

**Safety information on steel with alloy elements classified
as hazardous according to Regulation (EC) No. 1272/2008(CLP)**

06.07.2018

This information on steel refers to alloys, which contain over 1% of the alloy elements cobalt or nickel or over 0.1% of lead.

Consistent with the provisions laid down in Regulation (EC) No. 1907/2006 on the registration, evaluation and authorization of substances on their own or in mixtures (REACH), our product is a manufactured article.

For these articles there is no safety data sheet required by law.

In order to ensure good readability, the following Information is set out in the established form of the safety data sheets familiar under chemicals legislation.

As the hazards involved in the processing of the product may differ considerably due to the various processing methods selected, the information given is composed of general safety recommendations, which may not be applicable in certain cases or may, in certain circumstances, be insufficient. They have been prepared on the basis of the recognized regulations in German legislation and make no claim to completeness.

The user of our product must verify the completeness of the safety regulations in a hazard assessment in accordance with, for example, the German Safety and Health at Work Act (Act on the implementation of measures of occupational safety and health to encourage improvements in the safety and health protection of workers at work). If you have any queries in this regard, please do not hesitate to contact us.

1 Identification of the substance/preparation and of the company/undertaking:

1.1 Identification of the substance/preparation:

Alloyed steel / high-grade alloyed and stainless steel

1.2 Use of the substance/preparation:

Manufacture of alloyed metal products (see no. 7.3)

1.3 Company/undertaking identification:

Saarstahl AG, Bismarckstrasse 57-59, D-66333 Völklingen

Telephone +49(0)6898/10-0

2 Hazards identification:

The steel products specified in no. 1.1 comprise metals in compact form. The alloy elements listed in no. 3.2, which are considered to be hazardous material are, however, metallically bound into the material. In the form supplied, the steel is neither harmful to human health if inhaled, swallowed or absorbed through the skin nor is it a water contamination hazard.

High-grade steel products contain regularly chromium, which – as in the case of most other alloy elements – is not considered to be a hazardous substance.

Processing and machining (e.g. welding, separating, polishing) may produce particulate matter (dust) and fumes, which may be harmful to human health if inhaled (cf. no. 8.2).

Due to its bulk and sharp edges there is a risk of cutting injuries and accidents when handling and transporting the product.

3. Composition/information on ingredients:

3.1 Chemical characterization:

Alloyed metal products in compact form

3.2. Potential hazardous ingredients:

(cf. alloy elements of the product)

CAS No	International Chemical Identification	Classification	Hazardous Statement Code(s)
7440-02-0	Nickel	Carc. 2 Skin Sens. 1	H351 Suspected of causing cancer H317 May cause an allergic skin reaction
7440-48-4	Cobalt	Resp. Sens. 1 Skin Sens. 1 Aquatic Chronic 4	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled H317 May cause an allergic skin reaction H413 May cause long-lasting harmful effects to aquatic life
7439-92-1	Lead	Repr. 1A Acute Tox. 4 STOT RE 2 Aquatic Acute 1 Aquatic Chronic 1	H360Df May damage the unborn child Suspected of damaging fertility H332 Harmful if inhaled H302 Harmful if swallowed H373 May cause damage to organs through prolonged or repeated exposure H400 Very toxic to aquatic life H410 Very toxic to aquatic life with long-lasting effects

Data on chemical media in accordance with Annex 1 and Annex VI Table 3.1 respectively of REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on the classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC and amending Regulation (EC) No. 1907/2006 (CLP regulation)

Lead is added to the „candidate list“, cf. REACH regulation (EC) No. 1907/2006. In the „candidate list“, those substances are indicated which are considered as of very high concern (SVHC, Substances of Very High Concern).

3.3 Additional information:

Steel may contain alloy elements as manganese, tungsten, aluminium, copper, niobium and titanium as well as other substances which are not classified as hazardous and which lie under the threshold limit values according to Regulation (EC) No. 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP) or which are not subject to any recognized threshold limit values according to Community guidelines.

4. First aid measures:

4.1 General information:

First-aid measures relate to particulate matter (dust) and fumes (breathing difficulties and irritation of the respiratory tract, see no. 11).

4.2 After inhalation:

In the case of inhalation of particulate matter (dust) or fumes, leave the contaminated area and breathe in fresh air. In the event of persistent discomfort, seek medical attention.

4.3 Skin contact:

None

4.4 Eye contact:

Flush the eyes with flowing water, keeping the eyelids open and consult a doctor if necessary.

4.5 After swallowing:

None

5. Fire-fighting measures:

The product itself is not combustible. Adapt the fire-extinguishing measures to the surrounding fire.

6. Accidental release measures:

For personal safety precautions see no. 8.3 on personal protective equipment.

7. Handling and storage:

7.1 Handling:

7.1.1 Directions for safe handling:

Extractor and ventilation measures are mandatory during thermal and/or mechanical processing on the machine/at the workplace. The suction system of the extractor must be applied to the object. It is important to prevent the formation and deposit of particulate matter (dust).

Please take note of TRGS 528 'Welding work' and TRGS 900 'Limit values in the ambient air at the workplace'.

