Unusual Fire and



M.P. INDUSTRIES MIDCO INDUSTRIES, INC. MIDWEST PRECISION CASTINGS COMPANY

Material Safety Data Sheet

Stainless Steel
QUICK IDENTIFIER (In Plant Common Name)

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edia NO FIRE OR EXPLOSION HAZARDS			
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	Unstable	()	Conditions	NI/WATER	
Incompatability	Stable	[X]	to Avoid	NONE	• • • • • • • • • • • • • • • • • • • •
(Materials to Avoid)	}	NONE			
	<u> </u>				
Hazardous					
Decomposition Produ			OF ATTACHMENT		
	May Occur		Conditions	NONE	
	W训 Not O		to Avoid	346	
SECTION 6 - I	HEALT.	H HAZARDS		mineral de la companya del companya del companya de la companya de	
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2 Chronic					
Overexposure -			SEE SECT	ION 6 OF ATTACHMENT	
Medical Conditions (
Aggravated by Expos	sure				
				TARO V	<u> </u>
Chemical Listed as C or Potential Carcinog	arcinogen	National To Program	xicology Yes [X] No []	LA.R.C. Yes [X] Monographs No []	NIOSH Yes D
Emergency and	-	* 10Krani	140 []	monograpis no ()	770 [
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منسون المساور	IF	IRRITATION C	OR PULMONARY SY	MPTOMS DEVELOP, CONSU	T A PHYSICIAN.
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	IF	IRRITATION D	DEVELOPS, CONSU	LT A PHYSICIAN	
4. Ingestion					
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Stainless Steel

MATERIAL SAFETY DATA SHEET - STAINLESS STEEL ATTACHMENT - PAGE 1

SECTION 2 - HAZARDOUS INGREDIENTS*

INGREDIENT	CAS NUMBER	PERCENT	OSHA PEL (MG/M ³) 8—HOUR TWA	ACCHI TIV (MG/M- 8-HOUR TWA
IRON	7439-89-6	0-90	10.0 (OXIDE FUME)	5.0 (WELDING FUMES)
CHROMIUM	7440-47-3	0-30	0.025 (CHROME)	0.5 CR (III) 0.05 CR (IV)
NICKEL	7440-02-2	0-99.5	0.015 (METAL)	1.0 (METAL)
MANGANESE	7439-96-5	0-15	5.0 (DUST CEILING)	5.0 (DUST CEILING) 1 (FUME) 3 (STEL)
SILICON	7440-21-3	0-3	5 (RESPIRABLE DUST) 15 (TOTAL DUST)	5 (RESPIRABLE DUST) 10 (TOTAL DUST)
MOLYBDENUM	7439-98-7	0-5	5 (SOLUBLE COMPOUNDS)	5 (SOLUBLE
			15 (INSOLUBLE COMPOUNDS)	COMPOUNDS) 10 INSOLUBLE COMPOUNDS)
SELENIUM	7782-49-2	0-1	0.2	0.2
COBALT	7440-48-4	0-1	0.1 (FUME AND DUST)	0.05 (FUME AND DUST)
OPPER	7440-50-8	0 - 5	0.1 (FUME) 1 (DUST AND MIST)	0.2 (FUME) 1 (DUST AND MIST)
TTANTUM	7440-32-6	0-6	N/A	10 (OXIDE)
LUMINUM	7429-90-5	0-4.25	5 (WELDING FUME) 10 (TOTAL OXIDE DUST)	5 (RESPIRABLE DUST) 5 (WELDING DUST)
ANADIUM	7440-62-2	0-1.1	0.1 (OXIDE FUME CEILING)	
			0.5 (RESPIRABLE DUST)	DUST) 0.05 RESPIRABLE FUME)
UNGSTEN	7440-33-7	0-2	N/A 5	(INSOLUBLE COMPOUNDS) (SOLUBLE COMPOUNDS)



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*NOTE: LISTED BELOW ARE PERTINENT ABBREVIATIONS.

