



EC - Material Safety Data Sheet

According to Article 32 (non hazardous substance) Regulation (EC) No 1907/2006 (REACH)

thyssenkrupp

Material identification: **Carbon steel**

Date of issue: 01.09.1998

Revised: 07.09.2016

Printed: 07.09.2016

Material number: TKE-110

Page: 1 of 6

1 * Identification of the substance and of the company

1.1 Product identifier

- 1.1.1 Name of product: Carbon steel
- 1.1.2 Additional identification: Microalloyed steel, low alloy steel, mild steel
- 1.1.3 Trade name / designation: slab, hot strip, heavy plate, cold strip

1.2 Relevant identified uses of the substance and uses advised against

- 1.2.1 Relevant identified uses: Further processing of the steel product.
- 1.2.2 Uses advised against: none known

1.3 Details of the supplier of the safety data sheet

- 1.3.1 Supplier (manufacturer): thyssenkrupp Steel Europe AG
- 1.3.2 Street: Kaiser-Wilhelm-Straße 100
- 1.3.3 Postal code/city: D 47166 Duisburg
- 1.3.4 Country: Germany
- 1.3.5 Telephone: +49 203 / 52-1
- 1.3.6 Telefax: +49 203 / 52 25 10 2
- 1.3.7 Informing department: Occupational Safety // Hazardous Substances - Reach
Tel. +49 203 / 52 25 92 0
Fax. +49 203 / 52 26 62 8
- 1.3.8 E-mail (competent person): sicherheitsdatenblaetter-tks@thyssenkrupp.com
- 1.4 Emergency telephone number: +49 203 / 52 41 21 1 (24 h/d available)

2 * Hazards identification

- 2.1 Classification of the substance: The alloy (preparation) this article is made of is not classified as dangerous in the meaning of the European Regulation (EC) No 1272/2008 (CLP).
- 2.2 Other Hazards: During thermal or mechanical treatment (i.e. welding, detaching, grinding) dust and fume may appear and the principal risk to human health is related to the concentration of dust in the air.

3 * Composition/information on ingredients

3.1 Chemical characterisation: Carbon or low alloy steel.

3.2 Ingredients of steel:

EINECS Registration no.	CAS-No.	Name	Concentration [%]	Classification (EC) No 1272/2008
231-096-4 01-2119462838-24	7439-89-6	Iron	> 98	not classified

3.3 Material composition: On customer request sheets can be oiled with corrosion protection oil.

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Page: 2 of 6

3.4 Further information:

The product fulfils the requirements according to Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS-II).

The product fulfils the requirements according to Directive 2000/53/EC on the restriction of the use of certain hazardous substances (End of Life Vehicles Directive).

According to our current state of knowledge no substances of the GADSL-list are present in the product above the concentration limits.

According to our current state of knowledge no substance are present in our products above 0.1% (w/w) which fulfil the criteria according to article 57 and 59(1) of the REACH-Regulation or are listed in the candidate list according to Annex XIV. We will inform our customers immediately in case any changes occur regarding this issue.

4 First aid measures

4.1 General information:

First-aid measures refer to dust and fume which may result from thermal or mechanical treatment.

4.2 In case of inhalation:

Move affected person into fresh air. Seek medical advice if appropriate.

4.3 In case of skin contact:

Wash off thoroughly with soap and water.

4.4 In case of eye contact:

Rinse the eyes thoroughly with water with the eyelids open. Seek medical advice if an irritation persists.

4.5 In case of ingestion:

Rinse mouth and drink plenty of water.

5 * Fire-fighting measures

5.1 Extinguishing media

5.1.1 Suitable extinguishing media:

Steel (massive) does not burn. Coordinate fire-fighting measures to the fire surroundings. Foam (alcohol-resistant), carbon dioxide-powder, spray (water).

5.1.2 Unsuitable extinguishing media:

none known

5.2 Special hazards arising from the substance or mixture:

none known, see section 10

5.3 Advice for firefighters:

Wear a self-contained breathing apparatus.

6 * Accidental release measures

6.1 Personal precautions:

Steel products may have sharp edges, therefore use cut resistant gloves.

