



Material Safety Data Sheet (MSDS)

SECTION 1	PRODUCT INFORMATION
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PRODUCT NAME:	PNA Square Dowel Basket – basket portion
PRODUCT TYPE:	Wire rod
COMPANY CONTACT:	PNA Construction Technologies, Inc. 9 Dunwoody Park, Suite 111 Atlanta, GA 30338 800.542.0214

SECTION 2	GENERAL INFORMATION
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TRADE NAME:	Wire Rod, Billets
CHEMICAL NAME:	Carbon Steel

SECTION 3	HAZARDOUS INGREDIENTS
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<u>Alloys & Metallic Coatings</u>	<u>%</u>	<u>TLV (Units)</u>
Base Metal Iron Fe, (Iron Oxide FEO)	98.5	
Alloys (See Below)	0 – 1.0	
Metallic Coatings N/A	0	
Filler Metal Plus Coating or Core Flux N/A	0	

SECTION 4	HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS OR GASES
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<u>NAME</u>	<u>%</u>	<u>TLV (Units)</u>
Manganese 3 - .6%	.6	5mg/m3
Chromium 0 - .1%	.1	1mg/m3
Copper 0 - .25%	.25	.1mg/m3
Lead 0 - .25%	.25	05mg/m3
Nickel 0 - .3%	.3	1mg/m3
<p>This product contains the following toxic chemical or chemicals subject to the reporting requirements of Section 313 Title III of the Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR Part 372. - NICKEL</p>		



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SECTION 5 PHYSICAL DATA	
APPEARANCE AND ODOR	Odorless solid with metallic luster, available as wire rod or billet
BOILING POINT	5430°F
SPECIFIC GRAVITY (H ₂ O = 1)	Approx. 8
VAPOR PRESSURE (mm Hg.)	N/A
VAPOR DENSITY (AIR = 1)	N/A
% VOLATILE, BY VOLUME	N/A
SOLUBILITY IN WATER	Insoluble
EVAPORATION RATE (BUTYL ACETATE = 1)	N/A
OTHER PHYSICAL AND CHEMICAL DATA	None

SECTION 6 HEALTH HAZARDS DATA	
THRESHOLD LIMIT VALUE	15 mg/m ³ considered a nuisance dust.
EFFECTS OF OVEREXPOSURE	No toxic effect would be expected from inert solid form, prolonged, repeated exposure to fumes & dusts generated during heating, cutting or welding may cause adverse health effects.
EMERGENCY FIRST AID PROCEDURES	In case of overexposure, remove person to fresh air. Get medical attention if necessary.

SECTION 7 REACTIVITY DATA		
STABILITY	Unstable	
	Stable	X
INCOMPATIBILITY	Contact with strong acids and caustics may produce H ₂ gas.	
HAZARDOUS DECOMPOSITION PRODUCT	Metal fumes and noxious gases may be produced during welding, cutting or grinding operations (see section 3 &4)	
HAZARDOUS POLYMERIZATION	May Occur	
	May Not Occur	X



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SECTION 8 SPILL OR LEAK PROCEDURES
Steps to be taken in case material is released or spilled – N/A
Waste disposal method – comply with Federal, State and local approved disposal methods – follow regulations.

SECTION 9 SPECIAL PROTECTION INFORMATION	
RESPIRATORY PROTECTION	Properly fitted NIOSH approved dust – fume respirator. Local exhaust to maintain TLV
PROTECTIVE GLOVES	For abrasion
EYE PROTECTION	When cutting, welding or grinding, ect...
OTHER PROTECTIVE EQUIPMENT	Protective footwear

SECTION 10 SPECIAL PRECAUTIONS	
Precautions to be taken in handling and storing – during welding, cutting or grinding precautions should be taken to control airborne particulates and fumes.	

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SECTION 1	PRODUCT INFORMATION
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PRODUCT NAME: PNA Square Dowel
 PRODUCT TYPE: Hot rolled steel bars
 COMPANY CONTACT: PNA Construction Technologies, Inc.
 9 Dunwoody Park, Suite 111
 Atlanta, GA 30338
 800.542.0214

SECTION 2	GENERAL INFORMATION
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IDENTITY: Hot Rolled Bars
 FAMILY: Inorganic Compounds

SECTION 3	HAZARDOUS CONSTITUENTS
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Constituent	OSHA PEL (mg/M3)	ACGIH TLV (mg/M3)	% Range	CAS #
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

SECTION 4	PHYSICAL AND CHEMICAL CHARACTERISTICS
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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	(H ₂ O = 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

SECTION 5 FIRE AND EXPLOSION DATA	
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

SECTION 6 STABILITY AND REACTIVITY	
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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SECTION 7 HAZARDS IDENTIFICATION	
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.

