

Zinc-coated steel coils and sheets

1. IDENTIFICATION OF THE PRODUCT AND MANUFACTURERS

Identification of the product
Zinc-coated steel coils , extragal,GI.

Name of manufacturer	Borçelik Çelik Sanayi Ticaret A.Ş. Gemlik – Bursa TURKEY 90224-280 40 00
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2. COMPOSITION AND INFORMATION ON INGREDIENTS

Description

Double side hot dip galvanized with a pure zinc, or with an iron. The zinc layer may possibly be coated with either a chromate layer, an anti-finger-print layer (AFP), an oil layer, or a combination of some of those layers. The zinc coated steel products may be protected by a packaging.

Composition

• Steel substrate:

Depending on the grade, the steel may contain a total concentration in alloying elements such as carbon, manganese, phosphorus, aluminium,... up to 3.0% , and an individual concentration in those alloying elements up to 2.0% .

HAZARDOUS INGREDIENTS	%WT.	CAS NO.	LD ₅₀	EXPOSURE LIMIT (mg/m ³)
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(1) Steel :

Iron (Fe)	> 90	7439-89-6	30 g/kg (rat-oral)	5 (Fume)
Manganese (Mn)	≤ 2.0	7439-96-5	9 g/kg (rat-oral)	1 (Fume)
Chromium (Cr)	≤ 1.25	7440-47-3	U	0,5
Nickel (Ni)	≤ 0.75	7440-02-0	U	1
Lead (Pb)	< 0,003	7439-92-1	450 g/kg (rat-oral)	0,15
Mercury (Hg)	< 0,001	7439-97-6	U	0,1
Cadmium (Cd)	< 0,001	7440-43-0	225 mg/kg (rat-oral)	0,05
Hexavalent Chromium (Cr ⁶⁺)	< 0,001	N.A.	U	0,05

(Other metals are also present in trace amounts below WHMIS cut- offs)

• Zinc layer:

Depending on the grade, the zinc layer may be pure zinc, or alloyed with iron up to 1.5% , or alloyed with aluminium up to 5%. The zinc layer weight lies for each coated side up to 175g/m².

(2) Coating

Zinc(Zn)	<10	7440-66-6	124 g/kg (rat-oral)	5 (Fume)
Iron (Fe)	<0.02	7439-89-6	30 g/kg (rat-oral)	5 (Fume)
Aluminium (Al)	<0.5	7429-90-5	U	5
Nickel (Ni)	< 0,001	7440-02-0	U	1
Copper (Cu)	< 0,001	7440-50-8	120 g/kg (rat-oral)	U
(Tin)Sn	< 0,001	7440-31-5	U	U
(Antimon)Sb	< 0,001	7440-36-0	U	U
(Lead)Pb	< 0,001	7439-92-1	450 g/kg (rat-oral)	0,15

- Chromate, and AFP-layers and oil layer:

(3) Surface Treatments:(constitute less than 0,15 % of total steel weight)

a-Oils (Ferrocoat N 6130 - Ferrocoat N-61-T-20-K-2 (toyota yağı))

Mineral oil with additives
Oil Coating weights range from 0,25 to 3 g/m² per side.

b-Wet temper fluid (QWERL N-275-2)

A 5.0 % solution in water

b-Passivation Cr+3 (Chemetall TP 10724)

The coating on the strip is about 16 to 19 mg / m²

NOTE:

Supplier MSDS on the surface treatment oils are available. They can be obtained on written request to our Customer Service Department.

Borçelik Çelik Sanayii Ticaret A.Ş. products do not contain and are not manufactured with any Class I or Class II ozone depleting substances.

3. HAZARD CLASSIFICATION OF PRODUCT

Under normal circumstances the steel in massive form does not present hazard. Dust/fume/smoke may be generated during mechanical and thermal processes as cutting, drawing, grinding, burning, welding, brazing,... . Inhalation of air with a concentration of particles above the legally imposed maximum limits, may present inhalation hazards.

Repeated or prolonged contact with oil may cause skin problems.

4. FIRST AID MEASURES

In the event of injuries to skin or eyes seek medical attention. In the event of over-exposure to dust/fume/smoke remove person to fresh air and if symptoms persist seek medical attention.

5. FIRE FIGHTING MEASURE

The products are not combustible.

6. ACCIDENTAL RELEASE MEASURES

Galvanized steel products are stable, no special measures are to be taken.

7. HANDLING AND STORAGE

Special technical measures involved for handling these products: see item 8. Normal precautions should be taken to avoid injuries possibly by sharp edges or by release of tension when breaking open the straps.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

In the processing of galvanized steel, exposure to dust/fume/smoke must be kept below legally imposed limits. Locally dust/fume/smoke extraction and/or adequate air ventilation at the workplace should be provided. If ventilation is inadequate during processing, appropriate approved Respiratory protection should be provided for the workers.

