



Biocure 815/315 Phenolic Urethane Resin System

PERFORMANCE FEATURES

HA International's newest Phenolic Urethane Cold Box system, Biocure 815/315, has been designed to offer superior bulk cure speeds to meet the most demanding production needs. Along with typical cure speeds under ten seconds, the system also offers excellent release characteristics, compatibility with all refractory coatings, and reduced catalyst consumption. As with all Biocure Part 1 binders, Biocure 815 has been formulated to contain no reportable formaldehyde. Biocure 815 can be used with several different Part 2 Isocyanate components, the choice of which is dependent on the particular performance features desired. Biocure 815 is suitable for ferrous applications. Features available when using Biocure 815 with the appropriate Part 2 component include the following:

- Very Low VOC by the OCMA method
- 30% lower HAP emissions compared to standard PUCB systems (CERP data)
- Less odor than conventional Phenolic Urethane Cold Box systems at mixing, core-making, and storage.
- Solvents are renewable plant-based methyl esters
- Significantly Reduced Amine usage
- Enhanced dip and Dry Strengths
- Superior Release
- Low Resin Wipe-off
- Excellent Resistance to water-based Coatings
- Excellent Humidity Resistance
- High Tensile and Hot Strengths
- High Productivity

PRODUCT DESCRIPTION

Biocure 815 is a phenolic resin that is used in conjunction with an MDI-type isocyanate resin, such as Biocure 315. Typically, both the Part 1 and Part 2 resin components are mixed with a suitable new sand, normally a silica sand or lake sand, or a reclaimed sand, in ratios ranging from 50/50 to 60/40, and at a total resin content in the range of 0.8 % to 2.0 % based on the weight of the sand. The resulting sand mix is then blown into a core box and is subsequently cross linked by passage of a vaporized tertiary amine catalyst such as triethylamine, dimethylethylamine, or dimethylisopropylamine, to produce a urethane bond.



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PHYSICAL PROPERTIES

	Biocure 815 Part 1	Biocure 315 Part 2
Refractive Index	1.5240	1.5815
Viscosity (cps)	140	55
Flash Point (°F TCC)	>200	>300
Density (pounds per gallon)	9.30	9.68

TENSILE STRENGTH DEVELOPMENT

Tensile strength development occurs almost instantaneously before the core is ejected from the core box. Initial tensile strength at ejection typically ranges from 60 to 80% of the ultimate tensile strength at 24 hours. The value is adversely affected by clay and other alkaline contaminants, and by moisture in the sand or high dew points in the compressed purge air. Tensile strength values will vary as a function of the sand angularity and the AFS grain fineness number of the sand that is selected.

STORAGE GUIDELINES

Recommended storage temperature is between 60 and 90 °F. At lower temperatures, viscosity will increase, making pumping and mixing more difficult. At high temperatures, solvent loss can occur. Drum storage should be in a dry area, out of direct sunlight. Partially used drums should be tightly closed to prevent contamination, primarily from water, which can adversely affect performance.

HA International LLC “The Best Total Solution” SAFE HANDLING Chemically resistant gloves and eye protection should be used when handling or using chemical binders. Material Safety Data Sheets are available for all products. Drum labels also contain handling information. This material will react with the Part 2 component, without catalyst, in an exothermic reaction, to give a solid polymer. Do not mix Part 1 and Part 2 except on sand during use.

TECHNICAL SERVICE

Proper selection of a binder system that meets your specific needs is key to achieving maximum performance benefits. HA International, LLC provides in-depth technical assistance and a wide range of urethane cold box binder systems. Both our in-house and field experts are available to assist you in your most challenging foundry applications. Please contact your HA International, LLC representative so that we may assist you in putting together a binder system and foundry team that will help you achieve your goals.