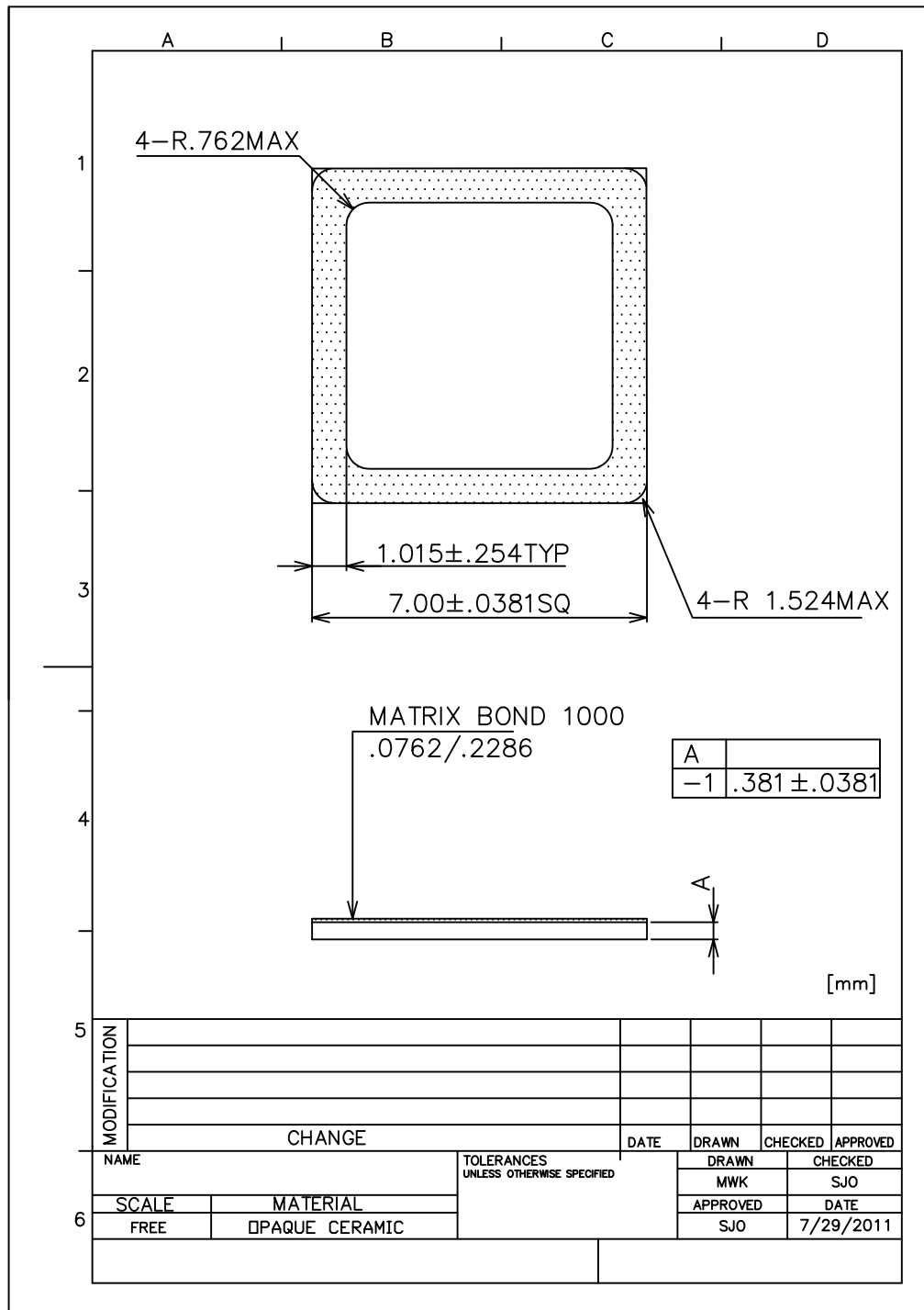


SSM P/N CR-70004



Ph: 408.435.5555 email: ssm\_sales@spectrum-semi.com

Product Name: ***MatriX Bond*<sup>TM</sup> 1000**

Product Description:

MatriX Bond 1000 is a solid latent cure adhesive for ceramics, metals, and may also be used with some plastics with proper surface treatments. It is formulated for oven cure profiles where assemblies see thirty to sixty minute cure times at the recommended cure temperature. Standard colors are available in white, black, and natural (amber).

Product Storage and Handling:

Matrix Bond 1000 comes pre-applied on customer specified or furnished parts. Upon receipt, the parts can be stored at room temperature for up to one year for most applications. Parts may also be stored refrigerated or frozen if desired. Care should be taken to allow any cold storage parts to reach room temperature and be condensation free before opening the package. Care should also be taken not to bump or drop cold parts. This may lead to the adhesive chipping or flaking off the part. Note that MatriX Materials does not warrant against chipped or flaked adhesive on parts that have been frozen or refrigerated.

