



Material Safety Data Sheet (MSDS)

SECTION 1	PRODUCT INFORMATION
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PRODUCT NAME:	Diamond Dowel® pocket former
PRODUCT TYPE:	ABS plastic
COMPANY CONTACT:	PNA Construction Technologies, Inc. 9 Dunwoody Park, Suite 111 Atlanta, GA 30338 800.542.0214

SECTION 2

CHEMICAL NAME:	Acrylonitrile-butadiene-styrene Resin
TRADE NAME:	Porene
SYNONYMS:	ABS
CHEMICAL FAMILY:	Thermoplastic Resin
MOLECULAR WEIGHT:	Not Determined
FORMULA:	(C ₂₃ H ₂₆ N) ⁿ
CAS REGISTRY NO.:	9003 – 56 – 9

SECTION 3	INGREDIENTS
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NAME	%	TLV	HAZARDOUS PROPERTY
STYRENE	>60		*The vapors are irritating to eyes and mucous membranes. Inhalation of high concentration can cause unconsciousness and death. **Further exposure in irritation of the eyes photophobia, irritation of the nose, deepened respiration.
POLYBUTADIENE	<20	**200 ppm	
ACRYLONITRILE	<20	*1000 ppm	
OTHERS	<1.5		

SECTION 4	PHYSICAL DATA
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APPEARANCE AND ODOR	Pellets, odorless
BOILING POINT (°C)	N/A
MELTING POINT (°C)	> 175
pH	N/A
SPECIFIC GRAVITY	1.04-1.05
VAPOR PRESSURE (mm Hg at 20°C)	N/A
VAPOR DENSITY	N/A



Material Safety Data Sheet (MSDS)

% VOLATILE, BY VOLUME (150°C)	<0.5%
SOLUBILITY IN WATER	Insoluble
OTHER PHYSICAL AND CHEMICAL DATA	None

SECTION 5 FIRE AND EXPLOSION HAZARD DATA		
FLASH POINT (°C) N/A	AUTOIGNITION TEMPERATURE N/A	
FLAMMABILITY LIMIT IN AIR (% BY VOL)	Lower	N/A
	Upper	N/A
SPECIAL FIRE FIGHTING PROCEDURES	Firefighters must be equipped with self-contained breathing apparatus and turn out gear.	
UNUSUAL FIRE AND EXPLOSION HAZARDS	If exposed to fire, high heat will be developed and heavy black smoke will result. During combustion carbon dioxide will be produced.	

SECTION 6 HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	SEE SECTION 3
EFFECT OF OVEREXPOSURE	N/A
FIRST AID PROCEDURES	
EYES	If eyes or skin irritation persists, consult a physician.
FLUSH WITH FLOWING WATER AT LEAST 15 MINUTES	Wash contaminated skin area with soap and water. If vapors are inhaled, move to fresh air. Aid in breathing if necessary and consult a physician.

SECTION 7 REACTIVITY DATA			
STABILITY	STABLE	X	CONDITION TO AVOID: HEAT, SPARKS, FLAME
	UNSTABLE		
CHEMICAL INCOMPATIBILITY – Avoid inorganic and organic solvents. Hazardous decomposition product – CO, CO ₂ , NO ₂ .			
HAZARDOUS POLYMERIZATION MAY OCCUR			CONDITION TO AVOID: NONE
DOES NOT OCCUR		X	
CORROSIVE TO METAL	No.	OXIDE	No.



Material Safety Data Sheet (MSDS)

SECTION 8	SPECIAL PROTECTION INFORMATION
RESPIRATORY PROTECTION Approved organic vapor or dust respirator, as necessary if there is not adequate ventilation throughout, storage and processing areas.	
VENTILATION Local Exhaust as necessary to control to P.E.L. - Mechanical (General)	
EYE PROTECTION Chemical workers goggles recommended.	
PROTECTIVE CLOTHING Clean, Body-covering clothing, protective gloves optional.	

SECTION 9	ENVIRONMENTAL DATA
ENVIRONMENTAL TOXICITY DATA N//A	
SPILLED AND LEAK PROCEDURES Spill should be contained and placed in suitable containers for disposal.	
HAZARDOUS SUBSTANCE 40CFR 261 No.	
WASTE DISPOSAL METHOD Incinerate or bury as a solid in a licensed facility. Do not discharge into waterways or sewer systems.	
HAZARDOUS SUBSTANCE 40CFR 261 No.	
CONTAINER DISPOSAL Dispose of in licensed facility. Recommend incineration or other means to prevent unauthorized refuse.	

