

## Bond 24/HRD 22 (4:1)



### MULTIPURPOSE EPOXY ADHESIVE

Bond 24/HRD 22 (4:1) is a variation on our standard Bond 24/HRD 22 system that is designed to provide the same processing and cured properties, but with a convenient 4:1 by volume mix ratio. This system is available in dual syringe cartridges and is also suitable for use with most meter-mix dispensing equipment. This two component epoxy adhesive and encapsulating system contains no solvents or volatiles, yet provides a very low viscosity and exceptional air release properties. It is recommended for adhesive bonding of transparent substrates and where invisible bond-lines are desired as it is quite transparent in thin sections. It is also recommended for the encapsulation of closely spaced components or tightly wound coils due to its excellent wetting and flow characteristics. It will bond most materials including wood, fiberglass, metal, and many rigid plastics. The cured polymer exhibits very good moisture, chemical and environmental resistance

The Bond 24/HRD 22 (4:1) system is available in custom colors upon request and is also available in other viscosities including thickened versions for increased run or slump resistance. Please contact us to discuss your application if you'd like to receive samples of a custom variant that might be suitable for your application.

#### **BENEFITS & SUGGESTED APPLICATIONS:**

- Solvent and VOC free
- Low viscosity for excellent impregnation of tightly spaced or wire wound devices
- Tough, semi-flexible polymer with excellent performance from -40°C to 125°C.
- Excellent for bonding dissimilar materials including metals, ceramics, and many plastics including epoxies, polystyrene, polysulfone, polycarbonate, rigid PVC & PVDC

<b>HANDLING PROPERTIES</b>	<b>VALUE</b>	<b>TEST METHOD</b>
<u>Bond 24 (4:1) - resin</u>		
Visual Appearance	Clear to light yellow liquid	
Density	1.135 g/cm <sup>3</sup>	ASTM E-201
Viscosity, Part A, @ 25°C	1200 cps	ASTM D-2393
Flash Point	>100°C	ASTM D-92
<u>HRD 22 (4:1) - hardener</u>		
Visual Appearance	Light yellow to amber liquid	
Density	0.99 g/cm <sup>3</sup>	ASTM E-201
Viscosity, Part B, @ 25°C	38 cP	ASTM D-2393
Flash Point	>100°C	ASTM D-92
<u>Mixed Properties</u>		

# Product Datasheet



Mixed Viscosity	460 cps
Mix Ratio:	4A:1B by volume or 100A:22B by weight
Shelf-life	at least 12 months at room temperature (~ 25°C)
Pot life (100 grams) at 25°C	35 minutes
Time to handling strength at 25°C:	4 hours minimum to achieve handling strength
Cure Schedules:	24 hours @ 25°C <b>or</b> 2 hours at 65°C <b>or</b> 30 minutes at 95°C*

\*Note: many other cure schedules are possible. Please contact us for assistance if you'd like to discuss an alternate cure schedule.

## PHYSICAL PROPERTIES (Tested at 25°C unless otherwise noted – cured 2 hours at 65°C)

		<u>TEST METHOD</u>
Appearance	Clear, light yellow to amber	Visual
Cured Density	1.10g/ml	
Hardness, Shore D At 25°C	78D	ASTM D-2240
Tensile Lap Shear (AL:AL)		ASTM D-1002
@ -40°C (-67°F)	2100 psi	
@ 25°C ( 77°F)	1800 psi	
@ 82°C (180°F)	550 psi	
Glass Transition Temperature	61°C	
Heat Deflection Temperature	110°C	
Ultimate Tensile Strength	6,600 psi	ASTM D-638
Compressive Strength	10,000 psi	ASTM D-695
Linear Cure Shrinkage	0.21%	ASTM D 2566
Weight loss-1000 hours aging at 175°C	1.46%	
Thermal Conductivity	0.18 W/mK	ASTM D-2214
Dielectric Strength, 1/8" thickness	420 Volts/mil	ASTM D-149
Dielectric Constant at 100 KHz	4.0	ATM D-150
Dissipation Factor at 100 KHZ	0.055	ASTM D-150

**NOTE:** Values are based on laboratory or average production results using 4A:1B part by volume ratio. Not for specification purposes.

## **PROCESSING AND APPLICATION INSTRUCTIONS:**

Bond 24/HRD 22 (4:1) can be applied using a static mixing nozzle from a dual syringe cartridge and may be spread using a stiff brush, roller, squeegee, knife, or spatula. It is also suitable for meter-mix dispensing.

If mixing by hand, weigh Part A and Part B in the recommended ratio as accurately as possible into a clean mixing container. Always use weighing equipment having accuracy in proportion to the amounts being weighted. Blend by using a spatula or stirring stick for 1-2 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture. Apply to clean dry surfaces. For best bonding, roughen the surface to be bonded using sandpaper, a wire brush, sand-blasting or similar means. Be sure to clean and degrease the surface after roughening.

# Product Datasheet



## **PACKAGING AVIALABLE:**

This product is available in 375ml dual syringes. Other dual syringe cartridges sizes are available by request as are bulk containers such as quarts, gallons, etc.

## **STORAGE GUIDELINES:**

Bond 24/HRD 22 (4:1) in a clean, cool and dry environment in its tightly closed original containers. Protect from extended exposure to temperatures below 15°C (59°F) to prevent crystallization. If crystallization occurs, heat the entire container 4 hours at 50°C to re-liquefy the material. Also protect from exposure to extended moisture or high humidity. Tightly re-seal containers after use. If the recommended storage conditions are observed the products will have a minimum shelf-life of 12 months from the date of shipment.

## **HANDLING PRECAUTIONS:**

Mandatory and recommended industrial hygiene procedures should be followed whenever these products are being handled and processed. For additional information please consult the corresponding material safety data sheets.

## **FIRST AID**

In case of contact:

**Skin** – Immediately wash skin thoroughly with mild soap and water. Remove contaminated clothing and wash before reuse. Destroy contaminated shoes and other articles made of leather.

**Eyes** – Immediately flush eyes with plenty of water for 15 minutes and get prompt medical attention.

**Inhalation** - Remove person to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.

**Ingestion** - Do not induce vomiting. Dilute with plenty of water and contact physician immediately. Never give anything by mouth to an unconscious person.

## **DISCLAIMER:**

**IMPORTANT:** The following supercedes Buyer's documents. **SELLER / MANUFACTURER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller / Manufacturer be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results presented are based on controlled or laboratory work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended

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