Product Use:

With a wide variety of materials, shapes, sizes and device environmental requirements, adhesive applications frequently required optimized processing to ensure good seals and yields. The following sealing conditions are recommended as a generic starting point for your process development for your specific application. It is highly recommended that you run an optimization design of experiments for your assembly requirements. MatriX Materials technical service group is ready to help you with your optimization experiments if you require help.

Cure Temp: The recommended cure temperature for this adhesive is 150°-175°C (300°-350°F)

Cure Time: 60 minutes @ 150°C (300°F)  
30 minutes @ 175°C (350°F)

Pressure: Pressure will vary widely depending on your application. The recommended starting pressure for this adhesive is ½ Lbs per square inch of bond area.

Ventilation: Use this product with adequate ventilation during cure. Do not get in eyes or on skin. Avoid breathing any vapors. Wash thoroughly with soap and water after handling.  
Caution: Epoxy resins may cause eye and skin irritation or allergic dermatitis. (See MSDS Sheet)

### Typical Cured Properties:

Shore D Harness @ 25°C (77°F)	83	
Tg (by DSC)	110°C	(230°F)
Shear Modulus @ 25°C (77°F)	607 MPa	(88.1 ksi)

### Compressive Properties per ASTM D695

Compressive Strength @ 25°C (77°F)	72.4 MPa	(10,500 psi)
Compressive Modulus @ 25°C (77°F)	2,067 MPa	(300 ksi)

### Electrical Properties - tested per ASTM D149, D150:

Dielectric Constant	3.50 @ 1 KHz
Dissipation Factor	0.085 @ 1 KHz
Dielectric Strength	> 280 volts/mil

### Typical Use Properties:

Max Spike Temperature (Up to 3 minutes exposure)	290°C (554°F) Note: Some discoloring may occur.
Max long term use temperature	170°C (350°F)
Thermal Cycling (-65°C to 150°C) (Liquid to liquid with 1 minute dwell) Ceramic to Ceramic	> 20 cycles

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Disclaimer: The information supplied in this document is for guidance only and should not be construed as a warranty. All implied warranties are expressly disclaimed, including without limitation any warranty of merchantability and fitness for use. All data is subject to change.

Users should review the Materials Safety Data Sheet (MSDS) to determine possible health hazards, appropriate engineering controls and precautions to be observed in using the material.

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Revision Date: 05/22/2009

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **MatriX Bond 1000**  
Product Type: Adhesive for Ceramic, Metals, and Plastics  
Company Address: MatriX Materials  
1206 Broadway Suite A Telephone: (510) 517-3922  
Alameda, CA 94501 Emergency Phone: (510) 517-3922

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Components</u>	% wt	ACGIH TLV	OSHA PEL	OTHER
<b>Epoxy Resin Proprietary</b>	60-100	None	None	None
[1,1'-(4-methy-mphenylene) bis(3,3 dimethyl urea)] (CAS# 17526-94-2)	1-5	None	None	None
<u>Non Hazardous Components</u>	None	None	None	None

### 3. HAZARDS IDENTIFICATION

**Physical State:** Solid Film      **HEALTH:** 2\*  
**Color:** White to Amber      **FLAMMABILITY:** 1  
**Odor:** Slight      **PHYSICAL HAZARD:** 1  
**Personal Protection:** See Section 8

**Relevant Routes of Exposure:** Skin

**Potential Health Effects:**

**Inhalation:** May cause respiratory tract irritation.  
**Skin Contact:** May cause skin irritation. May cause allergic skin reaction.  
**Eye contact:** May cause irritation.  
**Ingestion:** Not expected under normal conditions of use.

**Existing conditions aggravated:  
by exposure** Eye, skin, and respiratory disorders.

### 4. FIRST AID MEASURES

**Inhalation:** Remove to fresh air. If discomfort persists seek medical attention.  
**Skin contact:** Wash with soap and water. If a person feels unwell or symptoms of skin irritation appear, consult a physician.  
**Eye contact:** In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
**Ingestion:** Drink water as a precaution. Get medical attention if symptoms develop and persist.  
**Notes to physician:** Treat symptomatically and supportively.

### 5. FIRE-FIGHTING MEASURES

<b>Flash Point:</b>	Greater than 93°C (200°F) estimated.
<b>Autoignition temperature:</b>	Not Determined
<b>Flammable/Explosive Limits-lower %</b>	Not Determined
<b>Extinguishing media:</b>	Water spray (fog), foam, dry chemical or carbon dioxide.
<b>Special Fire fighting procedures</b>	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. Cartridge respirators do not provide adequate protection for fire fighters or exotherm mitigation.
<b>Unusual fire or explosion hazards:</b>	May liberate large quantities of dense, foul-smelling smoke which may contain unidentified toxic gasses.
<b>Hazardous combustion products:</b>	Oxides of carbon and nitrogen, aldehydes, acids and undetermined organics.

### 6. ACCIDENTAL RELEASE MEASURES

<b>Environmental precautions:</b>	Prevent product from entering drains or open waters.
<b>Clean-up methods:</b>	Scrape up as much material as possible. Store in a closed container until ready for disposal.

