties -  
**HMIS** Health hazards 2\* Flammability 1 Physical hazards 0 Personal protection X  
*Chronic Hazard Star Legend \* = Chronic Health Hazard*

Issue Date 21-Aug-2026

Revision Date 21-Aug-2026

**Revision Note**

New Safety Data Sheet

**Note:**

The information provided in this safety data sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**

Additional information available from: Safety data sheets and labels available at ATImaterials.com