SECTION 8 PRECAUTIONS FOR SAFE HANDLING AND USE	
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.

SECTION 9 CONTROL MEASURES	
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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SECTION 1	PRODUCT INFORMATION
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PRODUCT NAME:	PNA Square Dowel clip
PRODUCT TYPE:	ABS plastic
COMPANY CONTACT:	PNA Construction Technologies, Inc. 9 Dunwoody Park, Suite 111 Atlanta, GA 30338 800.542.0214

SECTION 2	COMPOSITION / INFORMATION ON INGREDIENTS
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CHEMICAL NAME:	Acrylonitrile-butadiene-styrene Resin ; % 90 – 99%
SYNONYMS:	ABS
CAS REGISTRY NO.:	9003 – 56 – 9
MAY ALSO CONTAIN:	
Mineral Oil	0-2%
Tallow	0-2%
Wax	0-2%
Styrene monomer	2,000 ppm max
Ethylbenzene	1,500 ppm max

SECTION 3	HAZARDS IDENTIFICATION
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EYE	Solid or dust may cause irritation or corneal injury due to mechanical action.
SKIN	Essentially nonirritating to skin. Mechanical injury only. Skin absorption is unlikely due to physical properties.
INGESTION	Single dose oral toxicity is considered to be low. No hazards anticipated from swallowing small amounts incidental to normal handling operations.
INHALATION	Dust may cause irritation to upper respiratory tract (nose and throat). At room temperature, exposure to vapors are unlikely due to physical properties; normal processing temperatures may generate vapors which may cause irritation if ventilation is inadequate.
SYSTEMIC (OTHER TARGET ORGAN) EFFECTS	Additives are encapsulated in the product and are not expected to be released under normal processing conditions or foreseeable emergency.



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CANCER INFORMATION	<p>This mixture contains a component(s) which are listed as potential carcinogens for hazard communication purposes under OSHA Standard 29 CFR 1910.1200. Components listed by IARC: styrene monomer. An increase incidence of lung tumors was observed in mice from a recent inhalation on styrene. The relevance of this finding to humans is epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic. The very small quantities of monomer, as indicated in Section 2, are not expected to cause any hazardous condition because of the low concentration in the resin. As the resin is supplied, monomer is not likely to be released into the surroundings in toxicologically significant amounts. Monomer may be released during processing of the resin and the hazard may vary from negligible to very low depending on actual exposure conditions. Ethylbenzene has been shown to cause cancer in laboratory animals.</p>
TERATOLOGY (BIRTH DEFECTS)	No relevant information found.
REPRODUCTIVE EFFECTS	No relevant information found.

SECTION 4 FIRST AID	
EYE	Flush eyes with plenty of water; mechanical effects only.
SKIN	No adverse effects anticipated by this route of exposure incidental to proper industrial handling.
INGESTION	If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.
INHALATION	Remove to fresh air if effects occur. Consult a physician.
NOTE TO PHYSICIAN	No specific antidote. Supportive care. Treatment based on judgment of physician in response to the patient.

SECTION 5 FIRE FIGHTING MEASURES		
FLASH POINT (°C) N/A	AUTOIGNITION TEMPERATURE N/A	
FLAMMABILITY LIMIT IN AIR (% BY VOL)	Lower	N/A
	Upper	N/A
HAZARDOUS COMBUSTION PRODUCTS	Hazardous combustion products may include and are not limited to: carbon dioxide, carbon monoxide, acrylonitrile, hydrogen cyanide and nitrogen oxides.	



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OTHER FLAMMABILITY INFORMATION	Dense smoke is emitted when burned without sufficient oxygen. Under fire conditions polymers decompose. The smoke may contain polymer fragments of varying compositions, in addition to unidentified toxic and/or irritating compounds.
EXTINGUISHING MEDIA	Water, carbon dioxide, dry chemical.
FIRE FIGHTING INSTRUCTIONS	Soak thoroughly with water to cool and prevent reignition.
PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS	Wear positive-pressure, self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots and gloves).

