



MATERIAL SAFETY DATA SHEET

STEEL PRODUCTS

CODE NO. 3H012

ORIGINAL ISSUE DATE: 8/1/1985 REVISED: _____

I. IDENTIFICATION

KLAUER

MANUFACTURING COMPANY

PRODUCT NAME: Galvanized Sheet - HSLA Steel
(Hot Dipped)

COMMON NAME (S): Same

CASE NO.: 65997-19-5

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II. INGREDIENTS AND RECOMMENDED OCCUPATIONAL EXPOSURE LIMITS

NOTE: Steel products under normal conditions do not present an inhalation, ingestion or contact health hazard. (See Section V1)

BASE METAL, ALLOYING ELEMENTS AND METALLIC COATINGS	% WEIGHT	EXPOSURE LIMITS	
		OSHA PEL	ACGIH TLV
Base Metal:			
Iron	Balance	10 mg/M ³ for iron oxide fume	5 mg/M ³ for iron oxide fume
Alloying Elements:			
Carbon	.25 max	None established	None established
Manganese	0.05/1.90	(c) 5 mg/M ³	(c) 5 mg/M ³ - dust 1 mg/M ³ - fume
Phosphorus	.15 max	None for inorganic phosphates	None for inorganic phosphates
Sulfur	0.05 max	13 mg/M ³ as SO ₂	5 mg/M ³ as SO ₂
Columbium	.10 max	None established	None established
Vanadium	.20 max	(c) 0.5 mg/M ³ as V ₂ O ₅ dust (c) 0.1 mg/M ³ as V ₂ O ₅ fume	0.05 mg/M ³ as respirable dust and fume
Titanium	.30 max	15 mg/M ³ as TiO ₂	10 mg/M ³ - Total 5 mg/M ³ - Resp. dust
Rare Earth (Ce)	.10 max	None established	None established
Aluminum	.10 max	None established	10 mg/M ³
Metallic Coating:			
Zinc	8.5 / 9.9	5 mg/M ³	10 mg / M ³ - Total ZnO dust 5 mg / M ³ - Resp. ZnO dust & fume
Aluminum	0.04 max	None established	10 mg/M ³
Antimony	0.02 max	0.5 mg/M ³	0.5 mg/M ³
Lead	0.02 max	0.05 mg/M ³	0.15 mg/M ³
Iron	0.1 / 1.5	10 mg / M ³ for iron oxide fume	5 mg / M ³ for iron oxide fume

Oil coating may be used: see Annex II.

(c) denotes "ceiling limit" which is not to be exceeded at any time

NOTE: All commercial metals contain small amounts of various elements in addition to those specified. These small quantities, frequently referred to as "trace" or "residual" elements, generally originate in the raw materials used. Typical levels of commonly involved trace or residual elements that may be encountered in steel products are provided in Annex I so that their potential hazards may be considered.

III. PHYSICAL DATA

MELTING POINT	APPEARANCE	Metallic Gray,
BASE METAL: 2750° F METALLIC COATING: 800° - 900° F	AND COLOR:	No Odor

IV. FIRE AND EXPLOSION HAZARD DATA

STEEL PRODUCTS IN THE SOLID STATE PRESENT NO FIRE OR EXPLOSION HAZARD.

V. REACTIVITY DATA

Stable under normal conditions of use, storage, and transport. Will react with strong acid to liberate hydrogen. At temperatures above the melting point of the coating, may liberate zinc fumes.

VI. HEALTH HAZARD DATA

NOTE: Steel products under normal conditions do not present inhalation, ingestion or contact health hazard. However, operations, such as, burning, welding, sawing, brazing, grinding and possibly machining, etc., which results in elevating the temperature of the product to or above its melting point or results the generation of airborne particulates, may present health hazards.

EFFECTS OF OVEREXPOSURE :

MAJOR EXPOSURE HAZARD			
	EYE CONTACT		INGESTION
X	INHALATION		SKIN CONTACT

Chronic inhalation of high concentrations of iron oxide fumes or dusts may lead to a benign pneumoconiosis (siderosis). Inhalation of high concentrations of ferric oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens.

The inhalation of high concentrations of freshly formed oxide fumes and dusts of Manganese, Copper, Lead and/or Zinc in the respirable particle size range can cause an influenza-like illness termed metal fume fever. Typical symptoms last 12 to 48 hours and are characterized by metallic taste in the mouth, dryness and irritation of the throat, followed by weakness, muscle pain, fever and chills.

EMERGENCY AND FIRST AID PROCEDURES :

For overexposure to airborne fumes and particulates, remove exposed person to fresh air. If breathing is difficult or has stopped, administer artificial respiration or oxygen as indicated. Seek medical attention promptly.

Treat metal fume fever by bed rest, and administer a pain and fever reducing medication.

VII. SPILL OR LEAK PROCEDURES

NOT APPLICABLE TO STEEL IN THE SOLID STATE.

VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY: NIOSH / MSHA - approved dust and fume respirators should be used to avoid excessive inhalation of particulates. Appropriate respirator selection depends on the magnitude of exposure.

SKIN: Protective gloves should be worn as required for welding, burning or handling operations.

EYE: Use safety glasses or goggles as required for welding, burning, sawing, brazing, grinding or machining operations.

VENTILATION: Local exhaust ventilation should be provided when welding, burning, sawing, brazing, grinding or machining to prevent excessive dust or fume exposure.

OTHER PROTECTIVE EQUIPMENT: Depending upon the conditions of use and specific work situations, additional protective equipment and / or clothing may be require to control exposures.

IX. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Operations with the potential for generating high concentrations of airborne particulates should be evaluated and controlled as necessary. Avoid breathing metal fumes and / or dusts.

OTHER COMMENTS:

No additional comments are believed to be necessary for this product.

THIS INFORMATION IS TAKEN FROM SOURCES OR BASED UPON DATA BELIEVED TO BE RELIABLE; HOWEVER, UNITED STATES STEEL CORPORATION MAKES NO WARRANTY AS TO THE ABSOLUTE CORRECTNESS OR SUFFICIENCY OF ANY OF THE FOREGOING OR THAT ADDITIONAL OR OTHER MEASURES MAY NOT BE REQUIRED UNDER PARTICULAR CONDITIONS.

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