The information contained herein is based on the data available to us and is believed to be correct. However, PNA Construction Technologies, Inc. makes no warranty, expressed or implied, regarding the accuracy of this data or the results to be obtained from the use thereof. PNA Construction Technologies, Inc. assumes no responsibility for the use of the product described herein.

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Material Safety Data Sheet (MSDS)

SECTION 1	PRODUCT INFORMATION
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PRODUCT NAME:	Diamond Dowel® tapered plate dowel – ¾”
PRODUCT TYPE:	Cold 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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TRADE NUMBER	Cold Finished Carbon, Stainless and Alloy Steels
CAS NUMBER	Not applicable
SYNONYMS	Steels
USE/DESCRIPTION	Cold Finish Steel Products

SECTION 3	HAZARDS IDENTIFICATION
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EMERGENCY OVERVIEW	Warning! Welding, sawing, brazing, grinding, and machining may cause dusts and/or fume to be released. May be harmful if inhaled. May irritate the eyes, skin and respiratory tract. Molten material may cause thermal burns.
POTENTIAL HEALTH EFFECTS	Note: Steel products in their solid state under normal conditions, do not present an inhalation, ingestion or skin hazard. However, operations resulting in fume or particulate formation such as welding, sawing, brazing, grinding and machining may present health hazards. Molten steel also is hazardous.
EYE CONTACT	Dusts or particulates may cause mechanical irritation including pain, tearing and redness. Scratching of the cornea can occur if the eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.
SKIN CONTACT	Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals (see Section 16 for additional information.) Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Contact with heated material may cause thermal burns.
INHALATION	Dusts may cause irritation of the nose, throat and lungs. Excessive inhalation of metallic fumes and dusts may result in metal fume fever, an influenza-like illness. It is characterized by a sweet or metallic taste in the mouth, accompanied by dryness and irritation of the throat, cough, shortness of breath, pulmonary edema, general malaise, weakness, fatigue, muscle and joint pains, blurred vision, fever and chills. Typical symptoms last from 12 to 48 hours.



Material Safety Data Sheet (MSDS)

INGESTION	Not expected to be acutely toxic via ingestion on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea and diarrhea.
CHRONIC OR SPECIAL TOXIC EFFECTS	Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur.
TARGET ORGANS	Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE	Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.



Material Safety Data Sheet (MSDS)

