



MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

1.1. Identification of the product (article according to Reach Regulation)

Corrosion resistant or heat-resistant stainless steel supplied as solid, compact and non-inhalable metal in the form of stainless tube in coil or straight length.

This safety data sheet covers the AUSTENIC, FERRITIC stainless steel and High nickel resistant alloys listed below:

EN 1.4301 -1.4307 - 1.4404 - 1.4828 - 1.4541 - 1.4521 - 1.4571 - 1.4845 - 1.4847 -
1.4876 - 2.4858 - 2.4851 - 2.4816

AISI 304 - 304L - 316L - 309S - 321 - 316T - 310S - 444 - ALLOY 800 - 840 - 825 -
601 - 600

1.2. Use of product (article according to Reach Regulation)

Our stainless steel products (articles according to REACH Regulation), with special corrosion properties and heat resistance, are supplied in semi-finished form for further processing for products in, electronic industry, automotive industry; chemical industry, beverage industry, etc.

1.3. Company identification:

CSM TUBE S.p.A., via del Lavoro 60, 31013 Cimavilla di Codognè (TV) Italy

<https://www.csmtube.com/>

2. HAZARDS IDENTIFICATION

Solid stainless steel products covered by this Safety Data Sheet are shipped as non-flammable, nonexplosive, non-reactive articles and do not constitute a hazardous material in solid form.

Safety Data Sheet

as welded, heat treated stainless steel tubes, cut to length and in coils.



2.1. Potential health effects

No carcinogenic effects resulting from exposure to stainless steel have been reported, either in epidemiological studies or in tests with animals.

2.2. Eye Contact

Dusts or particulates may cause mechanical irritation including pain, tearing, and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

2.3. Skin contact (Dermatological effects)

Stainless steels do not cause nickel sensitization by prolonged skin contact in human. However, nickel is classified as a skin sensitizer. It causes skin sensitization in susceptible individuals through prolonged intimate contact with the skin (e.g. wearing jewelry).

2.4. Wounds

Nickel metal powder has caused tumors at the site of injection in rodents. However, studies do not suggest a significant risk for humans from nickel containing prostheses.

2.5. Inhalation

Dust and fumes which may be produced as a by-product during grinding, polishing, abrasive blasting, welding, pickling and post-fabrication cleaning or similar processes may contain fumes of chromium (VI) oxides.

Dusts may cause irritation of the nose, throat, and lungs. Excessive inhalation of metallic fumes and dusts may result in metal fume fever, an influenza-like illness. It is characterized by a sweet or metallic taste in the mouth, accompanied by dryness and irritation of the throat, cough, shortness of breath, pulmonary edema, general malaise, weakness, fatigue.

2.6. Ingestion

There is no evidence that nickel and its inorganic compounds are carcinogenic when ingested. Nickel is generally recognized as safe as a direct human food ingredient.

3. COMPOSITION / INFORMATION ON INGREDIENTS

According to the standards EN 10088:2, 10028:7, 10095; ASTM A240

4. FIRST AID MEASURES

In its solid form stainless steel does not present an inhalation, absorption, or ingestion hazard.

Grinding, polishing, abrasive blasting, hot rolling, hot forging, thermal cutting, or welding may produce stainless steel dust or fumes containing complex or mixed oxides of its components. Metal dust particles may cause eye, skin and/or respiratory system irritation.

For these instances, below are presented examples of first aid measures:

Eye Contact

In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists.

Skin Contact

In case of overexposure to dusts or particulates, wash with soap and plenty of water. Remove and wash contaminated clothing. Get medical attention if irritation develops or persists.

Inhalation

Not applicable to stainless steel in massive form. In case of overexposure to dusts or fumes, ensure sufficient supply of fresh air and consult a physician if required.

Ingestion

Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention immediately. Rinse mouth. Do not induce vomiting.

Notes to physician

Inhalation of metal fume or metal oxides may produce an acute febrile state, with cough, chills, weakness, and general malaise, nausea, vomiting, muscle cramps, and remarkable leukocytosis. Treatment is symptomatic, and condition is self-limited in 24÷48 hours. Chronic exposure to dusts may result in pneumoconiosis of mixed type.

5. FIRE-FIGHTING MEASURES

Stainless steels in the solid form are not flammable and thus do not require special fire prevention or fire fighting measures.

Flash Point: Not applicable.

Auto-ignition Temperature: Not applicable.

Flammability Classification: Non-flammable. Will not support combustion.

Flammable Limits: Not applicable.

General Fire Hazard: None for solid formed product.

Extinguishing method:

Use extinguishing media appropriate for surrounding fire. Dry sand; Class D Extinguishing Agent (for metal powder fires).

Fire should be extinguished by a properly trained and experienced fire-fighter. Proper care should be taken in applying extinguishing agent and in allowing burning itself out.

