Biocure 705/305 Phenolic Urethane Resin System

PERFORMANCE FEATURES

Biocure 705 Phenolic Urethane Part 1 Resin has been designed to offer superior release characteristics, as well as excellent performance when used with aqueous core wash. As with all Biocure Part 1 binders, Biocure 705 has been formulated to contain no reportable formaldehyde. Biocure 705 can be used with several different Part 2 Isocyanate components, the choice of which is dependent on the particular performance features desired. Biocure 705 is suitable for ferrous applications. Features available when using Biocure 705 with the appropriate Part 2 component include the following:

- Very Low VOC 0.29lb/tn OCMA
- 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
- Reduced Amine usage
- Enhanced dip and Dry Strengths
- Superior Release
- Excellent Resistance to Aqueous Coatings
- Excellent Humidity Resistance
- High Tensile and Hot Strengths
- High Productivity

PRODUCT DESCRIPTION

Biocure 705 is a phenolic resin that is used in conjunction with an MDI-type isocyanate resin, such as Biocure 305. 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.

PHYSICAL PROPERTIES

	Biocure 705 Pt 1	Biocure 305 PT 2
Refractive Index	1.5160	1.5910
Viscosity (cps)	125	70
Flash Point (oF TCC)	>200	>300
Density (pounds per gallon)	9.18	9.76

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.