Product Datasheet

LIQUDWELD® 204A/B

High Heat & Chemical Resistant Epoxy Adhesive

LIQUIDWED® 204A/B is an adhesive, sealant, and small volume potting material designed for applications requiring continuous exposure to temperatures as high as 230ºC and short-term exposure up to 280 ºC. It is a 2 part system with a long pot-life and is also offered in pre-mixed & frozen(PM&F) syringes that are ready to use without mixing once thawed. When heat cured, it creates high strength bonds with exceptional environmental stability and chemical resistance.

This system can be used for both electronic and industrial applications. In electronic applications, LIQUIDWELD® 204A/B bonds metals, glass, ceramic, composites, and some rigid plastics. The standard version has excellent flow and penetration. Thickened and run or sag resistance versions are also available by request.

BENEFITS

- Heat resistant with excellent strength up to at least 230ºC(446ºF)
- Heat, chemical, environmental, and moisture resistant
- Bonds to metals, glass, ceramics, composites, and some plastics

HANDLING PROPERTIES	VALUE	TEST METHOD
LIQUIDWELD® 204A		
Visual Appearance	Black Liquid	Visual
Density	1.35 g/cm³	ASTM E-201
Viscosity, Part A, at 25ºC	25,000 cP	ASTM D-2393
LIQUIDWELD® 204B		
Visual Appearance	Powder	Visual
Density	1.60 g/cm³	ASTM E-201
Mixed Properties		
Mix Ratio	100A:64B by weight	Calculated
Mixed Viscosity	30, 000 cP	ASTM D-2393
Pot life (100 grams) at 25ºC	> 12 hours	ASTM D-2393
Shelf-life	1 year at room temperature (25ºC)	

Suggested cure times: 6 hours at 120ºC **or** 3 hours at 150ºC **or** 2 hours at 175ºC **or** 1 hour at 200ºC.

*Note: If the anticipated use temperature exceeds the curing temperature it may be helpful after the initial cure to post cure the parts for 2-4 hours at the highest expected exposure temperature. This will help to ensure maximum performance and may prevent shifting or warpage of the bond line when first exposed to the maximum temperature.

PHYSICAL PROPERTIES	VALUE	TEST METHOD
Color	Black	Visual
Hardness Shore D	90	
Density, g/ml	1.40	
Glass Transition Temp. (Tg per DSC)	>225ºC	ASTM D-4065
Dielectric Strength, kV/mmm	15.7	ASTM D-150
Volume Resistivity at 25ºC, ohms-cm	1.0×10^{15}	ASTM D-257
Outgassing		NASA 1124 &ASTM E595
Total Mass Loss (TML), %	0.52	
Collectible Volatile Condensable Material (CVCM)	0.08	
Lap Shear Strength:		ASTM D-1002

Cure time	Test Temperature	
3 hours at 150ºC	-20ºC (-4ºF)	2000 psi
	25ºC (77ºF)	1850 psi
	150ºC (302ºF)	1720 psi
	230ºC (446ºF)	1400 psi

After Tropical Aging at 40ºC and in 92% relative humidity:

Aging Period	
Initial results	1850 psi
30 days	1860 psi

NOTE: Typical Properties determined using LIQUIDWELD® 204A/B cured 3 hours at 150ºC cure unless otherwise stated. Values are based on laboratory or average production results – not for specification purposes.

SUGGESTED PROCESSING GUIDELINES

LIQUIDWELD® 204A/B can be applied by brush, roller, squeegee, knife, or spatula. It is also can be applied using dispensing equipment once mixed or if purchased as Pre-mixed & Frozen (syringes or cartridges).

For manual mixing, 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 2-3 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture. Always apply the adhesive to clean, dry surfaces.

For best bond strength, roughen surface to be bonded with wire brush, sand-blasting, etc. After roughening, clean, and dry surface and remove and loose material prior to bonding. Optimal bond strengths are typically achieved with an adhesive bondline thickness of 3 – 5 mils, but larger gaps and thicker bondlines are possible with this adhesive without major loss of mechanical strength.

STORAGE GUIDELINES

Store this material in a clean, cool, and dry environment in its tightly closed original container. Avoid extended exposure to high humidity. Tightly re-seal after use. If the recommended storage conditions are observed 2 component kits will have a minimum shelf-life of 12 months from the date of shipment.

Please note, Pre-mixed and Frozen Syringes are shipped on dry ice and should be stored at -40ºC (-40ºF) or colder until ready to use and will also have a 1 year shelf-life from 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.

PERSONAL HYGIENE

LIQUIDWELD® 204A

WARNING! Can cause skin irritation, eye irritation, and allergic skin reaction. May be harmful if absorbed through skin or if swallowed.

LIQUIDWELD® 204B

DANGER! Corrosive - causes eye burns. Causes irritation if inhaled and can cause skin irritation. Can cause allergic respiratory reaction and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed.

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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