



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 improve the foundry environment. It reduces smoke and odor as well as volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions during pouring cooling, and shakeout (PC&S). 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 is the latest development in Phenolic Urethane no-bake Part 1 resins that helps 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, smoke and emissions during PC&S.

BioSet T8500 is a polymeric MDI-type isocyanate Part 2 resin that can be used in conjunction with BioSet T8000 to maximize environmental 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:

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

- Different, Less persistent odor at mixing, molding/core-making and storage
- Low odor, VOC and HAP emissions at pouring, cooling and shakeout.
- Reduced smoke at pouring, cooling and shakeout.
- 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 to provide maximum improvement to the foundry environment. 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.

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**Typical Physical Properties**

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

	<b>BioSet T8500</b>
<b>Viscosity, cps</b>	<b>20</b>
<b>Flash Point, °F, TCC</b>	<b>105</b>
<b>Density, pounds per gallon</b>	<b>9.58</b>
<b>Refractive Index</b>	<b>1.554</b>

**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

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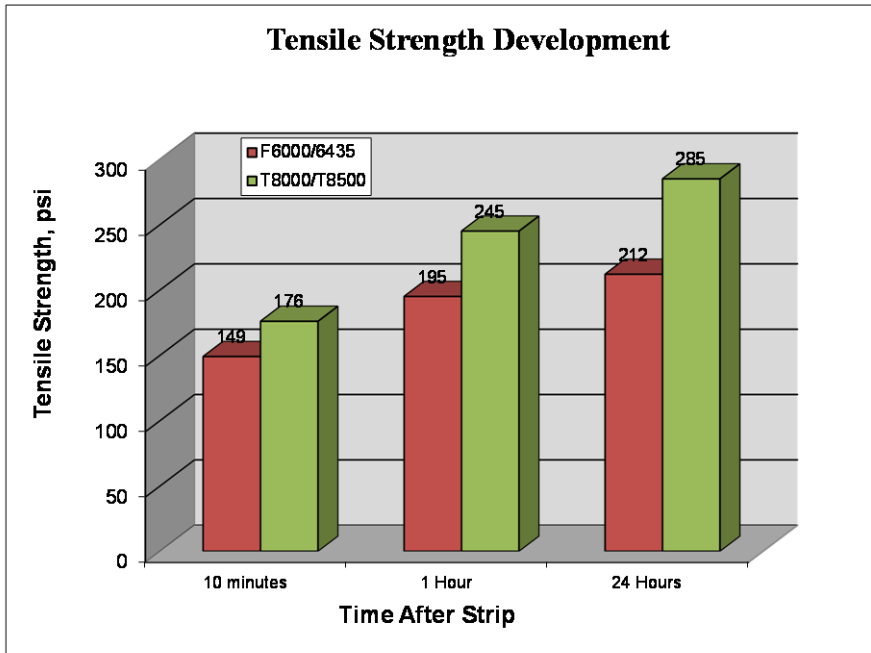
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Technical Data Sheet

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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Sand tests conducted under the following conditions:

**Base Sand**                      **Wedron 530**  
**% Binder**                      **1.00% Based on Sand Weight**  
**Part 1/Part 2 Ratio**    **55/45**  
**% Catalyst**                    **5% Based on Pt 1**  
**Strip Time**                    **F6000/6435/6710; 3 .5 min**  
    **T8000/T8500/6710; 4.0 min**

**Environmental Attributes**

	<b>BioSet T8000/T8500</b>
<b>Odor</b>	<ul style="list-style-type: none"> <li>• <b>Significantly Lower odor than conventional at PC&amp;S</b></li> <li>• <b>Different, less persistent odor than conventional at molding/core-making and storage</b></li> </ul>
<b>Smoke</b>	<b>Marked reduction in Smoke than conventional at PC&amp;S</b>
<b>Particulate Emissions</b>	<b>~ 40% less than conventional at PC&amp;S</b>
<b>VOC Emissions</b>	<b>~ 28% Lower than conventional at PC&amp;S.</b>
<b>HAP Emissions</b>	<b>100% reduction in naphthalene and xylene</b>

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### 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. The procedures and equipment currently in place to handle Part 2 resins to prevent water contamination will be required for both T8500 Part 2 as well as T8000 Part 1 resins.

### 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. Part 1 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.

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**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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