



630 Oakmont Lane ♦ Westmont, IL 60559 ♦ 1-800-323-6863 ♦ ha-international.com

BioSet Binder System T8000 /T8500

Product Features

The BioSet urethane no-bake binder system has been designed to reduce odor, pollutants and smoke emissions. The improved product exceeds the performance characteristics of original Techniset line of urethane no-bake products that have proven to be popular for foundries everywhere.

BioSet T8000 Phenolic Urethane Part 1 Resin is designed to improve the foundry environment. It utilizes a new, non-hazardous, patented, silica - based solvent that substantially reduces odor, smoke and pollutant emissions. This resin has been formulated to contain no reportable formaldehyde. It can be used with a number of Part 2 Isocyanate components, but is most effective with BioSet T8500 in terms of reducing odor at mixing as well as odor, pollutants and smoke during pouring, cooling and shakeout.

BioSet T8500 is a polymeric MDI-type isocyanate Part 2 resin that can be used in conjunction with BioSet T8000 to maximize the environment benefits. The resin utilizes the same silica based new solvent that is used in BioSet T8000. Features available when using BioSet T8500 Part 2 component in conjunction with a phenolic resin such as T8000 includes the following:

- Low odor at mixing, molding/core-making and storage
- Low odor and pollutant emissions at pouring, cooling and shake out.

This product meets HAI's EcoMission Standards, **meeting or exceeding three of the following five** criteria:

Water based or renewable component
Utilizes recycled components



Low VOC
Low HAP
Low Odor

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Technical Data Sheet

- Reduced smoke at pouring, cooling and shake out.
- Superior Tensile Strength
- Low Free Formaldehyde
- High Hot Strength for Ferrous Applications

Product Description

BioSet T8000 Part 1 resin is a phenolic resin which is used in conjunction with an MDI-type isocyanate resin such as BioSet T8500, the Part 2 component. Typically, both the Part 1 and Part 2 resin components are mixed with a suitable new sand, normally a silica 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 sand mix also includes an amine catalyst, which is pumped into the Part 1 resin stream just prior to discharge into the sand, or premixed with the Part 1 resin. This catalyst is typically used at a level of from 2 - 10 % (based on the Part 1) to achieve the desired cure speed. BioSet T8000/T8500 works well with a large range of liquid amine catalysts to form a urethane bond. The selection of an appropriate catalyst will allow a wide range of strip times to be achieved.

Typical Physical Properties

	BioSet T8000
Viscosity, cps	190
Free Formaldehyde, %	<0.1
Flash Point, °F, TCC	105
Density, pounds per gallon	9.38
Refractive Index	1.516

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	BioSet T8500
Viscosity, cps	20
Flash Point, °F, TCC	105
Density, pounds per gallon	9.53
Refractive Index	1.554

Performance Characteristics

BioSet Part 1 and BioSet Part 2 resins are high-performance binder systems. Patented chemistry results in environmental improvements and provides the highest hot strength available for these type of binder systems

Tensile Strength Development

Both strip time achieved and tensile strength development of the BioSet T8000 Part 1 Resin is dependent upon the catalyst chosen, as well as a number of other parameters such as sand quality, sand temperature, and catalyst level used. The graph given below indicates some typical tensile strengths comparison against a high performance Techniset F6000/6435 system.