Wear appropriate protective clothing and gloves for handling sheets or pieces

Eye protection is recommended.

MATERIAL SAFETY DATA SHEET

Zinc-coated steel coils and sheets



Approved occupational exposure standards

Ingredient Name	CAS N°	O.S.H.A. P.E.L.		A.C.G.I.H. T.L.V./T.W.A.		W.H.M.I.S.	
		(mg/m ³)		(mg/m ³)		(mg/m ³)	
Base metal							
Iron (as Fe)	7439-89-6	Fume (iron oxide)	10	Fume	5	Fume	5
		Total dust	15				
		respirable fraction	5				
Aluminium	7429-90-5	Fume (iron oxide)	5	Fume	5	Fume	5
		Total dust	15	Dust	10		
		respirable fraction	5				
Manganese	7439-96-5	Fume	5	Fume	1	Fume	1
		Dust	15	Fume	3(S.T.E.L.)		
				Dust	5		
Phosphorus	7423-14-0	Fume	0.1	Fume	0.1	Fume	0.1
		Dust	0.1	Dust	0.1		
Coating							
Zinc	7440-66-6	Fume (zinc oxide)	5	Fume	5	Fume	5
		Dust	10	Fume	5		
Nickel (as Ni)	7440-02-0	Fume	1	Fume	5		
		Dust	1	Fume	5		
		Sol.comp.	1				
Chrome (as Cr VI)	7440-47-3	Sol.comp.	0.1	Sol.comp.	0.05	Sol.comp.	0.05

Keeping the exposures of total inhalable dust below 5 mg/m³ should normally be sufficient. However by processes where chromate layers are solicited, it is advisable to the chrome VI concentrations in the air at the workplace.

- T.L.V./T.W.A. = Threshold Limit Value/Time Weighted Average.
- S.T.E.L. = Short Time Exposure Limit.(Kısa süreli maruz kalma limiti)

9. PHYSICAL AND CHEMICAL PROPERTIES

Properties	Steel substrate	Zinc layer
appearance	solid	solid
color	metallic grey	metallic grey
odor	odorless	odorless
melting point °F	1500-1550	417
specific gravity	Tem.85	6.9 - 7.14
solubility: alkalies	insoluble	soluble
acid	soluble	soluble

10. STABILITY AND REACTIVITY

Galvanized steel products are stable under normal ambient atmosphere conditions. May react with alkalies and acid.

11. TOXICOLOGICAL DATA

- Route of entry:
None in its natural state. Possibly through inhalation of dust/fume/smoke generated during processes as cutting, drawing, grinding, welding, brazing,....
- Effects of acute exposure:
Zinc oxide fume may cause metal fume fever. Most cases are recovery within 24 hours. Excessive exposure to dust/fumes/smoke may irritate the eyes and upper respiratory tract.
- Effects of chronic exposure:
Repeated or prolonged over-exposure to dust or fume may cause lung disease and affect pulmonary function. Chrome VI may cause sensitisation. Repeated or prolonged contact to phosphate, chromate and oil layers may cause skin irritation and dermatitis by sensitisation.
- Carcinogenicity:
Chrome VI are considered as carcinogenic. No data is available evaluating this risk for steel coated products during mechanical and thermal process.

12. ECOLOGICAL DATA

No known harmful effects.

13. DISPOSAL CONSIDERATIONS

From a security point of view a long storage time does not change the steel properties. Surplus of material may be used. Scraps are entirely recyclable.

14. TRANSPORT DATA

No special precautions.

15. GUIDANCE DOCUMENT REFERENCES

- Dangerous Properties of Industrial Materials, Seventh Edition, Volume III, N.IRVING SAX and RICHARD J.LEWIS SR. , Van Nostrand Reinhold, New York.
- Encyclopedia of Occupational Health and Safety, Third edition.
- Toxicologie Industrielle et Intoxications Professionnelles, troisième édition, Robert Lauwereys, Masson, Paris, 1990.
- Deutsche Forschungsgemeinschaft, Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area, Report N° 30 .

Declaration

The information given in this material safety data sheet is based on the present level of our knowledge and experience but no warranties of any kind are made as to its accuracy. It describes the products with respect to safety requirements. This Material Safety Data Sheet is intended to be used solely for the purpose of satisfying informational requests made pursuant to that requirement. It is not intended as a confirmation of product properties and does not constitute a legal contractual relationship, nor should it be used as the basis for ordering these products.