SECTION 4 HAZARDS IDENTIFICATION						
Components	CAS #	% Weight	Exposure Limits			
			ACGIH TLV (mg/M3)		OSHA PEL (mg/M3)	
<u>Base Metal:</u> Iron	7439-89-6	Balance	5	Oxide Dust/Fume	10	Oxide Dust/Fume
<u>Alloying Elements:</u> Aluminum	7429-90-5	0-0.1	10 5	Dust Fume	15 5	Dust Respirable fraction
Antimony	7440-36-0	<0.9	0.5	As Antimony	0.5	As Antimony
Arsenic	7440-38-2	<0.9	0.01	As Arsenic (A1 Carcinogen)	0.01	As Arsenic
Beryllium	7440-41-7	<0.9	0.002 0.01	As Beryllium (A1 Carcinogen) As Beryllium (STEL)	0.002 0.005	As Beryllium As Beryllium (Ceiling)
Boron	7440-42-8	<0.9	10	Oxide Dust	15	Oxide Dust
Cadmium	7440-43-9	<0.9	0.01 0.002	As Cadmium (A2 Carcinogen) Respirable fraction	0.005 0.0025	As Cadmium As Cadmium (Action Level)
Calcium	1305-78-8	<0.9	2	Oxide Dust	5	Oxide Dust
Carbon	7440-44-0	0.04-0.95		Not Established		Not Established
Chromium						
Alloy grades	7440-47-3	0.01-1.6	0.5	Metal	1	Metal
Stainless grades	7440-47-3	4-20	0.5	Metal	1	Metal
Carbon grades	7440-47-3	0.01-1.0	0.5	Metal	1	Metal
Cobalt	7440-48-4	<0.09	0.02	As Cobalt (A3 Carcinogen)	0.1	Metal/Dust/Fume
Copper	7440-50-8	0.04-1	1 0.2	Dust Fume	1 0.1	Dust Fume
Lead	7439-92-1	0-0.09	0.05	Dust/Fume (A3 Carcinogen)	0.05	Dust/Fume
Magnesium	7439-95-4	<0.9		Not Established		Not Established
Manganese	7439-96-5	0.2-2	0.2	Elements Mn & Inorg Cmpds	5	Fume(Ceiling)
Molybdenum	7439-96-7	0.01-0.5	10	Insoluble Cmpds	15	Insoluble Cmpds
Niobium	7440-03-1	<0.9		Not Established		
Nickel	7440-02-0	0.01-1	1.5	Metal	1	Metal & Insoluble Cmpds
Nitrogen	7727-37-9	<0.9		Simple Asphyxiant		Simple Asphyxiant
Phosphorous	7723-14-0	<0.9	0.1	Phosphorous	0.1	Phosphorous
Selenium	7782-49-2	<0.9	0.2	Selenium	0.2	Selenium
Silicon	7440-21-3	<0.9	10	Dust	15	Dust
Sulfur	7704-34-9	<0.9	5.2 13	Sulfur Dioxide Sulfur Dioxide (STEL)	13	Sulfur Dioxide
Tin	7723-14-0	<0.9	2	Metal, Oxide & Inorganic Cmpds	2	Inorganic Cmpds
Titanium	7440-32-6	<0.9		Not Established		Not Established
Tungsten	7440-33-7	<0.9	5 10	Insoluble Cmpds as W Insoluble Cmpds as W (STEL)		Not Established
Vanadium	7440-62-2	<0.9	0.05	Oxide Dust/Fume	0.5 0.1	Oxide Dust (Ceiling) Oxide Fume (Ceiling)
Zinc	7440-66-6		10 5 10	Oxide Dust Oxide Fume Oxide Fume (STEL)	5 10	Oxide Fume Oxide Dust



Material Safety Data Sheet (MSDS)

SECTION 5 FIRST AID MEASURES	
EYE CONTACT	In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.
SKIN CONTACT	In case of overexposure to dusts or particulates, wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.
INHALATION	In case of overexposure to dusts or fumes, remove to fresh air. Get immediate medical attention if symptoms described in this MSDS develop.
INGESTION	Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.
NOTES TO PHYSICIAN	Inhalation of metal fume or metal oxides may produce an acute febrile state with cough, chills, weakness and general malaise, nausea, vomiting, muscle cramps and remarkable leukocytosis. Treatment is symptomatic and condition is self-limited in 24-48 hours. Chronic exposure to dusts may result in pneumoconiosis of mixed type.

SECTION 6 FIRE FIGHTING MEASURES	
FLASH POINT (°C) N/A	AUTOIGNITION TEMPERATURE N/A
FLAMMABILITY LIMIT IN AIR (% BY VOL)	Lower N/A
	Upper N/A
EXTINGUISHING MEDIA	For molten metal, use dry powder or sand.
SPECIAL FIRE FIGHTING PROCEDURES	Do not use water on molten metal. Firefighters should not enter confined spaces without wearing NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.
UNUSUAL FIRE AND EXPLOSION HAZARDS	Steel products do not present fire or explosion hazards under normal conditions. Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.



Material Safety Data Sheet (MSDS)

SECTION 7 ACCIDENTAL RELEASE MEASURES	
PRECAUTIONS IF MATERIAL IS SPILLED OR RELEASED	Emergency response is unlikely unless in the form of dust. Avoid inhalation, eye or skin contact of dusts by using appropriate precautions outlined in this MSDS (see Section 9). Fine turnings and small chips should be swept or vacuumed and placed into appropriate disposable containers. Keep fine dust or powder away from sources of ignition. Scrap should be reclaimed for recycling. Prevent materials from entering drains, sewers or waterways.
ENVIRONMENTAL PRECAUTIONS	Some grades of steel may contain reportable quantities of alloying elements. See Section 16 for additional information.
WASTE DISPOSAL METHODS	Dispose used or unused product in accordance with applicable Federal, State and local regulations.

