

Techniset NF Resin System

Product Features

Techniset® NF is a chemical binder system consisting of a modified polyol and a polyisocyanate coreactant. A third component, a catalyst, is available to adjust cure times if it is necessary. This binder system was specifically developed for use in aluminum castings.

Features available when using one of the Techniset® NF resin systems include the following:

- High Tensile Strength
- Excellent Shake Out
- Reaction Speed Allows Use in High Production
- Highly Flowable Sand Mix
- Excellent Hot Strength.

Product Description

The resin reacts with the coreactant to form a urethane bond. The speed of the reaction is controlled mainly by the resin system selected. However, the cure rate may be adjusted by using a catalyst. When the components are combined with silica sand, a rigid mold or core can be produced in less than three minutes. The tensile strength of the bond develops rapidly, and within two hours, up to 50% of the ultimate tensile strength can be achieved. The curing is uniform throughout the sand mass without warping or sagging.

The fast reaction provides strength necessary for stripping and handling in high production core and mold operations. The fast completion of the reaction allows metal to be poured on the system soon after stripping.

Typically, the Techniset® NF resins are used at a total binder level of 1.0% – 1.5% based on the weight of the sand, at a 1:1 ratio of Part 1 and Part 2. The total amount of binder required depends on the sand type, additives used, and strength and breakdown requirements. Varying the ratio of Part 1 and Part 2 does not change the cure speed. An activator can be added, typically at the level of 1 – 10% (based on the Part 1) to achieve the desired cure speed.

The sand should be mixed with the chemical components in a high speed continuous mixer due to the fast reaction rate of this system. The mixture is flowable, but some form of compaction is recommended. The fast reaction rate requires well maintained pattern equipment. The core or mold becomes very rigid on stripping and will not yield easily. Strip time is less sensitive to sand types, temperature, moisture, additives and impurities than acid catalyzed systems. The resin, activator if

used, and sand temperatures control the reaction rate. While a sand heater is not a prerequisite for operation, it is strongly recommended in order to maintain a consistent strip time. The chemical reaction reaches about 75% completion in approximately four hours. Depending on metal type, temperature, and foundry practice, the system can be poured on in 2-4 hours. In general, 4-6 hours should elapse prior to pouring.

Typical Physical Properties

	PART 1	PART 2	CATALYST
Products	20-015C Techniset NF 20-035C Techniset NF 20-000C Techniset NF	6433	17-920
Strip time (mins.)	15/35/adjustable		
Color	Straw to Amber	Dark Brown	Straw to Amber
Viscosity (cps)	100-200	30-80	20-60
Density (pounds per gallon)	8.4	9.4	7.5
Flash Point (°F COC)	145	145	145
Operating Temperature (°F)	60-100	60-100	60-100
Storage Temperature (°F)	50-100	50-100	50-100

Performance Characteristics

Replace this text with performance characteristics

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.

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.

Refer to the Material Safety Data Sheet for additional information.

Technical Service

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For Emergency Medical Assistance Please Call:
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