Fire fighting equipment:

As in any fire, wear self-contained breathing apparatus pressure-demand, and full protective gear.

Unusual fire or explosion hazards:



Steel products do not present fire or explosion hazards under normal conditions. Finely divided, suspended particulates may present a fire and explosion hazard in the presence of an ignition source.

Explosion data:

Sensitivity / Mechanical Impact: Not applicable for solid product

Sensitivity / Static Discharge: Not applicable for solid product

6. ACCIDENTAL RELEASE MEASURES

Not applicable to steel in solid state.

7. HANDLING AND STORAGE

7.1. Handling

There are no special technical measures involved for handling stainless steels. Normal precautions should be taken to avoid physical injury from coiled or bundled products, possibly with sharp edges:

- take care about the maximum loading weight of the forklift to be suitable to load the packaging. For the straight length over 4 m we recommend to use side forklift or other equivalent and appropriate and safe method
- All products are likely to have sharp edges that could cause lacerations
- Suitable protective clothing and equipment, such as hand and eye protection, should be worn and systems of work adopted to take account of any hazards arising from the risk of fracturing or the release of tension when breaking open banding.

Recommended Work Practices:

Avoid breathing of and contact with fumes and dusts during processing. Use only with adequate ventilation. Wash thoroughly after handling and use, especially before eating, drinking or smoking.

7.2. Storage

Store in a dry location. Keep away from incompatible materials (see section 10, stability and reactivity). Avoid unnecessary wetting with water, contact with acids and high-humidity environments.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Exposure limit values

No permissible exposure limits or threshold limit value exists for stainless steel.

8.2. Exposure controls

8.2.1. Occupational exposure controls

In the processing of all metallic materials, exposure to fume and dust must be kept below any legally imposed limits in each country.

Dust and fume may be generated in use, e.g. by cutting, grinding and welding processes, which may contain materials subject to exposure limits.

To ensure these limits are not exceeded, adequate general or local ventilation or fume extraction should be provided.

In accordance with European and national health and safety regulations, it is necessary to assess the need for personal protection equipment and appropriate approved respiratory protection should be provided for those workers at risk of inhalation.

Respiratory Protection

When exposure cannot be maintained below permissible limits during welding, brazing, machining, and other processes which may generate airborne contaminants, use an appropriate respirator. A competent health and safety professional should be consulted for respirator selection, fit testing, and training.

Skin Protection

Suitable gloves for protection against physical injury and skin contact during handling and processing should be worn. Good personal hygiene practices should be followed including cleansing exposed skin with soap and water.

Eye Protection

Dust resistant safety goggles are recommended under circumstances where particles could cause mechanical injury such as grinding or cutting.

Other Protective Clothing or Equipment

Adequate footwear (safety shoes if necessary) and clothing that protects skin from prolonged or repeated contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General information

Appearance: Varying from very light grey, to shiny metallic light grey to bright mirror.

Odor: Odorless.

Physical state: Solid.

9.2. Important health, safety and environmental information

pH : Not applicable

Boiling point: Not applicable

Flash point: Not applicable

Flammability (solid, gas): Not applicable (*Our products are not flammable.*)

Explosive properties: Not applicable (*Our products are not explosive.*)

Oxidizing properties: Not applicable

Vapor pressure: Not applicable

Water solubility: Insoluble

Partition coefficient: Not applicable

Viscosity: Not applicable

Vapor density: Not applicable



Evaporation rate Not applicable

Specific gravity (H₂O = 1): 7,7 ÷ 8

Magnetic Properties: Austenitic stainless steel and high nickel alloy are non-magnetic in most conditions, but may be paramagnetic in some supply conditions Duplex, ferritic stainless steels are magnetic.

10. STABILITY AND REACTIVITY

10.1. Stability

Stainless steels are stable and non-reactive under normal ambient atmospheric conditions.

10.2. Condition to avoid

Not applicable.

10.3. Materials to avoid

Keep away from oxidizers, stainless steel reacts with strong acids to form explosive hydrogen gas and heat.

10.4. Hazardous decomposition products

No hazardous decomposition products known.

11. TOXICOLOGICAL INFORMATION

Long-term experience of stainless steels in the most varied applications has demonstrated that these very resistant materials are eminently suitable where hygiene is of paramount importance (e.g. food processing and food preparation).

Grinding, polishing, abrasive blasting, hot rolling, hot forging, thermal cutting, or welding may produce stainless steel dust or fumes containing complex or mixed oxides of its components (that can be found in the composition of stainless steel).

Dust and fumes

Over long periods, inhalation of excessive airborne levels may have long term health effects, primarily affecting the lungs, e.g. lung fibrosis, or pneumoconiosis.