SECTION 8 HANDLING AND STORAGE	
STORAGE TEMPERATURES	Stable under normal temperatures and pressures
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store away from strong oxidizers. Dusts or powders may form explosive mixtures with air. Avoid breathing dusts or fumes.

SECTION 9 EXPOSURE CONTROLS/PERSONAL PROTECTION	
Operations with potential for generating high concentrations of airborne particulates or fumes should be evaluated and controlled as necessary.	
EYE PROTECTION	Use safety glasses. Dust resistant safety goggles are recommended under circumstances where particles could cause mechanical injury such as grinding or cutting. Face shield should be used when welding or cutting.
SKIN	Appropriate protective gloves should be worn as necessary. Good personal hygiene practices should be followed including cleansing exposed skin several times daily with soap and water and laundering or dry cleaning soiled work clothing.
RESPIRATORY PROTECTION	NIOSH/MSHA approved dust/fume/mist respirator should be used to avoid excessive exposure. See Section 4 for component material information exposure limits. If such concentrations are sufficiently high that this respirator is inadequate or high enough to cause oxygen deficiency, use a positive pressure self-contained breathing apparatus (SCBA). Follow all applicable respirator use, fitting and training standards and regulations.
VENTILATION	Provide general and/or local exhaust ventilation to control airborne levels of dust or fumes below exposure limits.



Material Safety Data Sheet (MSDS)

EXPOSURE GUIDELINES	No permissible exposure limits (PEL) or threshold limit values (TLV) exist for steel. See Section 4 for component materials. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.
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SECTION 10 PHYSICAL DATA	
APPEARANCE AND ODOR	Red, grey or other color steel panels, pulins and built-up joists and trusses..
BOILING POINT	N/A
MELTING POINT	Approximately 2800°F
pH	N/A
SPECIFIC GRAVITY (AT 15.6°C)	N/A
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 11 STABILITY AND REACTIVITY	
STABILITY	Stable
CONDITIONS TO AVOID	Steel at temperatures above the melting point may liberate fumes containing oxides of iron and alloying elements. Avoid generation of airborne fume.
HAZARDOUS POLYMERIZATION	Will not occur
INCOMPATIBILITY (MATERIALS TO AVOID)	Reacts with strong acids to form hydrogen gas. Do not store near strong oxidizers.
HAZARDOUS DECOMPITION PRODUCTS	Metallic fumes may be produced during welding, burning, grinding and possibly machining or any situation with the potential for thermal decomposition. Refer to ANSI Z49.1yes



Material Safety Data Sheet (MSDS)

SECTION 12 TOXICOLOGICAL INFORMATION

The primary component of this product is Iron. Long-term exposure to iron dusts or fumes can result in a condition called siderosis which is considered to be a benign pneumoconiosis. Symptoms may include chronic bronchitis, emphysema and shortness of breath upon exertion. Penetration of iron particles in the skin or eye may cause an exogenous or ocular siderosis which may be characterized by a red-brown pigmentation of the affected area. Ingestion overexposure to iron may affect the gastrointestinal, nervous and hermatopoietic system and the liver. Iron and steel founding, but not iron or iron oxide has been listed as potentially carcinogenic by IARC.

When this product is welded, fumes are generated. Welding fumes may be different in composition from the original welding product, with the chief component being ordinary oxides of the metal being welded. Chronic health effects (including cancer) have been associated with the fumes and dusts of individual component metals (see above) and welding fumes as a general category have been listed by IARC as a carcinogen (Group 2B). There is also limited evidence that welding fumes may cause adverse reproductive and fetal effects. Evidence is stronger where welding materials contain known reproductive toxins, e.g., lead which may be present in the coating of material of this product.

Breathing fumes or dusts of this product may result in metal fume fever, which is an illness produced by inhaling metal oxides. These oxides are produced by heating various metals including cadmium, zinc, magnesium, copper, antimony, nickel, cobalt, manganese, tin, lead, beryllium, silver, chromium, aluminum, selenium, iron and arsenic. The most common agents involved are zinc and copper.

This product may contain small amounts of manganese. Prolonged exposure to manganese dusts or fumes is associated with "manganism", a Parkinson-like syndrome characterized by a variety of neurological symptoms including muscle spasms, gait disturbances, tremors and psychoses.

