



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		X	CONDITION TO AVOID: NONE
DOES NOT OCCUR			
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.	

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Material Safety Data Sheet (MSDS)

SECTION 1	PRODUCT INFORMATION
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PRODUCT NAME: Diamond Dowel® tapered plate dowel –1/4” & 3/8”
 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



Material Safety Data Sheet (MSDS)

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

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



Material Safety Data Sheet (MSDS)

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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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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