



**Offering a wide variety of grain and flour sizes to fit the needs of each foundry.**

In the investment casting industry, the main use of aluminosilicate is in backup slurries and as a backup stucco. Aluminosilicate is produced from a naturally occurring mineral, calcined mullite, that is precisely sized as either flour or grain. It is available in four alumina contents: 43%, 47%, 60% and 70%. The standard alumina content in the investment casting industry is 47%; which provides a very economical and consistent product. These products are low in iron, alkaline, and alkaline earth elements.

## Typical Physical Properties\*

|                                  | M43                | M47                | M60                | M70                |
|----------------------------------|--------------------|--------------------|--------------------|--------------------|
| Bulk Density (ASTM C-357, gm/cc) | 2.54 (≥2.50)       | 2.58 (≥2.60)       | 2.72               | 2.80 (≥2.75)       |
| Apparent Porosity (%)            | 4.50               | 4.00               | 3.80               | 4.00               |
| PCE                              | 35 (3245°F/1785°C) | 35 (3245°F/1785°C) | 37 (3308°F/1820°C) | 39 (3390°F/1866°C) |

## Chemical Analysis & Minerology (%)\*

|                                                        | M43            | M47            | M60            | M70            |
|--------------------------------------------------------|----------------|----------------|----------------|----------------|
| Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )       | 43.40 (≥42.00) | 46.80 (≥46.00) | 58.60 (≥58.00) | 67.70 (≥67.00) |
| Silicon Dioxide (SiO <sub>2</sub> )                    | 53.00          | 50.00          | 37.80          | 27.70          |
| Titanium Dioxide (TiO <sub>2</sub> )                   | 1.89           | 1.89           | 2.21           | 2.80           |
| Ferric Oxide (Fe <sub>2</sub> O <sub>3</sub> )         | 0.90           | 0.95 (≤1.0)    | 1.13 (≤1.3)    | 1.50 (≤1.75)   |
| Calcium Oxide (CaO)                                    | 0.04           | 0.04           | 0.06           | 0.06           |
| Magnesium Oxide (MgO)                                  | 0.08           | 0.08           | 0.07           | 0.07 (≤0.40)   |
| Sodium Oxide (Na <sub>2</sub> O)                       | 0.04           | 0.09           | 0.07           | 0.07 (≤0.40)   |
| Potassium Oxide (K <sub>2</sub> O)                     | 0.09           | 0.09           | 0.04           | 0.05 (≤0.40)   |
| Phosphorous Pentoxide (P <sub>2</sub> O <sub>5</sub> ) | 0.09           | 0.09           | 0.10           | 0.11           |
| Mullite                                                | 60.00          | 65.00          | 77.00          | 87.00          |
| Glass                                                  | 15.00          | 20.00          | 23.00          | 13.00          |
| Cristobalite                                           | 25.00          | 15.00          | Tr             | Tr             |

*\*These results are based on the testing methods, frequency and procedures of Ransom & Randolph or its approved suppliers. The levels referenced herein are only for general guidance and do not constitute a firm specification.*

## Grain Size Specifications (% Retained)\*

| USS Sieve Grade    | 8 (2.36 mm) | 12 (1.70 mm) | 14 (1.40 mm) | 20 (850 µm) | 30 (600 µm)   | 40 (425 µm)   | 50 (300 µm) | 70 (212 µm) | 100 (150 µm) | 140 (106 µm) | 200 (75 µm) | 270 (53 µm) | 325 (45 µm) | PAN ** |
|--------------------|-------------|--------------|--------------|-------------|---------------|---------------|-------------|-------------|--------------|--------------|-------------|-------------|-------------|--------|
| 10x18 (2)          | 0-3         | 10-25        |              | 60-82       | 0-15          |               |             |             |              |              |             |             |             | 0-5    |
| 14x28 (1,2)        |             | 0            | ≤1           | 30-55       | 35-45         | 10-25         | ≤5          |             |              |              |             |             |             | ≤1.5   |
| 16x30 (2,3)        |             |              | 0-3          | 65-75       |               | ≤4            |             |             |              |              |             |             |             | ≤1     |
| 225 (1,2,3)        |             |              | TR           | 15-25       | 32-47         | 27-37         | 4-10        |             |              |              |             |             | ≤3          | TR     |
| 355 (1,2,3)        |             |              | TR           | 1-5         | 21-38         | 40-54         |             | 9-19        |              | 2-8          |             |             |             | ≤3     |
| 505 (2,3)          |             |              |              | 0           | 1-9           | 22-37         | 26-40       | 12-22       | 6-16         | 1-6          |             |             |             | ≤3     |
| 605 (1,2,3)        |             |              |              |             | 0             | 0-5           | 30-48       | 30-44       | 9-22         | 2-7          |             |             |             | ≤3     |
| 20x50 (1,2,3)      |             |              | TR           | 0-8         | 20-50         |               | 50-72       |             |              |              |             |             | ≤2          | TR     |
| 25x80 (2,3)        |             |              |              | 0-5         | ≥20<br>30 avg | ≥20<br>30 avg | 80-93       | 7-12        |              |              |             |             |             | ≤3     |
| 50x100 (2)         |             |              |              |             |               | TR            | 5-20        |             | 70-86        | 0-15         | ≤3          |             | ≤1          | TR     |
| 60x200 (2)         |             |              |              |             |               |               | 0           | 0-11        |              | 65-90        | 5-20        | 0-6         |             | ≤3     |
| 200 IC-C (1,2,3,4) |             |              |              |             |               |               |             |             | TR           |              | 15-25       |             |             | 75-85  |
| 325 IC-C (2,3,4)   |             |              |              |             |               |               |             |             | TR           |              |             |             | 5-15        | 85-95  |

\*Grade available in Al<sub>2</sub>O<sub>3</sub> content: (1) 43%, (2) 47%, (3) 60%, and (4) 70%. These results are based on the testing methods, frequency, and procedures of Ransom & Randolph or its approved suppliers. The levels referenced herein are only for general guidance and do not constitute a firm specification.  
 \*\*PAN designates the percentage of material passing the last reported screen for each size.

## Safety

**North America:** Danger. Contains crystalline silica. May cause cancer. Causes damage to lungs through prolonged or repeated exposure by inhalation. See SDS for more information

**EU:** Danger. Contains respirable crystalline silica. May cause damage to lungs through prolonged or repeated exposure. See SDS for more information.

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