This product may contain small amounts of cadmium. Primary target organs for cadmium overexposure are the lung and the kidney. Because of its cumulative nature, chronic cadmium poisoning can cause serious disease which takes many years to develop and may continue to progress despite cessation of exposure. Progression of the disease may not reflect current exposure conditions. It is also capable of causing a painful osteomalacia called "Itai-Itai" in postmenopausal women, and have caused developmental effects and/or reproductive effects in male and female animals. Cadmium is listed carcinogenic by NTP, OSHA and IARC (Group 1).

This product may contain small amounts of chromium. Prolonged and repeated overexposure to chromium dusts or fumes may cause skin ulcers, nasal irritation and ulceration, kidney damage and cancer of the respiratory system. Chromium is a skin sensitizer. Cancer is generally attributed to the hexavalent (+6) form of chromium which is listed as a carcinogen by NTP and IARC (Group 1)

This product may contain small amounts of nickel. Prolonged and repeated contact with nickel may cause sensitization dermatitis. Inhalation of nickel compounds has caused lung damage as well as sinus, nasal and lung cancer in laboratory animals. Nickel is a listed carcinogen by NTP and IARC (Group 1).

This product may contain small amounts of vanadium. Adverse effects from dermal, inhalation or parenteral exposure to various vanadium compounds have been reported. The major target for vanadium pentoxide toxicity is the respiratory tract. Fumes or dust can cause severe eye and respiratory irritation and systematic effects. Chronic bronchitis, green tongue, conjunctivitis, pharyngitis, rhinitis, rales, chronic productive cough and tightness of the chest have been reported following overexposure. Allergic reactions resulting from skin and inhalation exposures have also been reported. A statistical association between vanadium air levels and lung cancer have also been suggested, but vanadium currently is not reported as a human carcinogen.



Material Safety Data Sheet (MSDS)

This product may contain small amounts of lead. Lead can accumulate in the body. Consequently, exposure to fumes or dust may produce signs of polyneuritis, diminished vision and peripheral neuropathy such as tingling and loss of feeling in fingers, arms and legs. Lead is a known reproductive and developmental toxin. It is also associated with central nervous system disorders, anemia, kidney disfunction and neurobehavioral abnormalities. The brain is a major target organ for lead exposure. Elemental lead is listed as an IARC 2B carcinogen.

The product may contain small amounts of copper. Copper dust and fume can irritate the eyes, nose and throat causing coughing, wheezing, nosebleeds, ulcers and metal fume fever. Other effects from repeated inhalation of copper fume include a metallic or sweet taste and discoloration of skin, teeth or hair. Copper also may cause an allergic skin reaction. Overexposure to copper can effect the liver.

SECTION 13 ECOLOGICAL INFORMATION	
AQUATIC ECOTOXICOLOGICAL DATA	No specific information available on this product.
ENVIRONMENTAL FATE DATA	No specific information available on this product.

SECTION 14 DISPOSAL CONSIDERATION

Recovery and reuse, rather than disposal, should be the ultimate goal of handling efforts. Dispose in accordance with Federal, State and Local health and environmental regulations. Prevent materials from entering drains, sewers or waterways.

SECTION 15 TRANSPORT INFORMATION	
DOT PROPER SHIPPING NAME	Not regulated
DOT HAZARD CLASSIFICATION	Not regulated
UN/NA NUMBER	N/A
DOT PACKING GROUP	N/A
LABELING REQUIREMENTS	N/A
PLACARDS	N/A
DOT HAZARDOUS SUBSTANCE	N/A
DOT MARINE POLLUTANT	N/A



Material Safety Data Sheet (MSDS)

SECTION 16 REGULATORY INFORMATION	
This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, dusts and fumes from this product may be hazardous.	
CALIFORNIA PROPOSITION 65	This product contains chemicals (antimony [oxide], arsenic, beryllium, chromium [hexavalent], cobalt, cadmium, lead, nickel) known to the State of California to cause cancer and chemicals (cadmium, lead) known to the State of California to cause birth defects or other reproductive harm.
REGULATORY LISTS	Some components of this product may be specifically listed by individual states; other product-specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements, you should contact the appropriate agency in your state.
TOXIC SUBSTANCES CONTROL ACT (TSCA)	Components of this product are listed on the TSCA inventory.
COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA)	Steel is not reportable, however, it contains hazardous substances that may be reportable if released in pieces with diameters less than or equal to 0.004 inches (RQ marked with a "**").
<u>CHEMICAL NAME</u>	<u>REPORTABLE QUANTITY (IN LB)</u>
ANTIMONY	5000*
ARSENIC	1*
BERYLLIUM	10*
CADMIUM	10*
CHROMIUM	5000*
COPPER	5000*
LEAD	10*
NICKEL	100*
PHOSPHOROUS	1
SELENIUM	100*
ZINC	1000*



