



## Material Safety Data Sheet (MSDS)

<b>SECTION 1</b>	<b>PRODUCT INFORMATION</b>
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PRODUCT NAME: PNA Bollard Base top and bottom plates  
 PRODUCT TYPE: Hot rolled steel bars  
 COMPANY CONTACT: PNA Construction Technologies, Inc.  
 9 Dunwoody Park, Suite 111  
 Atlanta, GA 30338  
 800.542.0214

<b>SECTION 2</b>	<b>GENERAL INFORMATION</b>
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IDENTITY: Hot Rolled Bars  
 FAMILY: Inorganic Compounds

<b>SECTION 3</b>	<b>HAZARDOUS CONSTITUENTS</b>
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<u>Constituent</u>	<u>OSHA PEL</u> (mg/M3)	<u>ACGIH TLV</u> (mg/M3)	<u>%</u> <u>Range</u>	<u>CAS #</u>
Aluminum:				
Fume	5.0	5.0	.001-.100	7429-90-5
As dust	5.0	---		
Carbon:				
Not Listed	---	---	.01-1.10	7440-44-0
Chromium:	0.5	0.5	.05-.90	7440-47-3
Soluble Cr salts	1.0	0.5		
Copper (metal):				
As dust	1.0	1.0	.10-1.0	7440-50-8
As Fume	0.1	0.2		
Iron:				
Iron Oxide Fume	10.0	---	98-99	7439-89-6
Molybdenum:				
Fume	0.1	0.2	.01-.15	7439-98-7
Nickel (metal):	1.0	1.0	.05-.75	7440-02-0
Soluble Ni compounds	1.0	1.0		
Manganese:				
Fume	1.0	1.0	.25-1.65	7439-96-5
Phosphorus (yellow)	0.1	---	.06 max	7723-14-0
Silicon:				
Dust	15.0	---	.08-.50	7440-21-3
Sulfur:				
Sulfur Dioxide	13.0	5.0	.001-.08	7446-09-5

<b>SECTION 4</b>	<b>PHYSICAL AND CHEMICAL CHARACTERISTICS</b>
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APPEARANCE AND ODOR	Dark gray, odorless, metal.
BOILING POINT	±5000°F



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MELTING POINT	Approximately 2500°F
pH	N/A
SPECIFIC GRAVITY	(H2O = 1) 2-8.2 (mm Hg)
DENSITY (AT 15.6°C)	N/A
VAPOR PRESSURE	N/A
VAPOR DENSITY	N/A
% VOLATILE, BY VOLUME	N/A
SOLUBILITY IN WATER	Insoluble
EVAPORATION RATE (BUTYL ACETATE = 1)	N/A
OTHER PHYSICAL AND CHEMICAL DATA	None

<b>SECTION 5 FIRE AND EXPLOSION DATA</b>	
FLASH POINT (°C) N/A	AUTOIGNITION TEMPERATURE N/A
FLAMMABILITY LIMIT IN AIR (% BY VOL)	Lower N/A
	Upper N/A
EXTINGUISHING MEDIA	N/A
SPECIAL FIRE FIGHTING PROCEDURES	N/A
UNUSUAL FIRE AND EXPLOSION HAZARDS	N/A

<b>SECTION 6 STABILITY AND REACTIVITY</b>	
STABILITY	Stable
CONDITIONS TO AVOID	N/A
HAZARDOUS POLYMERIZATION	N/A
INCOMPATIBILITY (MATERIALS TO AVOID)	Strong acids
HAZARDOUS DECOMPOSITION PRODUCTS	Hydrogen gas



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<b>SECTION 7 HAZARDS IDENTIFICATION</b>	
EFFECTS OF OVEREXPOSURE	No toxic effects would be expected from inert solid form. Inhalation of metal dust and fumes may result from further processing of the material by the user, particularly during welding, burning, cutting, grinding and machining activities
ACUTE	Short-term intensive exposure to dust may result in irritation to eyes, mucous membranes and respiratory tract. Steel recently produced may be extremely hot.
CHRONIC	Sever pneumonitis, pulmonary disease
CARCINOGENIC	NTP: nickel, chromium IARC: nickel, chromium OSHA: none
SIGNS AND SYMPTOMS OF EXPOSURE	Nausea, tightness of chest, fever, irritation of eyes, nose, throat and skin.
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE	Chronic lung disease, allergic conditions.
EMERGENCY AND FIRST AID PROCEDURES	Standard first aid procedures – remove to fresh air.

<b>SECTION 8 PRECAUTIONS FOR SAFE HANDLING AND USE</b>	
STEPS TO BE TAKEN IN CASE OF RELEASE OR SPILL	N/A
WASTE DISPOSAL METHOD	Material should be reclaimed for re-use; follow local, State and Federal solid waste disposal requirements.

<b>SECTION 9 CONTROL MEASURES</b>	
RESPIRATORY PROTECTION	Dust/fume respirator.
LOCAL EXHAUST	As required to meet PEL.
PROTECTIVE GLOVES	As needed based on operations
EYE PROTECTION	As needed
OTHER PROTECTIVE CLOTHING OR EQUIPMENT	May be needed for grinding. Heat resistant face protection, clothing, boots and/or gloves may be necessary.

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