



LOVOX[®]-201 RESIN

Lovox[®] - 201 is a specifically formulated isocyanate resin designed to react with Lovox[®] Part 1 resins and amine catalysts. This distinct chemistry provides for similar binder performance characteristics as phenolic urethane systems without the negative attributes of phenol, formaldehyde, and aromatic solvents. The result is a core and mold binder system that offers comparable latent reactivity characteristics to that of conventional phenolic urethanes but with significantly reduced odor and hazardous emissions.

While the low VOC, HAP, and odor properties are substantial benefits, the most attractive features of the Lovox[®] binder system are its casting performance. This approach to urethane sand binders yields a system which provides enhanced thermal stability and greatly improved shake-out properties. The improved thermal stability provides for excellent veining resistance and may allow for reduction in or elimination of dry sand additives. The Lovox[®] resin system also exhibits excellent shake-out properties, and has been seen to reduce certain gas defects that are attributable to chemical binder systems.

Application

Lovox[®] - 201 can be used in conjunction with Lovox[®] Part 1 resins in any no-bake core or mold making operation. This two part resin system reacts with a third part liquid amine catalyst. Recommended binder levels are 1.0% to 1.5% based on sand weight. The Part 2 resin is an isocyanate formulated to optimize the performance characteristics of the Part 1. The ratio of Part 1 to Part 2 resins is typically 40:60. With the elimination of the phenol, formaldehyde, and aromatic hydrocarbons, resin reactivity is slightly lower than that of a standard phenolic urethane system, but the latent reaction properties typically yield a work time/strip time ratio of around 0.60 – 0.65:1. Catalyst levels will run from 5 to 15% based on Part 1 weight.

The total binder required depends on the type of sand, grain fineness, LOI value, and required core and mold strength. In general, sand additives are not required with Lovox[®] resins, so no consideration needs to be made for these. Catalyst type and addition level can be adjusted depending on sand conditions and productivity needs. Lovox[®] can be used in reclaimed sand and is particularly well suited for thermal reclamation systems. It should be noted that Lovox[®] is a base cured resin, and its performance will be impacted if used in acid cured mechanically reclaimed sands.

Sand mixing may be accomplished in either continuous or batch type mixers. It is generally recommended that no-bake resins be mixed in continuous mixers due to the potentially rapid reaction rate of these systems. The mixed sand is flowable, but some means of mechanical compaction is recommended to insure that maximum sand density is attained. Sand temperature control is recommended since temperature has a direct effect on resin curing rates. It is also recommended that in cold ambient conditions pattern equipment be heated. Sand moisture levels should be held below 0.20% to insure maximum curing performance.

Physical Properties

Physical State	Liquid
Color	Clear amber
Specific Gravity	1.23
Density	10.3 lbs/gal.
Viscosity	200 – 250cps
Usable Temp. Range	45 – 90° F

Storage and Handling

Lovox® 201 resin should be stored in a dry environment in a temperature range of 45 – 90° F. This resin contains a polymeric isocyanate which will react with water to form polyurea compounds. Significant exposure to moisture may render the material unusable. It is recommended that opened containers of Lovox® 201 be equipped with desiccant cartridges to protect it from ambient humidity.

