



**Radiation Products Design, Inc.**

**5218 Barthel Industrial Drive**

**Albertville, MN 55301**

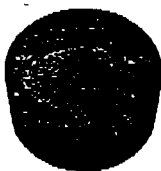
**[www.rpdinc.com](http://www.rpdinc.com)**

**Phone: 800-497-2071 Fax: 763-497-2295**

# **Material Safety Data Sheet**

## **Stainless Steel**

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**SLATER STEELS CORPORATION****FORT WAYNE SPECIALTY ALLOYS DIVISION**

2400 TAYLOR ST. W. P.O. BOX 630, FORT WAYNE, INDIANA, U.S.A. 46801

**MATERIAL SAFETY DATA SHEET**DATE 11/1/85**SECTION I**MANUFACTURER'S NAME SLATER STEELS CORP., FORT WAYNE SPECIALTY ALLOYS DIVISIONADDRESS 2400 TAYLOR STREET, WESTEMERGENCY TELEPHONE 1-800-348-1761CITY, STATE, ZIP FORT WAYNE, INDIANA 46804PRODUCT CLASS PRIMARY STEEL MANUFACTURER'S CODE IDENTIFICATION SIC-33TRADE NAME Stainless STEEL, ALLOY 303**SECTION II — HAZARDOUS INGREDIENTS**

INGREDIENT	TYPICAL PERCENT	TLV	
		PPM	mg/m <sup>3</sup>
Iron	70.31		N/A
Carbon	.06		3.5
Manganese	1.7		5.0
Phosphorus	.03		0.1
Sulfur	.35		N/A
Silicon	.50		N/A
Chromium	17.25		0.5
Nickel	8.7		1.0
Molybdenum	.50		15.0
Copper	.40		0.1
Cobalt	.20		0.1

**SECTION III — PHYSICAL DATA**BOILING RANGE  NA VAPOR DENSITY:  NA HEAVIER  NA LIGHTER THAN AIREVAPORATION RATE:  NA FASTER  NA SLOWER THAN ETHER PERCENT VOLATILE BY VOLUME NA

WEIGHT PER GALLON NA

**SECTION IV — FIRE AND EXPLOSION HAZARD DATA**

DOT CATEGORY NA FLASH POINT NA LEL NA

EXTINGUISHING MEDIA NA

UNUSUAL FIRE AND EXPLOSION HAZARDS NA

SPECIAL FIRE FIGHTING PROCEDURES NA

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**SECTION V — HEALTH HAZARD DATA**

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THIS PRODUCT, IN ITS PRESENT STATE, DOES NOT PRESENT ANY PHYSICAL OR HEALTH HAZARDS.

VARIOUS PROCESSES ON THIS PRODUCT, SUCH AS GRINDING, WELDING, FORGING, AND MACHINING, MAY PRODUCE DUSTS, FUMES, ETC.

THESE DUSTS OR FUMES MAY CONTAIN CHROMIUM, NICKEL AND COPPER. HIGH EXPOSURES MAY PRODUCE EYE IRRITATION AND RESPIRATORY DISEASE. THE PERMISSIBLE EXPOSURE LEVELS (PEL) FOR EACH OF THE COMPONENTS OF THIS PRODUCT IS LISTED ON THE REVERSE SIDE. IF THE (PEL) ON ANY OF THE COMPONENTS ARE EXPECTED TO BE EXCEEDED DURING A MANUFACTURING PROCESS, THE USE OF AN APPROVED RESPIRATOR IS RECOMMENDED.

IF THE EXPOSURES ARE ALL BELOW EACH OF THE (PEL)S, MANUFACTURING PROCESSES SHOULD NOT PRESENT ANY HEALTH RISK.

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**SECTION VI — REACTIVITY DATA**

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STABILITY:  UNSTABLE  STABLE      CONDITIONS TO AVOID

INCOMPATIBILITY (MATERIALS TO AVOID)      NA

HAZARDOUS DECOMPOSITION PRODUCTS      NA

HAZARDOUS POLYMERIZATION:  MAY OCCUR  WILL NOT OCCUR

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**SECTION VII — SPILL OR LEAK PROCEDURES**

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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED      NA  
WASTE DISPOSAL METHOD FOR DISPOSAL OF THIS MATERIAL AS A WASTE, ACT IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL WASTE MANAGEMENT REGULATIONS.

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**SECTION VIII — SPECIAL PROTECTION INFORMATION**

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RESPIRATORY PROTECTION      IF TLVs EXCEEDED, USE APPROVED PARTICULATE RESPIRATOR.

VENTILATION      LOCAL EXHAUST IF TLVs EXCEEDED.

PROTECTIVE GLOVES      NONE

EYE PROTECTION      EYE GLASSES OR GOGGLES, AS NEEDED.

OTHER PROTECTIVE EQUIPMENT      NONE

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**SECTION IX — SPECIAL PRECAUTIONS**

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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING      NA

WASHINGTON STEEL CORP.  
P.O. Box 494  
Washington, PA 15301  
Emergency Telephone No. (412)222-8000

**MATERIAL SAFETY DATA SHEET**

THIS MSDS APPLIES TO THE FOLLOWING ESTABLISHED STEEL GRADES AND/OR WASHINGTON STEEL TRADE NAME PRODUCTS:

GROUP I - 201, 202, 301, 302, 304, 304L, 305, 309, 310, 321, 347, 348, SBQ

THIS MSDS ALSO INCLUDES ALL GRADES LISTED ABOVE THAT HAVE LETTER AND/OR NUMBER SUFFIXES OR PREFIXES.