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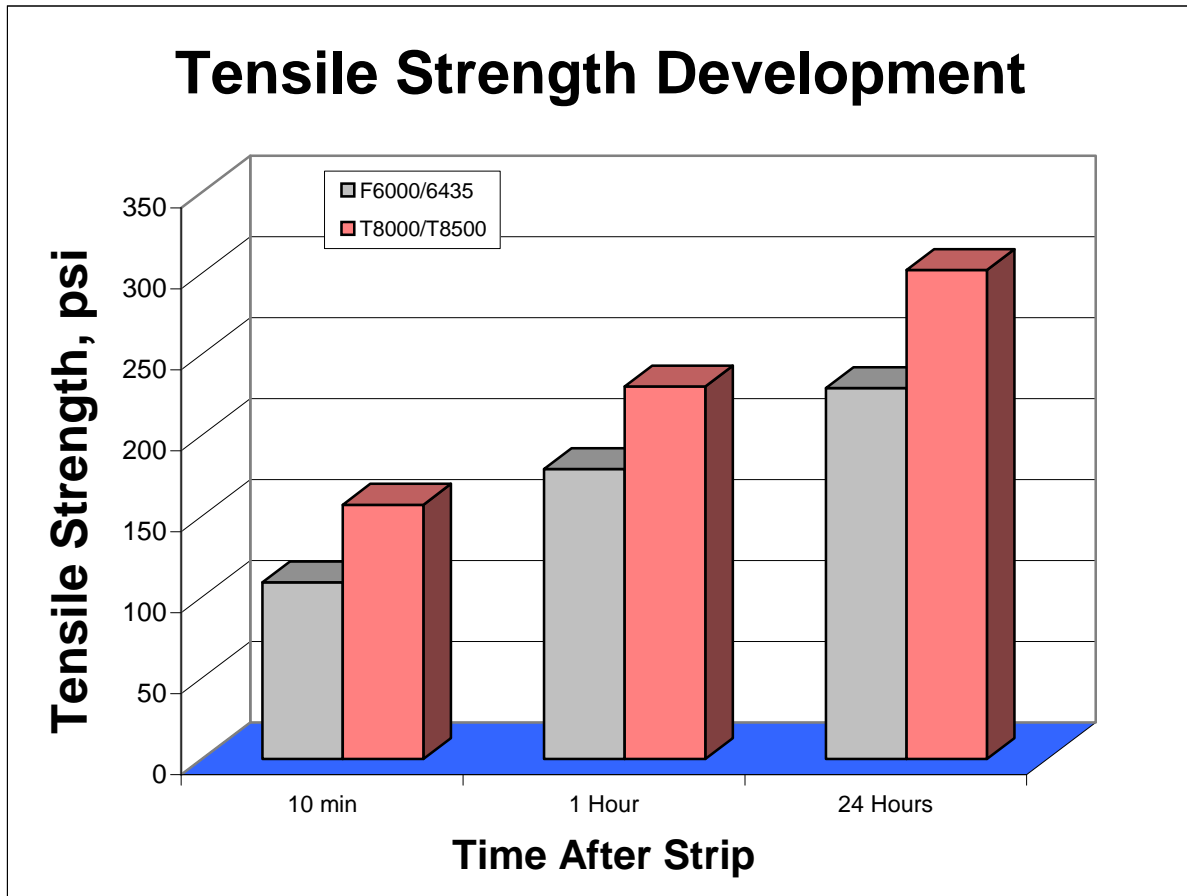


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Sand tests conducted under the following conditions:

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Base Sand **Wedron 530**
% Binder **1.00% Based on Sand Weight**
Part 1/Part 2 Ratio **55/45**
% Catalyst **5% Based on Pt 1 for F6000/6435 & 6% for T8000/T8500**
Strip Time **F6000/6435/6710; 3'15"**
 T8000/T8500/6710; 4'12"

Environmental Attributes

	BioSet T8000/T8500
Odor	Mild, much less than conventional systems
Smoke	Marked reduction than conventional on pouring, cooling and shake out
Hazardous Air Pollutants (HAPs)	40% or greater reduction in HAPs compared to conventional – no naphthalene or alkylated benzenes that are present in conventional
Volatile Organic Compounds (VOCs)	Similar to conventional
OCMA VOCs	1.07 lbs/ton of sand vs 1.09 lbs/ton of sand for conventional

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

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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

Technical Service

Proper selection of a binder system that meets your specific needs is key to achieving maximum performance benefits. HA International is “The Best Total Solution” for your foundry by providing innovative products, in-depth technical assistance, and a diverse product line specially formulated for any foundry application. Both our in-house and field experts are available to assist you with 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. Contact your sales representative for additional technical information.



**For Emergency Medical Assistance Please Call:
Health & Safety Information Services: 1-866-303-6949**

For additional health and safety or regulatory information, call 630-575-5722 or 630-575-5705.

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