SECTION 6 ACCIDENTAL RELEASE MEASURES	
PROTECT PEOPLE	To prevent falls, sweep up spills and discard.
PROTECT THE ENVIRONMENT	Plastic resins are inert and benign in terms of their environmental impact. Plastic pellets should not be allowed to enter the aquatic environment.
CLEANUP	Spills should be minimized and they should be cleaned up when they happen.

SECTION 7 HANDLING AND STORAGE	
HANDLING	Mechanical handling equipment can cause formation of dusts. Maintain good housekeeping. Dust layers should not be permitted to accumulate in order to avoid any potential for dust explosion hazards. Workers should be protected from the possibility of contact with molten resin during fabrication.
STORAGE	Do not stack boxes more than three high. Boxes must remain dry. No stacking should be attempted or allowed if boxes are damp or bulging.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION	
ENGINEERING CONTROLS	Provide general and/or local exhaust ventilation to control airborne levels below the exposure limits.
PERSONAL PROTECTIVE EQUIPMENT	
EYE / FACE PROTECTION	Use safety glasses. If there is a potential for exposure to particles which could cause mechanical injury to the eye, wear chemical goggles.
SKIN PROTECTION	No precautions other than clean body covering clothing should be needed.
RESPIRATORY PROTECTION	Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air purifying respirator. In dusty atmospheres, use an approved dust respirator.



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EXPOSURE GUIDELINES	
STYRENE MONOMER	ACGIH TLV is 20 ppm TWA, 40 ppm STEL, skin. ACGIH classifies as A4. OSHA PEL is 50 ppm TWA, 100 ppm STEL. The styrene PEL and STEL are in accordance with the OSHA-industry agreement dated March, 1996
ETHYLBENZENE	ACGIH TLV and OSHA PEL are 100 ppm TWA; 125 ppm STEL. PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.
<p>A "skin" notation following the exposure guidelines refers to the potential for dermal absorption of the material. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposure should be considered. Although some of the additives used in this product may have exposure guidelines, these additives are encapsulated in the products and no exposure would be expected under normal handling conditions.</p>	

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES
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APPEARANCE/PHYSICAL STATE: Milky white solid, pellets.
 ODOR: Low odor
 VAPOR PRESSURE: N/A
 VAPOR DENSITY: N/A
 BOILING POINT: N/A
 SOLUBILITY IN WATER/MISCIBILITY: Nil
 SPECIFIC GRAVITY OR DENSITY: 1.05

SECTION 10 STABILITY AND REACTIVITY

CHEMICAL STABILITY	Under anticipated storage and handling conditions, product is expected to be stable.
CONDITIONS TO AVOID	Temperatures over 280°C, 536°F, will generate increasing levels of fumes from decomposition products.
INCOMPATIBILITY WITH OTHER MATERIALS	None known.
HAZARDOUS DECOMPOSITION PRODUCTS	Refer to Section 5 for hazardous combustion products.
HAZARDOUS POLYMERIZATION	Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION (see section 3 for potential health effects)

INGESTION	Single dose oral LD50 has not been determined
MUTAGENICITY	No relevant information found.

SECTION 12 EXPOSURE CONTROLS / PERSONAL PROTECTION
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ENVIRONMENT FATE



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MOVEMENT & PARTITIONING	No bioconcentration is expected because of the relatively high molecular weight (MW >1000). In the terrestrial environment, material is expected to remain in the soil. In the aquatic environment, material is expected to float.
DEGRADATION & PERSISTENCE	This water insoluble polymeric solid is expected to be inert in the environment. Surface photodegradation is expected with exposure to sunlight. No appreciable biodegradation is expected.
ECOTOXICITY	
Not expected to be acutely toxic, but pellets may mechanically cause adverse effects if ingested by waterfowl or aquatic life.	

SECTION 13	DISPOSAL CONSIDERATIONS
DISPOSAL	
<p>Do not dump into any sewers, on the ground, or into any body of water. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.</p> <p>For unused and uncontaminated product, the preferred options include sending to a licensed, permitted recycler, reclaimer, incinerator or other thermal destruction device.</p>	

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