7.1.2 Directions for fire and explosion prevention:

The product is not combustible.

7.2 Storage:

7.2.1 Storage space and container requirements:

No special measures are required.

7.2.2 Segregation of hazardous materials:

Do not store together with acids and alkalis.

7.3 Specific use(s)

Shaping by means of drawing, forging and rolling out, processing by means of welding, cutting and related processes, by means of sawing, milling, peeling and chipping as well as electrochemical machining (e.g. eroding), surface treatment, heat treatment and use in melting metallurgical processes.

8. Exposure controls/personal protection:

8.1 Additional directions on the organization of technical installations:

cf. no. 7; Provide safety equipment in accordance with no. 8.3.

8.2 Exposure controls:

It is not necessary to monitor the workstation where the unmachined product is handled as the alloying elements are firmly bound in the metal.

Hazardous substances may be generated when processing the product, especially through high temperatures and exposure to the air. A number of these are itemized by way of example in the following list of hazardous substances generated by steel processing. The completeness of this list is dependent on the respective grade of steel and can, therefore, not be guaranteed in this case.

According to European legislation, processors of steel products are required to assess the risks arising from the hazardous substances which they themselves have produced and to determine the precautionary measures to be taken for their employees. In Germany, the technical rule on hazardous substances 'Welding work' (TRGS 528) and the technical guideline on conducting a 'risk assessment for activities involving hazardous substances' (TRGS 400) are applicable in this case.

Choosing a machining process which produces the lowest level possible of harmful substances and following the instructions on safety and use issued by the manufacturer of the equipment and tools is of utmost importance.

If machining processes with medium to high exposure of the employees to harmful substances are used or if there is a possibility of generating carcinogenic substances, it is absolutely essential to extract the hazardous substances by suction at source and to take any other appropriate ventilation measures. The air extracted must not be returned to the workspace without passing through a filter system provided for this purpose by the manufacturer.

The equipment must be checked for functionality at least once a year by a competent person. The tests performed must be logged.

Hazardous substances can emerge as gases or particulate matter (e.g. welding fumes, abrasive dust).

Following are examples of toxic and carcinogenic substances:

- Ozone from MIG welding of aluminium materials; ozone is generated from atmospheric oxygen by the action of ultraviolet radiation from the electric arc;
- Carbon monoxide from MAGC welding of non-alloyed and low alloyed steel;

- Nitrous gases (NO, NO₂, NO_X) from autogenous processing for joining, separating and coating;
- Aldehydes from soft-soldering;
- Hydrogen chloride from hard-soldering;
- Isocyanates, aldehydes and epoxides from potentially existing coatings or contaminants;
- Metal oxides which, depending on the machining process and possible exposure to oxygen, may be generated both from the steel and from the production equipment in the form of fumes. The fume particles have a very small diameter, which means that they can penetrate deep into the lung (respirable) and, especially in the case of high-alloyed steel, may contain carcinogenic components, such as nickel oxides or chromium trioxide.

Carcinogenic substances have not been assigned threshold limit values for airborne contaminants under European law: Inhalation and any other form of exposure by employees must be avoided at all costs.

Sample list of hazardous substances which may be generated in the course of processing steel

CAS No	International Chemical Identification	Classification	Hazard Statement Code(s)	Potential Precautionary Statement Codes (own recommendation – no claim to completeness)
1333-82-0	Chromium trioxide	Ox. Sol. 1 Carc. 1A Muta. 1B Repr. 2 Acute Tox. 2 * Acute Tox. 3 * Acute Tox. 3 * STOT RE 1 Skin Corr. 1A Resp. Sens. 1 Skin Sens. 1 Aquatic Acute 1 Aquatic Chronic 1	H271: May cause fire or explosion; strong oxidizer. H301+H311: Toxic if swallowed or in contact with skin. H330: Life-threatening if inhaled. H314: Causes severe skin burns and eye damage. H317: May cause an allergic skin reaction. H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335: May cause respiratory irritation. H340: May cause genetic defects. H350: May cause cancer. H361f: Suspected of damaging fertility. H372: Causes damage to organs through prolonged or repeated exposure. H410: Very toxic to aquatic life with long-lasting effect.	P201: Obtain special instructions before use. P210: Keep away from heat. P273: Avoid release into the environment. P280: Wear protective gloves / protective clothing / eye protection / face protection. P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P302+P352: IF ON SKIN: Wash with plenty of water and soap. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove any contact lenses if possible. Continue rinsing. P308+P310: IF EXPOSED or affected: Immediately call a poisons information centre/doctor.
1313-99-1 12035-36-8	Nickel oxide Nickel dioxide	Carc. 1Ai Skin Sens. 1 Aquatic Chronic 4	H317: May cause an allergic skin reaction H350i: May cause cancer if inhaled. H413: May cause long-lasting harmful effects to aquatic life.	P201: Obtain special instructions before use. P280: Wear protective gloves. P308+P313: IF EXPOSED or affected: Obtain medical advice/attention.
1313-27-5	Molybdenum trioxide	STOT RE 2 * Eye Irrit. 2 STOT SE 3	H351: Suspected of causing cancer. H319: Causes serious eye irritation. H335: May cause respiratory irritation.	P261: Avoid breathing in dust. P281: Use personal protective equipment prescribed. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove any contact lenses if possible. Continue rinsing.
1307-96-6	Cobalt oxide	Xn; R22 R43	H301: Toxic if swallowed. H330: Life-threatening if	

