Standard Grade (E series)

Features

- High Purity
- Uniformity / Sharpness of particle size
- High $\alpha$-phase content

Specifications

<table>
<thead>
<tr>
<th></th>
<th>SSA (m$^2$/g)</th>
<th>O (wt%)</th>
<th>C* (wt%)</th>
<th>Cl (ppm)</th>
<th>Fe* (ppm)</th>
<th>Ca* (ppm)</th>
<th>Al* (ppm)</th>
<th>$\alpha$-phase content (wt%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SN−E10</td>
<td>9~13</td>
<td>&lt;2.0</td>
<td>0.1</td>
<td>&lt;100</td>
<td>10</td>
<td>&lt;1</td>
<td>1</td>
<td>&gt;95</td>
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<tr>
<td>SN−E05</td>
<td>4~6</td>
<td>&lt;2.0</td>
<td>0.1</td>
<td>&lt;100</td>
<td>10</td>
<td>&lt;1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SN−E03</td>
<td>2~4</td>
<td>&lt;2.0</td>
<td>0.1</td>
<td>&lt;100</td>
<td>11</td>
<td>&lt;1</td>
<td>1</td>
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<tr>
<td>SN−ESP</td>
<td>6~8</td>
<td>&lt;2.0</td>
<td>0.1</td>
<td>&lt;100</td>
<td>16</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

*typical value

Particle Size Distribution

SEM Images

Mechanical Property (sintered)

Sintered Density

Bending Strength

Vickers Hardness

SEM Image of a section of sintered SN-E10
High purity Grade

Features
- High Purity (Fe ≤ 10ppm)
- 2 types of Particle size (Sharp / Broad)

Specifications

<table>
<thead>
<tr>
<th></th>
<th>SSA (m²/g)</th>
<th>O* (wt%)</th>
<th>C* (wt%)</th>
<th>Cl (ppm)</th>
<th>Fe* (ppm)</th>
<th>Ca* (ppm)</th>
<th>Al* (ppm)</th>
<th>α-phase content (wt%)</th>
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</thead>
<tbody>
<tr>
<td>SN-NLF</td>
<td>7~13</td>
<td>1.3</td>
<td>0.1</td>
<td>&lt;100</td>
<td>7</td>
<td>&lt;1</td>
<td>2</td>
<td>&gt;95</td>
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<tr>
<td>SN-XLF</td>
<td>4~8</td>
<td>0.6</td>
<td></td>
<td></td>
<td>7</td>
<td>&lt;1</td>
<td>2</td>
<td>&gt;70</td>
</tr>
</tbody>
</table>

*typical value

Particle Size Distribution

Manufacturing Process

Synthesis
\[ \text{SiCl}_4 + 6\text{NH}_3 \rightarrow \text{Si(NH)}_2 + 4\text{NH}_4\text{Cl} \]
Decomposition
\[ 3\text{Si(NH)}_2 \rightarrow \text{Si}_3\text{N}_4 + 2\text{NH}_3 \]

Reaction formula

Reaction Process
Raw Material → Reaction → Washing → Drying

Heating Process
Decomposition → Crystallization → Product

UBE's High quality silicon nitride powder made by the original Imide-decomposition technology