CAS = CHEMICAL ABSTRACT SERVICE REGISTRY

OSHA = OCCUPATIONAL SAFETY AND HEALIH ADMINISTRATION

PEL = PERMISSIBLE EXPOSURE LIMIT

MG/M³ = MILLIGRAMS PER CUBIC METER OF AIR

TWA = TIME WEIGHTED AVERAGE

ACGIH = AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS

TLV = THRESHOLD EXPOSURE LIMIT STEL = SHORT TERM EXPOSURE LIMIT

THIS TABLE DOES NOT INCLUDE ALL COMMERCIAL AVAILABLE ALLOYS. DEPENDING ON THE GRADE OF STAINLESS STEEL, THE PERCENTAGE OF INCREDIENT MAY VARY. MINUTE QUANTITIES OF TRACE ELEMENTS MAY ALSO BE PRESENT.



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Stainless Steel

MATERIAL SAFETY DATA SHEET - STAINLESS STEEL ATTACHMENT - PAGE 2

SECTION 6 - HEALTH HAZARDS

Signs and Symptoms of Exposure

In the natural state, steel products do not present inhalation, ingestion or contact health hazards. However, welding, burning, grinding, brazing, sawing, or machining can result in product temperature to reach or exceed its melting point or result in the generation of fumes and/or airborne dust (particulates). Metal fumes and dusts may pose health hazards and should be performed in well ventilated areas. Inhalation of fumes and dust are the major potential health hazards.

Acute Overexposure

Irritation of eyes, nose and throat may result from excessive exposure to metal fumes and dusts. Mental fume fever may result from high concentrations of fumes and dusts of iron oxide and manganese. A metallic taste in mouth, irritation and dryness of mucous membranes, fever and chills usually lasting 12 to 48 hours are typical symptoms commonly associated with metal fume fever.

Chronic Overexposure

Excessive prolonged inhalation of high concentrations of metal welding fumes and dust may lead to the conditions listed with each element.

as oxide, pulmonary effects, siderosis. Iron

dermatitis, upper respiratory tract in-Chromium* flammation and/or ulceration, and possibly cancer of nasal passages and Available information concludes that welding fumes exposure does not in-

duce human cancer.

dermatitis, upper respiratory tract in-Nickel* flammation and/or ulceration, and possibly cancer of nasal passages and lungs. Available information concludes that welding fumes exposure does not induce human cancer.

bronchitis, pneumonitis, loss of coord-Manganese ination.

Tungsten



M.P. INDUSTRIES MIDCO INDUSTRIES, INC. MIDWEST PRECISION CASTINGS COMPANY

		Stainless Steel
Silicon	***	may produce x-ray changes in the lungs without disability.
Molybdenum	-	irritation of the nose and throat, weight loss, and digestive disturbances in animals. No industrial poisoning has been reported.
Selenium	-	nasal and bronchial irritation, gastro- intestinal disturbances, garlic breath odor.
Cobalt	-	respiratory tract irritation, skin rash.
Copper	sole-	"metal fume fever" - symptoms may include cough, headache, metallic taste in mouth, nausea, fever, chilling, pain in muscles and joints. This condition is transitory, usually lasting one (1) day or less.
Titanium	- ,	no chronic debilitating symptoms reported in humans.
Aluminum	-	no known adverse health impacts on humans. Considered as nuisance dust in occupational settings.
Vanadium*	anna.	common respiratory disease such as bron- chitis, pneumonitis and allergic asthma- tic reaction and lung cancer.

some evidence of pulmonary discomfort such as cough.

*Considered as a carcinogen or potential human carcinogen.

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Stainless Steel

MATERIAL SAFETY DATA SHEET - STAINLESS STEEL ATTACHMENT - PAGE 4

SECTION 9 - SPECIAL PROTECTION INFORMATION

Following personal protective equipment may be required while workers involve in welding, cutting, grinding, chipping, milling, or other works on stainless steel products. Levels of protection required is a function of alloy type, workplace environment, and potential hazards anticipated.

Respiratory Protection

Use NIOSH - approved particulate and/or acid fume respirator if the concentration of actual or potential airborne contaminant exceeds, or is anticipated to exceed, the exposure limits listed in Section 2 of attachment.

Ventilation

Fumes and waste gases should be removed at source by means of local exhaust ventilation. If local exhaust ventilation is not adequate or cannot be provided, then a high level of powered ventilation will be required.

Protective Gloves, Eye Protection and Other Protective Clothing or Equipment.

Use safety goggles, glasses, boots, aprons, helmet, handshield, earplugs, and muffs as needed to protect workers from physical, electrical, radiation and noise hazards.