### 7. HANDLING AND STORAGE

<b>Handling:</b>	Avoid contact with eyes, skin and clothing.
<b>Storage:</b>	Keep cool in accordance with information on label and in Technical data sheets.
<b>Incompatible products:</b>	Keep away from strong oxidizing agents, strong Lewis or mineral acids.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Engineering controls:</b>	Local exhaust ventilation is recommended when general ventilation is not sufficient to control airborne contamination below occupational exposure limits.
<b>Respiratory protection:</b>	When workplace hazards warrant the use of a respirator, appropriate respirators must be used, and a program that follows 29 CFR 1910.134 must be followed.
<b>Skin Protection:</b>	Use Chemical resistant, impermeable clothing including gloves and either an apron or body suit to prevent skin contact.
<b>Eye/face protection:</b>	Wear appropriate goggles, face shields or other PPE which will be effective under the circumstances if the possibility of contact exists. A program meeting 29 CFR 1910.133 requirements must be followed when PPE is necessary.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Solid Film
<b>Color:</b>	White to light amber
<b>Odor:</b>	Slight
<b>Vapor pressure:</b>	Nil
<b>pH:</b>	Not Available
<b>Boiling point/range:</b>	Not Available
<b>Melting point/range:</b>	90°C (194°F)
<b>Specific Gravity:</b>	1.065
<b>Vapor Density:</b>	Greater than 1
<b>Evaporation rate:</b>	Not determined
<b>Solubility in water:</b>	Negligible
<b>VOC content:</b>	< 10 g/l (estimate) per SCAQMD Rule 1124 [EPA Test Method 24/304-91]

### 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable.
<b>Hazardous polymerization:</b>	May occur.
<b>Hazardous decomposition Products:</b>	Oxides of carbon and nitrogen, aldehydes, acids, and undetermined organics.
<b>Incompatibility:</b>	Keep away from strong oxidizing agents, strong Lewis or mineral acids.
<b>Conditions to avoid:</b>	Avoid heating masses of adhesive greater than 0.5 Kg (1 pound) total in mass. Avoid heating unless curing surfaces to be bonded. Failure to observe these precautions may result in excessive heat build-up causing an exotherm. The exotherm has the potential for release of toxic gasses.

### 11. TOXICOLOGICAL INFORMATION

#### Carcinogen Status

Hazardous Compounds	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen
Epoxy Resin Proprietary.	No	No	No
[1,1'-(4 methy-mphenylene) bis(3,3 dimethyl urea)] (CAS# 17526-94-2)	No	No	No

#### Literature Referenced Target Organ & Other Health Effects

Hazardous Compounds	Health Effects/ Target Organs
Epoxy Resin Proprietary.	Allergen, Irritant
[1,1'-(4 methy-mphenylene) bis(3,3 dimethyl urea)] (CAS# 17526-94-2)	No Data

### 12. ECOLOGICAL INFORMATION

<b>Ecological Information:</b>	Not Available.
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### 13. DISPOSAL CONSIDERATIONS

<b>Recommended method of disposal:</b>	Dispose of in accordance with Federal, State and local regulations.
<b>EPA hazardous waste number:</b>	Not a RCRA hazardous waste.

### 14. TRANSPORTATION INFORMATION

**U.S. Postal System:** This material is allowed to be sent through the U.S. Postal System.

**U.S. Department of Transportation Ground (49 CFR):**

Proper Shipping Name:	Not restricted
Hazard class or division:	None
Identification number:	None
Packing group:	None

**International Air Transportation (ICAO/IATA):**

Proper Shipping Name:	Not restricted
Hazard class or division:	None
Identification number:	None
Packing group:	None

**Water Transportation (IMO/IMDG):**

Proper Shipping Name:	Not restricted
Hazard class or division:	None
Identification number:	None
Packing group:	None

### 15. REGULATORY INFORMATION

**United States Regulatory Information**

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substance Control Act Inventory.
TSCA 12 (b) Export Notification:	None.
CERCLA/SARA Section 302 EHS:	None.
CERCLA/SARA Section 311/312:	Immediate Health Hazard, Delayed Health Hazard
CERCLA/SARA 313:	[1,1'-(4-methy-mphenylene) bis(3,3 dimethyl urea)] CAS# 17526-94-2
California Proposition 65:	This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

**Canada Regulatory Information**

CEPA DSL/NDSL Status:	Not fully investigated.
WHMIS Hazard Class:	D.2.B

### 16. OTHER INFORMATION

**DISCLAIMER:** The data contained herein are furnished for information only and are believed to be reliable. However, MatriX Materials LLC does not assume responsibility for any results obtained by persons over whose methods MatriX Materials LLC has no control. It is the user's responsibility to determine the suitability of MatriX Materials products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any of MatriX Materials products. In light of the foregoing, MatriX Materials LLC specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of MatriX Materials LLC's products. MatriX Materials further disclaims any liability for consequential or incidental damages of any kind, including lost profits.