1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1. Product identifier

Product name:	**CARBON STEELS**
Description:	Non-alloyed and alloyed carbon steel Solid; metallic grey. Carbon steels are steels with 0,20-0,80% carbon. Some types of these steels are additional alloyed with the following alloying elements: manganese, silicon, chromium, molybdenum, nickel, vanadium and boron. These elements are added individually or in combination.

1.2. Relevant identified uses of the product:

Production of metallic articles.

1.3. Details of the supplier of the safety data sheet:

Manufacturer:	SIJ Acroni d.o.o., Cesta Borisa Kidriča 44,SI – 4270 Jesenice, Slovenia Tel: +386 4 584 10 00 E: uprava@acroni.si W: http://www.acroni.si

1.4. Emergency telephone:

Tel. No.: +38645841000
Fire brigade: 112 (SLO)
In the case of risks to health, contact personal physician or the National Poison Control Centers.

2. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY / UNDERTAKING

Solid metallic products are generally classified as “articles” and do not constitute a hazardous material in solid form under the definitions of the OSHA Hazard Communication Standard (29 CFR1910.1200). Any articles manufactured from these solid products would be generally classified as non-hazardous. However some hazardous elements contained in these products can be emitted under certain processing conditions such as but not limited to: burning, melting, cutting, sawing, brazing, grinding, machining, milling, and welding. Products in the solid state present no fire or explosion hazard. Small chips, fines, and dust may ignite readily, though.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Composition (nature of the ingredients and their concentrations):

Material/Component	Product identifier CAS number	%	Classification according to Regulation (EC) No. 1272/2008 (CLP)
Base material			
Iron (Fe)	7439-89-6	balance	Not classified
Alloying Elements			
Carbon (C)	7440-44-0	max 0,80	Not classified
Manganese (Mn)	7439-96-5	max. 1,80 (alloyed carbon steel)	Not classified
Silicon (Si)	7440-21-3	max 1,70 (alloyed carbon steel)	Not classified
Chromium (Cr)	7440-47-3	max 1,20 (alloyed carbon steel)	Not classified
Nickel (Ni)	7440-02-0	1,00 (alloyed carbon steel)	Nickel metal massives Carc. 2; H351 STOT Rep. Exp. 1; H372 Skin Sens. 1; H317
Molybdenum (Mo)	7439-98-7	0,25 (alloyed carbon steel)	Not classified
Vanadium (V)	7440-62-2	max 0,15 (alloyed carbon steel)	Not classified

Full text of H-phrases: see section 16.

Other elements such as silicon, copper, sulphur, phosphorus may be present. Their concentrations are below the hazardous levels.

3.2. Dangerous substances:

Carbon steels with a specified nickel content less than 1% are not classified "as dangerous for supply" under (EC) Regulations 1272/2008 and 729/2009.

4. FIRST AID MEASURES

General: There are no specific First Aid Measures developed for the carbon steel. Medical attention should be provided in case of an excessive inhalation of dust or a physical injury to the skin or to the eyes.

4.1 Description of first aid measures

In the event of contact with eyes:
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. Thermal burns should be treated as medical emergencies.**
In the event of contact with skin:
In case of overexposure to dusts or particulates, wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.
In the event of exposure by inhalation:
In case of overexposure to dusts or fumes, remove to fresh air. Get immediate medical attention if symptoms described in this SDS develop.
In the event of swallowing:
Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms/injuries: Allergic reactions

4.3 Indication of any immediate medical attention and special treatment needed

In case of doubt or persistent symptoms, consult always a physician.
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 leukocytes. Treatment is symptomatic, and condition is self-limited in 24-48 hours. Chronic exposure to dusts may result in pneumoconiosis of mixed type.

5. FIREFIGHTING MEASURES

Carbon steels are not combustible. There are no special hazards or precautions associated with carbon steels if in the vicinity of a fire.

5.1. Extinguishing media

Suitable extinguishing media: Coordinate fire-fighting measures to the fire surroundings.

5.2. Special hazards arising from the substance or mixture

Fire hazard: The product itself does not burn.

5.3. Advice for firefighters

1. Protection during firefighting: In case of fire: wear self-contained breathing apparatus.
2. Other information: Do not allow run-off firefighting to enter drains or watercourses.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Prevent forming of dust. Protect yourselves from dust inhalation. Use personal protective equipment for protection of skin and respiratory system. Consider safety regulations (look chapters 7 and 8).

6.2. Environmental precautions

With technical measures, prevent the emission of dust and fumes to environment.

6.3. Methods and material for containment and cleaning up

Waste material doesn't present danger for environment. Use as raw material in production of steel.

7. HANDLING AND STORAGE

There are no special measures for handling carbon steels. Normal precautions should be taken to avoid physical injuries produced mainly by sharp edges. Personal protective equipment must be used e.g. special gloves and eye protection.