Overexposure to iron oxide can cause siderosis (deposits of iron in the lungs) which may affect pulmonary function. However, studies of workers exposed to nickel powder and dust and fumes generated in the production of nickel alloys and stainless steels have not indicated a respiratory cancer hazard.

Iron

Excessive exposure of eyes to airborne iron dust can cause conjunctivitis, choroiditis, and retinitis. Chronic inhalation of excessive concentrations of iron oxide fumes or dusts may result in development of a benign pneumoconiosis, called siderosis, which is observable via X-ray.

No physical impairment of lung function has been associated with siderosis. Inhalation of excessive concentrations of iron oxide may enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens.

Chromium

Solid stainless steel does not contain hexavalent chromium. Chromium as Cr(VI) compound can be found in fumes and dust formed by grinding, polishing, abrasive blasting or welding of stainless steel. Cr(VI) compounds can also be formed by cleaning stainless steel with strong oxide formers at high pH. Cr(VI) is classified by Confirmed Human carcinogen.

Chromium as metal or Cr(II) and Cr(III) oxides is listed as not classifiable as a human carcinogen. However, epidemiological studies amongst welders indicate no extra risk of cancer when welding stainless steels, compared to the slightly increased risk when welding steels that do not contain chromium.

Nickel

For stainless steels there is no direct evidence of carcinogenic effects in man, nor indirect evidence from animals tested by relevant routes, inhalation or ingestion. In

other studies, using non-relevant routes in animals, alloys with up to 40% nickel caused no significant increase in cancer.

Epidemiological studies of workers exposed to nickel powder and to dust and fume generated in the production of nickel alloys and of stainless steel have not indicated the presence of a significant respiratory cancer hazard.

Molybdenum & Copper

Both molybdenum and copper are necessary nutritional elements. High doses of molybdenum may antagonize absorption of copper. Likewise, high doses of copper may antagonize absorption of molybdenum. Overexposure to molybdenum causes anemia, gout-like syndrome and increases uric acid levels. In experimental animals molybdenum toxicity causes weight loss, harmful changes of the liver, kidneys, and bones and impaired reflexes.

Manganese

Overexposure to manganese can result in central nervous system effects referred to as manganism, including symptoms of muscular weakness, impaired speech and tremors similar to Parkinson's disease.

12. ECOLOGICAL INFORMATION

Not applicable for solid stainless steel product in its as shipped form.

Articles produced from solid product are not an ecological hazard. No information found on specific product to establish its effect if released into the environment in finely divided form. The solid product is not expected to migrate easily into soil or groundwater based upon its insoluble form, however, finely divided material can become mobile in water and contaminate soil and groundwater.

This material may persist in the environment for long periods, based upon its corrosion resistant, insoluble, and non-biodegradable properties. In addition, heavy metals may contaminate the food chain and ultimately be consumed by humans. Some

components will react with oxygen to form metallic oxides, the rate of oxidation depends upon prevailing conditions (iron oxidizes most rapidly in moist air).

12.1. Eco-toxicity Not applicable.

12.2. Mobility Not applicable.

12.3. Persistence and degradability No data available.

12.4. Bio-accumulative potential No data available.

12.5. Results of PBT assessment Not applicable.

12.6. Other adverse effects Not applicable.

13. DISPOSAL CONSIDERATIONS

Stainless steel scrap generated from product processing (shearing, cutting, de-burring etc.) is non-dangerous waste and should be handled and recycled according to related legislation.

Product dusts from processing may be classified as hazardous waste, depending on various properties of the dust or the mixture which contains it (e.g. toxicity, solubility, flammability).

14. TRANSPORT INFORMATION

In the case of heavy product, exercise care for prevention of load shifting. During transportation must be assured the stability of the products.

14.1. Hazardous materials description / Proper shipping name

Not applicable for solid formed alloy product.

14.2. Hazard class

Not applicable for solid formed alloy product.

14.3. Identification number

Not applicable for solid formed alloy product.

15. REGULATORY INFORMATION

- Directive 2015/863/EC (RoHS II) on *"Restriction of hazardous substances in electrical and electronic equipment"*
- Regulation 1907/2006/EC (REACH) on *"Registration, Evaluation, Authorization and Restriction of Chemicals"*

General Disclaimer

The information provided in this SDS is correct to the best of our knowledge, information and belief at the date of its publication. All information, recommendations and suggestions appearing herein concerning the product are based upon data believed to be reliable. It is user's responsibility to determine the safety, toxicity, and suitability for their own use of the product describe herein.

This information is not intended to serve as a complete regulatory compliance document. This information is offered as a guide to the SDS user. No guarantees can be made whether the user will be in complete or correct compliance with all applicable regulations when this SDS is used.

It is the user's responsibility to comply with all regulations.