6.2 Environmental precautions:

No special environmental measures are necessary.

6.3 Methods for cleaning up:

Take up mechanically and collect material for recovery.

6.4 Reference to other sections:

Disposal: see section 13

Personal protection equipment: see section 8



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Material number: TKE-110

Page: 3 of 6

7 Handling and Storage

7.1 **Precaution for safe handling**

7.1.1 **Hints for safe handling:**

Steel products may have sharp edges, therefore use cut resistant gloves.

7.1.2 **Technical measures:**

In case of thermal and/or mechanical processing, local exhaust ventilation has to be used to under-run limit values described in chapter 8.1.1.

7.1.3 **General health and safety measures:**

Do not eat, drink, smoke or take snuff while working. Wash hands before breaks and on finishing work.

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

Avoid contact with acids (release of hydrogen).

8 * Exposure controls / Personal protection

8.1 **Control parameters**

8.1.1 **Occupational exposure limits (OELs):**

CAS-No.	name	ml/m ³	mg/m ³	upper limit
	dust, alveolar fraction (A)		1.25	
	dust, respirable fraction (E)		10	2(II)

8.1.2 **Additional hints on exposure limits:**

Source (German legislation): TRGS 900 "Arbeitsplatzgrenzwerte"
Values refer to dust and fume that may result during treatment.

8.1.3 **DNEL/DMEL and PNEC values:**

Observe in addition the national legislative regulations!
DNEL/PNEC- values are not necessary.
DNELs for Iron General Population from iron-CSR:
Long-term systemic effects (Oral): 0.71mg/kg bw/day
Long-term - local effects (Inhalation): 1.5mg/m³

8.2 **Exposure controls**

8.2.1 **Appropriate engineering controls:**

Refer to no. 7.

8.2.2 **Respiratory protection:**

not necessary (massive form).
At appearance of dust: breathing filter P2.

8.2.3 **Hand protection:**

Depends on machining. If necessary use cut resistance gloves (EN 388). For example Kevlar[®] with liquid-repellent coating (nitrile rubber: repels oils) is suitable (cut resistance level 2 or higher is recommended).

8.2.4 **Eye protection:**

not necessary (massive form).
At appearance of dust: safety glasses.

8.2.5 **Suitable protective clothing:**

safety shoes, working clothes.

8.3 **Environmental exposure controls:**

For metal in massive form no special precautionary measures necessary.

9 * Physical and chemical Properties

9.1 **Information on basic physical and chemical properties**

9.1.1 **Physical state:**

solid

9.1.2 **Colour:**

metallic, silver-grey

9.1.3 **Odour:**

odourless

9.1.4 **pH Value:**

n.a.

9.1.5 **Melting-point / Melting range:**

approx. 1530 °C (steel)

(1013 hPa)

9.1.6 **Initial boiling point and boiling range:**

2861°C

(1013 hPa)



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Page: 4 of 6

9.1.7	Flash point:	No test necessary for inorganic steel.
9.1.8	Flammability:	n.d.a.
9.1.9	Dust explosive properties:	n.a. (massive steel)
9.1.10	Vapour pressure:	n.d.a.
9.1.11	Relative Density:	steel ~ 7.80 g/cm ³ (20°C)
9.1.12	Water solubility (g/l):	steel is insoluble at 22°C.
9.1.13	Partition coefficient n-octanol/water:	n.d.a.
9.1.14	Auto-ignition temperature:	no auto-ignition
9.1.15	Oxidising properties:	not oxidising
9.2	Other information:	none

10 * Stability and Reactivity

10.1	Reactivity:	Not reactive under normal conditions.
10.2	Chemical Stability:	Stable under normal conditions.
10.3	Possibility of hazardous reactions:	No dangerous reaction known.
10.4	Conditions to avoid:	No dangerous condition known.
10.5	Incompatible materials	Avoid contact with acidic agents (corrosion), release of hydrogen possible.
10.6	Hazardous decomposition products:	none known