7.1. Precautions for safe handling

Avoid breathing in and contact with fumes and dusts during processing. No specific requirements for bulk solid steel products.

7.2. Conditions for safe storage, including any incompatibilities

No specific storage procedures are required for bulk solid steel products. Normal precautions should be taken to avoid physical injury at manipulation with strips or bands, to avoid lacerations by sharp edges and flying particles. Use suitable equipment for material loading.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

Component Exposure Limits*

Chromium (7440-47-3)
OSHA (PEL): 1 mg/m^3 TWA
NIOSH: 0.5 mg/m^3 TWA
Nickel (7440-02-0)
OSHA (PEL): 1 mg/m^3 TWA
NIOSH: 0.015 mg/m^3 TWA
Molybdenum (7439-98-7)
OSHA (PEL): 15 mg/m^3 TWA; 5 mg/m^3 (respirable fraction)
NIOSH: 5 mg/m3 TWA (soluble compounds as Mo)
Silicon (7440-21-3)
OSHA (PEL): 15 mg/m^3 (total dust) TWA; 5 mg/m^3 (respirable fraction)
NIOSH (REL): 10 mg/m^3 (total dust) TWA; 5 mg/m^3 (respirable fraction)
Manganese (7439-96-5)
OSHA: 5 mg/m^3 Ceiling
NIOSH: 1 mg/m^3 TWA (fume)
NIOSH (STEL): 3 mg/m^3
Vanadium (7440-62-2)
OSHA: 0.05 mg V_2O_5/m^3 TWA (resp)
NIOSH: 0.05 mg V/m^3 [15-minute]

8.2. Exposure limits values:

There are no prescribed exposure limits for carbon steel sheets. Occupational exposure limits apply to some constituent elements (Ni, Cr, Mn, Mo) and certain of their compounds. Table shows limits according to Rules on the protection of workers from the risks related to exposure to chemical substances at work (Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu, Priloga I - Ur. l.RS 100/01, 39/2005, 53/2007, 102/2010, 43/2011, 38/15).

1	2	3	4	5				6	7	8	9
No.	**Chemical name**	**CAS No.**	**EC No.**	**Classifications**				**OEL**		**KTV**	**OP**
				R	**M**	**RF**	**RE**	mg/m³	ml/ m³		
382	Manganese & its inorganic compounds	7439-96-5	231-105-1	-	-	-	-	0.5 (I))	----	4	Y
371	Chromium (VI) compounds	---	---	2	-	-	-	---	---	4	TDK EKA BAT
	Arc welding	---	---	-	-	-	-	0,1 (I)	---	---	
	Others	---	---	-	-	-	-	0.05 (I)	---	---	
457	Nickel	7440-02-0	231-111-4	3	-	-	-	---	---	4	TDK EKA BAT
	Metal & Ni carbonate	---	---	-	-	-	-	0.5 (I)	---	---	
	Ni oxide, Ni sulphide	---	---	-	-	-	-	0.5 (I)	---	---	
458	Nickel compounds (to inhale)	---	---	-	-	-	-	0.05 (I)	---	4	TDK
444	Mo compounds, soluble - calculated as Mo	---	---	-	-	-	-	5 (I)	---	4	---

8.3. Exposure control:

Personal protection measures, such as personal protective equipment
Local or general exhaust ventilation should be used to keep exposure below exposure limits during welding, brazing, machining and other process that may generate airborne contaminants. Dust or fume respirators can also be used.
Hand protection
Gloves: Suitable protection against physical injury and skin contact during handling and processing.
Eye / face protection
Safety glasses or goggles when there is a reasonable probability of contact with dust and fume.
Other protective clothing or equipment: Safety shoes and clothing that protects skin from prolonged or repeated contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state:	Solid
Solubility in water (20 °C):	insoluble
Specific gravity:	7,2 – 7,8 g/cm³
Melting point:	approximately 1530 °C
Boiling point:	approximately 2800 °C
Vapour pressure:	negligible
Vapour density:	not applicable
Odour and appearance:	silver-grey metallic, various shapes, odourless
Evaporation rate:	not applicable
Materials to avoid:	Acids

9.2. Other information

No additional information available

10. STABILITY AND REACTIVITY

10.1. Reactivity
No additional information available
10.2. Chemical stability
Stable under normal ambient atmospheric conditions of use, storage and transport
10.3. Possibility of hazardous reactions
No additional information available
10.4. Conditions to avoid
The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.
10.5. Incompatible materials
Acids, oxidizing agents and reducing agents. During the reaction with strong acids, hydrogen gas and heat are generated.
10.6. Hazardous decomposition products
Metallic oxide fumes

11. TOXICOLOGICAL INFORMATION

In its natural state steel has no acute effect.
Lethal concentration (LC50): none established
Reproductive effects: not applicable
Lethal dose: not applicable
Mutagenicity: not applicable
Teratogenicity: not applicable
Carcinogenicity: no (fumes or dusts may be carcinogenic over long periods of exposition

