# SPECIFICATION FOR CERAMIC SADDLES

## PHYSICO-CHEMICAL PROPERTIES OF CHEMICAL PORCELAIN USED TO MANUFACTURE SADDLES

<table>
<thead>
<tr>
<th>Chemical Composition</th>
<th>% by Weight</th>
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</thead>
<tbody>
<tr>
<td>SiO₂</td>
<td>65 – 75</td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>20 – 25</td>
</tr>
<tr>
<td>Fe₂O₃</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>CaO</td>
<td>1 – 2</td>
</tr>
<tr>
<td>K₂O + Na₂O</td>
<td>2 – 4</td>
</tr>
</tbody>
</table>
Physical Properties

Specific Gravity
2.25 – 2.35

Water Absorption (ASTM C373)
< 0.5 %

Acid Resistance Strength Wt. Loss
< 1 % (ASTM C279)

Maximum Working Temperature
1100 °C

Specific Heat
0.25 Kcal/kg °C

Cold Crushing Strength
400 MPa

2. DIMENSION AND DIMENSIONAL TOLERANCES

<table>
<thead>
<tr>
<th>Dn</th>
<th>D</th>
<th>H</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>12±1.5</td>
<td>21±2</td>
<td>12±1.5</td>
</tr>
<tr>
<td>5/8&quot;</td>
<td>16±1.5</td>
<td>24±2</td>
<td>14±1.5</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>19±1.5</td>
<td>33±2</td>
<td>18±1.5</td>
</tr>
<tr>
<td>1&quot;</td>
<td>25±2</td>
<td>38±2.5</td>
<td>22±2</td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td>38±2</td>
<td>60±3</td>
<td>30±2</td>
</tr>
<tr>
<td>2&quot;</td>
<td>50±2.5</td>
<td>80±4</td>
<td>40±2</td>
</tr>
<tr>
<td>3&quot;</td>
<td>75±3</td>
<td>114±5</td>
<td>57±3</td>
</tr>
</tbody>
</table>
3. WEIGHT VARIATION

1/2" SADDLES: 750 to 790 Kg/m³
5/8" SADDLES: 730 to 770 Kg/m³
3/4" SADDLES: 710 to 750 Kg/m³
1" SADDLES: 680 to 720 Kg/m³
1 1/2" SADDLES: 610 to 650 Kg/m³
2" SADDLES: 580 to 620 Kg/m³
3" SADDLES: 540 to 580 Kg/m³
4. VOID FRACTION

1/2" SADDLES: 67%
5/8" SADDLES: 68%
3/2" SADDLES: 69%
1" SADDLES: 70%
1 1/2" SADDLES: 72%
2" SADDLES: 73%
3" SADDLES: 75%

5. SURFACE AREA:

1/2" SADDLES: 430 m²/m³
5/8" SADDLES: 410 m²/m³
3/4" SADDLES: 380 m²/m³
1" SADDLES: 260 m²/m³
1 1/2" SADDLES: 200 m²/m³
2" SADDLES: 120 m²/m³
3" SADDLES: 92 m²/m³
6. VISUAL INSPECTION

~ Cracks in saddles: less than 1% per m³
~ Breakage saddles: Cracked saddles not to exceed 3% per m³
~ Color: Gray

7. QUALITY ASSURANCE TESTING PROCEDURE

~ All saddles shall be visually inspected to ensure that the requirements as detailed above, are met.

~ One cubic foot from each batch (50 Tons) shall be tested for Dimensional Tolerance, Weight Variation and Breakage Count.