Material Safety Data Sheet (MSDS)

<p>SUPERFUND ADMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA), TITLE III</p>	<p>SECTION 311/312 HAZARD CATEGORIES; Immediate Health Effect, Delayed Heath Effect. This product contains the following EPCRA Section 313 chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right –To-Know Act of 1986 (40 CFR 372):</p>
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<u>Chemical Name</u>	<u>CAS #</u>	<u>Concentration (% by weight)</u>	<u>Reportable</u>
Aluminum	7429-90-5	<0.01	No - < 1%
Antimony	7440-36-0	<0.9	No - < 1%
Arsenic	7440-38-2	<0.09	No - < 0.1%
Beryllium	7440-43-9	<0.09	No - < 0.1%
Cadmium	7440-43-9	<0.09	No - < 0.1%
Chromium	7440-47-3	0.01-1.0	Yes - > 0.1%
Cobalt	7440-48-4	<0.09	No - < 0.1%
Copper	7440-50-8	<1.0	No - < 1%
Lead	7439-92-1	0.0-0.09	No - < 0.1%
Lead (leaded steel only)	7439-92-1	0.15-0.35	Yes - > 0.1%
Manganese	7439-96-5	0.2-2	Yes - > 1%
Nickel	7440-02-0	0.01-0.1	Yes - > 0.1%
Phosphorus	7723-14-0	<0.9	No - < 1%
Selenium	7782-49-2	<0.9	No - < 1%
Vanadium	7440-62-2	<0.9	No - < 1%
Zinc	7440-66-6	<0.9	No - < 1%

SECTION 17 OTHER INFORMATION
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This product may be coated with a variety of materials, including oils, paints, galvanization, etc. that are not included in this MSDS. During welding precautions should be taken for airborne contaminants that may originate from components of the welding rod. Arc or spark generated when welding or burning could be a source of ignition or combustible and flammable materials. The information in this Material Safety Data Sheet (MSDS) was obtained from sources which we believe are reliable; however, the information is provided without any representation of warranty, expressed or implied, regarding the accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

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Material Safety Data Sheet (MSDS)

TAPERED PLATE DOWEL – 1/2" & 3/8

SECTION 26 GENERAL INFORMATION

IDENTITY Hot Rolled Bars
 FAMILY Inorganic Compounds

SECTION 27 HAZARDOUS CONSTITUENTS

<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

SECTION 28 PHYSICAL AND CHEMICAL CHARACTERISTICS

APPEARANCE AND ODOR	Dark gray, odorless, metal.
BOILING POINT	±5000°F



Material Safety Data Sheet (MSDS)

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 29 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 30 STABILITY AND REACTIVITY	
STABILITY	Stable
CONDITIONS TO AVOID	N/A.
HAZARDOUS POLYMERIZATION	N/A
INCOMPATIBILITY (MATERIALS TO AVOID)	Strong acids



Material Safety Data Sheet (MSDS)

HAZARDOUS DECOMPOSITION PRODUCTS	Hydrogen gas
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SECTION 31 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 32 PRECAUTIONS FOR SAFE HANDLING AND USE	
STEPS TO BE TAKEN IN CASEE 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 33 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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Material Safety Data Sheet (MSDS)

SECTION 1	PRODUCT INFORMATION
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PRODUCT NAME:	Diamond Dowel® System installation template
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.



Material Safety Data Sheet (MSDS)

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.	



Material Safety Data Sheet (MSDS)

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.



Material Safety Data Sheet (MSDS)

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
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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)
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INGESTION	Single dose oral L050 has not been determined
MUTAGENICITY	No relevant information found.

SECTION 12	EXPOSURE CONTROLS / PERSONAL PROTECTION
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ENVIRONMENT FATE



Material Safety Data Sheet (MSDS)

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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