12. ECOLOGICAL INFORMATION

There are no hazards to the environment from carbon steel in the forms supplied.
Carbon steel is part of an integrated in a life cycle and it is a material capable of being 100% recycled. Thus, surplus and scrap (waste) carbon steel is valuable and in demand for the production of prime new carbon steel. Recycling routes are well established, and recycling is therefore the preferred disposal route. While disposal to landfill is not harmful to the environment, it is a waste of resources and therefore less desirable than recycling.
12.1. Toxicity
No aquatic toxicity data available for the substances.
12.2. Persistence and degradability
No data available.
12.3. Bio accumulative potential
No data available.
12.4. Mobility in soil
No data available.
12.5. Results of PBT and vPvB assessment
No data available.
12.6. Other adverse effects
No data available.

13. DISPOSAL CONSIDERATIONS

Sort of waste material: Cuts, waste materials, dust which occur at processing.
Convenient methods of waste material removal: Waste material should be collected separately from other materials and returned to department of steel processing.
Classification number of waste material:
12 01 01 fillings and chips of steel
12 01 02 other steel particles

14. TRANSPORT INFORMATION

14.1 UN NUMBER: Not applicable
14.2 UN PROPER SHIPPING NAME: Not applicable
14.3 TRANSPORT HAZARD CLASS(ES): Not applicable
14.4 PACKING GROUP: Not applicable
14.5 ENVIRONMENTAL HAZARDS: Not applicable
14.6 SPECIAL PRECAUTIONS FOR USER: Not applicable.

15. REGULATORY INFORMATION

Article under REACH Regulation 1907/2006/EC: according to REACH, there is no legal obligation to provide a Safety Data Sheet for an Article. However, to be able to provide information on the safe use of this Article, the present Safety Information Sheet has been worked out.
No REACH Annex XVII restrictions
Contains no substance on the REACH candidate list

16. OTHER INFORMATION

Full text of H and EUH - phrases

Carc.2: Carcinogenicity, Category 2
STOT Rep. Exp. 1: Specific target organ toxicity – Repeated exposure, Category 1
Skin Sens. 1: sensitisation – Skin, category 1

H351: Suspected of causing cancer.
Route of exposure: Inhalation
H372: Causes damage to organs.
Affected organs: respiratory tract only. Route of exposure: Inhalation
H317: May cause an allergic skin reaction.

Abbreviations and acronyms:

ACGIH American Conference of Governmental Industrial Hygienists;
ADR/RID European Agreement of Dangerous Goods by Road/Rail;
EINECS European Inventory of Existing Commercial Chemical Substances;
ELINCS European List of Notified Chemical Substances;
EU European Union;
IARC International Agency for Research on Cancer;
MAK Maximum Concentration Value in the Workplace (Austria, Germany);
NIOSH National Institute of Occupational Safety and Health;
NOHSC National Occupational Health & Safety Commission;
NTP National Toxicology Program;
OSHA European Agency for Safety and Health at Work
PEL Permissible Exposure Limit (PEL)
STEL Short-term Exposure Limit;
TLV Threshold Limit Value;
TSCA Toxic Substances Control Act;
TWA Time Weighted Average
R Carcinogenicity
M Mutagenicity
RF Teratogenicity –fertility harm
RE Teratogenity – unborn child harm
KTV Short-lived value (mg/m3)
TDK Technical attainable concentration.
BAT Biological boundary value
EKA Connection between concentration of cancerogenous substances on working place and concentration of its metabolites in organism

Y Substances that are not hazardous for embryo when boundary and BAT values are taken into consideration
1-3 **G**roup of cancerogenous and mutagenous substances

Declaration:

The information given in this safety data sheet is based on the present level of our knowledge and experience. The data sheet describes the product with respect to safety requirements. The given data are not intended as a confirmation of product properties and does not constitute a legal contractual relationship, nor should be used as the basis for ordering these products.

Carbon steel products are considered as articles under the REACH Regulation (1907/2006/ EC).

In accordance with REACH and the CLP Regulation, only substances and preparations require a Safety Data Sheet (SDS). While articles under REACH do not require a classic SDS, REACH Article 32 requires articles to be accompanied by sufficient information to permit safe use and disposal.

REFERENCES

1. REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006,
2. CLP - Classification Labelling Packaging Regulation ; Regulation (EC) No 1272/2008,
3. Rules on the protection of workers from the risks related to exposure to chemical substances at work - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu, Priloga I - Ur. l.RS 100/01, 39/2005, 53/2007, 102/2010, 43/2011, 38/15.
4. http://www.cdc.gov/niosh/npg/
http://www.dir.ca.gov/title8/5155table_ac1.html#_blank

END OF SAFETY DATA SHEET