**SECTION 1. HAZARDOUS INGREDIENTS**

MATERIAL	%	ACGIH TLV	OSHA PEL	CAS#
Iron (Fe)	>50	5mg/M3-(oxide fume)	10mg/M3-(oxide fume)	1309-37-1
Chromium (Cr)	16.0-26.0	0.5mg/M3 (metal) 0.05mg/M3 for Cr+6 Suspected Carcinogen SEE SECTIONS 5 AND 7	1mg/M3 (metal) 0.1mg/M3 for Cr+6	7740-47-3
Nickel(Ni)	3.5-22.0	1mg/M3 (metal) Suspected Carcinogen SEE SECTIONS 5 AND 7	1mg/M3 (metal)	7740-02-0
Manganese (Mn)	10.0 Max.	0.5mg/M3 (dust) 1mg/M3 (fume) 3mg/M3 (fume) (STEL)	0.5mg/M3 (dust) 1mg/M3 (fume) 3mg/M3 (fume) (STEL)	7439-96-5
Silicon (Si)	1.5 max.	10mg/M3 (total dust)	10mg/M3 (total dust) 5mg/M3 (resp. dust)	7740-21-3

**SECTION 2. PHYSICAL DATA - NOT APPLICABLE**

**SECTION 3. FIRE AND EXPLOSION HAZARD DATA - NOT APPLICABLE**

**SECTION 4. SPECIAL PROTECTION INFORMATION**

**VENTILATION:** For welding, burning, grinding, and cutting operations local exhaust ventilation should be provided to prevent excessive exposures to fumes or dusts.

**RESPIRATORY:** If fumes or dusts cannot be controlled with exhaust ventilation, an appropriate NIOSH-approved respirator should be used to prevent excessive inhalation exposure. It should be selected and used according to 29 CFR 1910.134.

**EYE PROTECTION:** Approved eye protection, meeting ANSI Spec. Z87.1, such as safety glasses, monogoggles, face shields etc. should be worn when grinding or cutting and the approved filtered eyewear should be worn for burning, welding, etc.

**PROTECTIVE GLOVES:** As required when handling metal      **OTHER:** NA

**SECTION 5. PHYSIOLOGICAL EFFECTS**

Primary Route of Exposure -	Threshold Limit Value (TLV)
Fumes from welding or burning; dusts from grinding or cutting	NA

**Effects of Overexposure**

**ACUTE**

Excessive inhalation of fumes from many metals can produce an acute reaction known as "metal fume fever". Though metals such as copper and zinc have been most associated with metal fume fever, it is suspected by some authorities that other metallic fumes may produce this condition. Symptoms consist of chills and fever (very similar to, and easily confused with flu symptoms), which come on a few hours after large exposures. Long-term effects of metal fume fever have not been noted.

**CHRONIC**

Excessive and repeated inhalation of chromium fumes or dust may cause severe irritation, ulceration, or cancer in the respiratory system - nose, throat, lungs. It is generally believed that the hexavalent forms of chromium (Cr+6) are responsible for these effects. It is uncertain whether metallic chromium in dust form can cause the same effects noted above. Until this issue is resolved, engineering controls or personal protective equipment (i.e. respirators) should be utilized to assure exposures are not excessive. Similarly, excessive inhalation of nickel fumes have been associated with respiratory cancer. Both chromium and nickel are potential sensitizers, and may cause allergic reactions. Excessive and prolonged inhalation of manganese (generally over 2 years exposure) can cause damage to the central nervous system - specifically, the pathology resembles Parkinson's Disease.

**SECTION 6. EMERGENCY AND FIRST AID PROCEDURES**

If acute overexposure to fumes occurs, remove victim to fresh air. Then seek medical assistance.

If the eyes are overexposed to dusts, flush well with running water to remove particulate; get medical attention.

**SECTION 7. REACTIVITY DATA**

STABILITY: Stable. CONDITIONS TO AVOID: NA. INCOMPATIBILITY: NA. DECOMPOSITION PRODUCTS: NA. HAZARDOUS POLYMERIZATION: Will Not Occur. CONDITIONS TO AVOID: NA

**SECTION 8. PRECAUTIONS FOR SAFE HANDLING AND USE**

STEPS TO BE TAKEN IN CASE MATERIAL IS LEAKED OR SPILLED: NA

WASTE DISPOSAL METHOD: Dispose of in accordance with federal, state and local regulations.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: NA

**SECTION 9. ADDITIONAL COMMENTS**

The percent composition reflects the range that is possible within this GROUP of products. These are not the technical specifications for a particular product. Actual composition will fall within this range, but will depend on specs. for the particular product. Thus, when welding or cutting products containing chromium or nickel (for example), the potential for exposure to chromium or nickel obviously increases as their percentage composition increases. Therefore, we strongly urge that all operations with potentially hazardous exposures be evaluated by a competent industrial hygienist. See Sections 4, 5 and 7 for further information.

We do not consider these products to be a health hazard in the form in which they are sold (sheet, strip, slab, etc.). However, if during further downstream processing, these products are abraded, melted, welded, cut or processed in any other manner that causes a release of fume or dust, hazardous levels of fume or dust from these alloys or constituents of these alloys could be generated. It is advised that your particular operation be evaluated by a competent professional to determine whether or not a hazard exists.

Prepared By:  
Washington Steel Corp.

Telephone No.:  
412-222-8000

Date:  
February 1, 1990

Supersedes MSDS Dated:  
November 1, 1985

