

WC-85DF A/B
WATER CLEAR RIGID 85 SHORE D
URETHANE CASTING SYSTEM



WC-85DF A/B is a rigid, 85 shore D, Mercury and Phthalate free, Water Clear aliphatic polyurethane designed to make clear or tinted castings of all kinds. Its low viscosity with good heat resistance is perfect for a variety of prototype and short run production parts. Its ability to accept pigments ranging from light to dark colors, and color stability when exposed to moderate UV light, make it a great system for a variety of real-world applications. This system responds very well to heated tools for quicker demolds and faster mold turnover.

- Exceptional clarity
- Low Viscosity
- High Heat Resistance
- RoHS/REACH Compliant
- Color Stability
- Mercury and Phthalate Free

PHYSICAL PROPERTIES	TEST METHOD	RESULTS
Hardness, Shore D	ASTM D2240-04e1	85 ± 2
Density (g/cc)	ASTM D792-00	1.13
Cubic Inches per Pound	N/A	25.9
Color/Appearance	Visual	Colorless/Clear
Tensile Strength (psi)	ASTM D638-03	9,400
Tensile Modulus (psi)	ASTM D638-03	3.3 x 10 ⁵
Elongation (%)	ASTM D638-03	22
Flexural Strength (psi)	ASTM D790-03	14,000
Flexural Modulus (psi)	ASTM D790-03	3.5 x 10 ⁵
Shrinkage (in/in) linear	12"x1/2"x1/2"	0.004
Izod Impact, notched (ft-lb/in)	ASTM D256-05	0.55
Heat Deflection Temperature @ 66 psi	ASTM D648-04	175°F (79.4°C)
Heat Deflection Temperature @ 264 psi	ASTM D648-04	165°F (74°C)
Dielectric Constant, 1 MHz	ASTM D150-87	2.944
Dissipation Factor, 1 MHz	ASTM D150-87	0.0112

*Note: Reported physical properties are based on test specimens cured 1-2 hours at room temperature then 16 hours at 160°F (71.1°C).

HANDLING PROPERTIES	Part A	Part B
Mix Ratio by weight	100	65
Mix Ratio by volume	100	68
Specific Gravity @ 77°F (25°C)	1.09	1.04
Color	Colorless	Colorless
Viscosity (cps) @ 77°F (25°C) Brookfield	110	2,200
Mixed Viscosity (cps) @ 77°F (25°C) Brookfield	325	
Work Time, 100g mass @ 77°F (25°C)	4.5 – 5 minutes	
Gel Time	5 – 5.5 minutes	
Demold Time @ 77°F (25°C)	3 - 4 hours	
Demold Time @ 120°F (49°C)	30 - 45 minutes	

Properties above are typical and not for specifications.

NOTE:

Platinum Silicone Mold materials are recommended for best results. Newly made Tin (Condensation Cure) Silicone molds may cause inhibition with this Water Clear material. A bake-out process is recommended to remove reaction byproducts from Tin cure silicones. Contact BJB’s technical department for guidance on this process.

CURE SCHEDULE/HEAT CURING:

WC-85DF A/B is designed to be as user friendly as possible but can be more moisture sensitive compared to other BJB systems. Avoid paper products and wood stir sticks. If casting at room temperature, vacuum degassing and pressure casting is highly recommended to eliminate bubbles. When not casting under pressure, pre-heating the molds to above 100°F (38°C) can help eliminate potential moisture bubbles. WC-85DF responds very well to heat curing. Demold times can be dramatically reduced by adding heat. Pre-heating the mold and curing at 120°F (49°C) allows thin walled parts to be demolded as quick as 30-45 minutes while retaining the benefit of a 4.5-5 minute working time for proper mixing and vacuum degassing.

STORAGE AND HANDLING:

Store at ambient temperatures, 65-80°F (18-27°C). Unopened containers will have a shelf life of 6 months from date of shipment when properly stored at recommended temperatures. Purge opened containers with dry nitrogen before re-sealing.

PACKAGING	Part A	Part B	Cubic Inches per Kit
Gallon Kits	8 lbs.	5.2 lbs.	342
5-Gallon Kits	40 lbs.	26 lbs.	1,709
55-Gallon Drum Kits	440 lbs.	286 lbs.	18,803

SAFETY PRECAUTIONS:

Avoid contact with skin. Use protective gloves and protective clothing. Repeated or prolonged contact on the skin may cause an allergic reaction. Eye protection is extremely important. Always use approved safety glasses or goggles when handling this product. Use in well-ventilated areas. Avoid breathing vapors. If exposures cannot be kept at a minimum, a respirator may be necessary in addition to ventilation. The use of a positive pressure air supplied respirator is mandatory when airborne isocyanate concentrations are “not known” or exceeds OSHA’S TWA of 0.005 ppm. Air purifying, organic cartridge type respirators are not generally recommended to use when handling this material without implementation of an end of life service program. Observe OSHA regulations for respirator use (29 CFR 1910.134). Employers are responsible for selecting the correct respirator for each situation.

IF CONTACT OCCURS:

Skin: Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. It is *not* recommended to remove resin from skin with solvents. Solvents only increase contact and dry skin. Seek qualified medical attention if allergic reactions occur.

Eyes: Immediately flush with water for at least 15 minutes. Call a physician.

Ingestion: If swallowed, call a physician immediately. Remove stomach contents by gastric suction or induce vomiting only as directed by medical personnel. Never give anything by mouth to an unconscious person.

Refer to the Material Safety Data Sheet before using this product.



Handling Guide

NON-WARRANTY "Except for a warranty that materials substantially comply with the data presented in Manufacturer's latest bulletin describing the product (the basis for this substantial compliance is to be determined by the standard quality control tests generally performed by Manufacturer), all materials are sold "AS IS" and without any warranty express or implied as to merchantability, fitness for a particular purpose, patent, trademark or copyright infringement, or as to any other matter. In no event shall Manufacturer's liability for damages exceed Manufacturer's sale price of the particular quantity with respect to which damages are claimed."