11 * Toxicological information

11.1	General information:	All given information refer to iron which represents the main proportion (98%) of the article.
11.2	Acute toxicity:	There is no evidence for systemic toxicity. oral (rat) carbonyl iron LD ₅₀ > 7500 mg/kg (CSR) inhalative (rat) electrolytic iron powder LC ₅₀ (powder) (6h) > 250 mg/m ³ (CSR)
11.3	Corrosion/irritation:	skin (OECD 404): not irritating (CSR) eye (OECD 405): not irritating (CSR) Mechanical friction may cause irritation.
11.4	Sensitisation:	not sensitising
11.5	Repeated dose Toxicity:	oral (rat) iron LOAEL: 26mg/kg bw/day (CSR) inhalative (rat) iron NOAEC: 5mg/m ³ (CSR)
11.6	CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)	
11.6.1	Carcinogenicity:	No indication of human carcinogenicity.
11.6.2	Mutagenicity:	No indication of human mutagenicity (negative test results for bacteria- and cell culture tests) (CSR)
11.6.3	Toxicity for reproduction:	n.d.a.
11.7	STOT:	n.d.a.
11.8	Other information:	n.d.a.

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Material number: TKE-110

Page: 5 of 6

12 Ecological information

- 12.1 General information:** All given information refer to iron which represents the main proportion (98%) of the article.
- 12.2 Ecotoxicity:** There is no evidence for ecotoxicological impact*.
Aquatic, fish short term (*Brachydanio rerio*)
LLO (96h): > 1000 mg/l (iron oxide)
*more studies can be found in CSR for iron.
- 12.3 Persistence and degradability:** not relevant for inorganic substances
- 12.4 Bioaccumulative potential:** n.a.: Iron is an essential substance, well regulated in all living organisms.
- 12.5 Mobility in Soil:** n.a.: Iron oxidises in the environment and is stabilised in the iron(III)-oxide form in the long term.
- 12.6 Results of PBT and vPvB assessment:** As iron is not bio-available, owing to its extreme insolubility in water, it is not systemically available or bioaccumulative, and hence it does not fulfil either of the PBT and vPvB criteria for classification.
- 12.7 Other adverse effects:** No negative ecological effects are expected according to the present state of knowledge.

13 Disposal considerations

- 13.1 Waste treatment methods** Iron and steel should always be recycled.
- 13.2 List of proposed waste codes/waste designations in accordance with EWC:** Waste classification due to trade and processing. During machining fillings or dust can be generated. For those following waste EWC-code numbers can be recommended:
120101 ferrous metal filings and turnings or
120102 ferrous metal dust and particles.
- 13.3 Disposal packages:** n.a.

14 * Transport information

- 14.1 Land transport (ADR/RID/CDG Road/CDG Rail):** No hazardous material as defined by transport regulations.
- 14.2 Inland waterway craft (ADN/ADNR):** No hazardous material as defined by transport regulations.
- 14.3 Marine transport (IMO):** No hazardous material as defined by transport regulations.

15 Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
EU law
- 15.1.1 Directive 1999/13/EU:** VOC-solvent emission: 0 %
- 15.1.2 Directive 2002/96/EU:** The product fulfils the directive „WEEE“ – Waste Electrical and Electronic Equipment.
- 15.1.3 Directive 2011/65/EU:** The product fulfils the requirements on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).
- 15.1.4 Directive 2000/53/EG:** The product fulfils the requirements on the End of Life Vehicles Directive (ELV).



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Page: 6 of 6

- 15.2 National law:** Observe in addition the national legislative regulations!
15.3 Chemical Safety Assessment: A chemical safety assessment is not necessary for this article.

16 Other information

- 16.1 Documentation of changes:** * Data changed compared with the previous version from 12.12.2014.
- 16.2 Further information:** abbreviations:
n.d.a. = no data available
n.a. = not applicable
DNEL = derived no effect level
PNEC = predicted no effect concentration
LL0= "Lethal Loading" max concentration of a hardly soluble substance which leads to none mortality in the test system
CSR: Chemical Safety Report Iron according to Regulation (EC) No 1907/2006 (REACH)
- 16.3 References:**

Statement:

The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights.

The product is to be used exclusively for the applications named in the technical leaflet or in the processing instructions. The receiver of our product is singularly responsible for adhering to existing laws and regulations.