		N; R50-53	inhaled. H317: May cause an allergic skin reaction. H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. H410: Very toxic to aquatic life with long-lasting effect.	
1313-13-9	Manganese dioxide	Acute Tox. 4 *	H272: May intensify fire; oxidizer. H302+H332: Harmful if swallowed or inhaled.	P221: Take all possible precautions to avoid mixing with combustibles.

* Minimum classification

Classification in accordance with Annex 1 and Annex VI Table 3.1 respectively of REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on the classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC and amending Regulation (EC) No. 1907/2006 (CLP regulation)

8.3 Occupational exposure controls:

8.3.1 Respiratory protection:

Personal protective equipment should only be used if technical measures are not applicable or are not sufficient. If the threshold limit values for air-borne contaminants have been exceeded – especially the general threshold limit value for particulate matter (dust) - the protective equipment appropriate to the results of the hazard assessment must be selected.

In the case of machining processes producing a low level of harmful substances but no toxic gases or carcinogenic substances it is only necessary to observe the general threshold limit value for particulate matter (dust) (respirable dust content below 1.25 mg/m³). In some cases – for short-term work – wearing a class 3 (FFP3) respirator mask with a fine particulate air filter is acceptable.

Depending on the choice of protective equipment, the health-related suitability of the employees must be guaranteed and, if applicable, the time limits for wearing the equipment must be observed.

8.3.2 Hand protection:

Depending on the respective processing and machining, work gloves are recommended for direct contact with the product to protect against the partially rough surfaces and edges.

8.3.3 Eye protection:

Adapt the protective equipment to the machining process of the product.

8.3.4 Skin protection: N/A

8.3.5 Other protective and hygiene measures:

Do not eat, drink, smoke or take snuff while working on the product. Do not inhale dust or fumes.

Do not blow or brush down contaminated clothing.

8.4 Restrictions and controls of environmental exposure: N/A

9. Physical and chemical properties:

9.1 Appearance:

9.1.1 Physical state: solid

9.1.2 Colour: metallic silver-grey from matt to high-gloss finish

9.1.3 Odour: odourless

9.2 Important health, safety and environmental information

9.2.1 pH of the substance or preparation as supplied: N/A

9.2.2 pH at ... g/l water and ... °C: N/A

9.2.3 Boiling range: 2700 – 2900 °C

9.2.4 Melting range: 1400 – 1600 °C

9.2.5 Flash point: N/A

9.2.6 Ignition temperature: N/A

9.2.7 Spontaneous ignitability: N/A

9.2.8 Explosion limits: N/A – Dust explosion of metal particles with a particle size below ½ mm possible

9.2.9 Oxidizing properties: N/A

9.2.10 Vapour pressure at... °C: N/A

9.2.11 Relative density at... °C: 7.7 – 8.9 g/cm³

9.2.12 Water solubility: Insoluble

9.2.13 Viscosity: N/A

10. Stability and reactivity:

10.1 Conditions to avoid: N/A

10.2 Materials to avoid: N/A

10.3 Hazardous decomposition products, possible reaction products with other substances:

Hydrogen may be produced if in contact with concentrated strong acids.

11. Toxicological information:

Testing of the product as a manufactured article is not prescribed by law. Due to the consistency and lack of water solubility of the product, bioavailability is extremely low.

No other data is available.

The hazardous substances which may be produced in the course of the processing are manufacturing products of the processor and are dependent on the grade of the steel, the processing method used and, if applicable, the coating materials covering the steel.

More precise information on the products produced in the course of processing may be obtained on determination of the alloys due to the hazard assessment and may be requested via the following link to the website of the European Chemicals Agency (ECHA):

<http://echa.europa.eu/web/guest/information-on-chemicals/registered-substances>

12 Ecological information:

None of the substances contained in the high-alloyed steel/stainless steel should be released under normal or reasonably foreseeable conditions of use. Exposure to humans and the environment under reasonably foreseeable conditions of use, including disposal, should be negligible.

13. Disposal considerations:

- Designation: alloyed steel scrap
- European Waste Catalogue (EWC) – disposal code 120199
- Recommendation for unused and used product: Return to steel manufacturer via scrap trade
- Statutory requirements: Additional compliance with local authority regulations

14. Transport information:

No hazardous materials in terms of transportation regulations

15. Regulatory information: N/A

16. Other information:

- Training: In the case of further processing, instruction on the content of the relevant safety measures included in the hazard assessment is recommended.
- Abbreviations used:
N/A – not applicable

Declaration:

The data in this safety information document has been provided to the best of our knowledge and experience. The safety information describes our products with respect to general safety requirements. It does not constitute a guarantee of product properties or any contractual relationship under the law.