Zacsil® E200
Ultra-pure potassium silicate

Product Overview
Zacsil® E200 potassium silicate is an ultra-pure aqueous solution developed specifically for the electronics industry. It is the highest purity potassium silicate available. This solution contains extremely low levels of metallic impurities. Zacsil® E200 is a crystal clear solution with the highest possible level of light transmission and the lowest possible turbidity. The Chemical Abstracts Index name for potassium silicate is silicic acid, potassium salt, and the CAS Registry Number is 1312-76-1.

Uses and Applications
Zacsil® E200 is the ideal product for electronic applications where very low levels of metals such as Nickel, Copper, Iron and Sodium are critical. It is used as a binder for phosphor screens, flat panel displays and in projection systems. Zacsil® E200 is also used in wafer polishing, where again, high purity is essential.

Although developed and targeted for the high purity needs of the electronics industry, Zacsil® E200 should also be the potassium silicate of choice for any process where ultra high purity is desired. Some of the uses include binding in fuel cells, wood treatments, high temperature coatings and photographic applications.

Zaclon Zacsil® E200 Specifications & Typical Properties*

<table>
<thead>
<tr>
<th>Properties</th>
<th>Limits</th>
<th>Typical</th>
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<tbody>
<tr>
<td>Baume @ 60°F</td>
<td>30.0 - 30.8</td>
<td>30.55</td>
</tr>
<tr>
<td>Ratio SiO₂ / K₂O</td>
<td>2.05 - 2.15</td>
<td>2.1</td>
</tr>
<tr>
<td>Silicon Dioxide</td>
<td>18.78 - 20.54</td>
<td>19.66</td>
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<tr>
<td>Potassium Oxide</td>
<td>9.16 - 9.56</td>
<td>9.36</td>
</tr>
<tr>
<td>Turbidity, NTU</td>
<td>3.0 max</td>
<td>1.0</td>
</tr>
<tr>
<td>Iron as Fe (ppm)</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>Copper (ppm)</td>
<td>0.06</td>
<td>0.05</td>
</tr>
<tr>
<td>Nickel (ppm)</td>
<td>1.0</td>
<td>0.5</td>
</tr>
</tbody>
</table>

*The table contains properties based on historical production performance. Zaclon does not make any express or implied warranty that all future production will demonstrate or continue to possess these typical properties.

Warning
Zacsil® potassium silicate can cause skin and eye burns or irritation. See “Personal Safety and First Aid” on page 2.
Storage and Handling
Carbon-steel tanks, pipes and equipment are generally suitable for storage and handling of potassium silicate solutions. Cast-iron or steel rotary gear or centrifugal pumps are recommended for potassium silicate solution transfer. Equipment for Zacsil® E200 grade potassium silicate should be fabricated from stainless steel, lined steel or plastics suitable for highly alkaline service.

The freezing point of liquid silicate solutions is very close to that of water. Storage tanks and transfer equipment must be designed or located to prevent freezing. Drums should be stored in a heated area. If the solution is exposed to temperatures below 32\(^{\circ}\) F (0\(^{\circ}\) C), move the container to warm storage until thawed and mix thoroughly before using.

Zacsil® E200 grade potassium silicate is filtered, clear and water white as shipped. Extended exposure to hot or cold temperature extremes can develop undesirable turbidity and must be avoided.

All spills of potassium silicate solutions should be washed away immediately to a chemical sewer with large volumes of water to avoid slippery footing. Prompt action is recommended because spills can build up layers and become more difficult to remove later.

Personal Safety and First Aid

Health Hazards
Potassium silicate solutions are alkaline materials and may irritate skin and cause eye injury.

Zacsil® solutions cause moderate to severe eye irritation.

Laboratory tests indicate the alkali silicates are not primary irritants. Effects on the skin would be typical of a mild alkali, so that the more alkaline products may cause irritation.

Safety Precautions
Avoid contact of aqueous solutions of potassium silicate with eyes, skin, and clothing. Whenever potassium silicate is handled, wear chemical safety goggles and rubber gloves.

First Aid
In the case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes, and call a physician. In case of skin contact, flush skin with water. Remove contaminated clothing and wash before reuse.

Shipping Containers
Zaclon ships Zacsil® E200 potassium silicate solution in tank cars, tank trucks, totes and drums. Zacsil® E200 solution are shipped in 55 gallon nonreturnable plastic drums containing net weights of 550 lb (249 kg).

Potassium silicate is not regulated as a hazardous material by the Department of Transportation*.

Due to changing governmental regulations, such as those of the Department of Transportation, Department of Labor, U.S. Environmental Protection Agency and the Food and Drug Administration, references herein to governmental regulations may be superseded. You should consult and follow the current governmental regulations, such as Hazardous Classification, Labeling, Food Use Clearances, Worker Exposure Limitations and Waste Disposal Procedures for the up-to-date requirements for the products described in this literature.

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Sales & Services
For placing orders or requesting additional product information, please use our convenient toll-free telephone number at (800) 356-7327 or visit our website at www.zaclon.com

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