

# CIMBAR

Performance Minerals

## CIMTUFF® 9100 Talc Series

**CIMTUFF®9100 Series** talcs are produced from high purity ore, which provide low iron content, low surface area and excellent color in dry form as well as when incorporated with resins. **CIMTUFF 9100 Series** talcs are primarily used in performance polypropylene, where improved tensile strength, flexural modulus, heat distortion temperature, increased stiffness, reduced shrinkage, and lower compounding costs are required. **CIMTUFF 9100 Series** talcs are platy, hydrophobic, non-abrasive and chemically inert.

Cimtuff's are also used to produce low expansion ceramics, for example thermal shock resistant stoneware bodies. In these, it acts as a low expansion flux that reduces body expansion by converting available quartz mineral, mainly in kaolin, to silicates of magnesia. Cordierite bodies used in kiln furniture and flameware (and a host of other applications e.g. catalytic converters) employ a high percentage of Cimbar talc and extend this concept so that all free quartz is used up.

Talc by itself it is a refractory powder; yet in amounts of only 1-3% in stoneware or porcelain bodies it can drastically improve vitrification! Yet adding these same low percentages to some zero-porosity highly vitreous bodies does cause them to warp, blister or over fire. Cone 06-04 ceramic slips containing up to 60% talc can be fired to cone 6 without melting or even deforming (50:50 mixes can even go to cone 10).

Talc is a curious glaze material also. At middle temperature raw talc is refractory, its presence tends to create opaque and matte surfaces, yet if supplied in a frit it can create wonderfully transparent glossy glazes. At cone 10 it is a powerful flux but also can be used in combination with calcium carbonate to create very tactile magnesia matte glazes (the MgO forms magnesium silicate crystals on cooling to give both opacity and a matte silky surface). This being said, where transparency is needed it is generally best to source MgO from a frit (since talc loses its water of hydration quite late in the firing, after melt of most glazes has begun).

| PRODUCT DESCRIPTION                        | CIMTUFF® GRADES |      |      |      |
|--|-----------------|------|------|------|
|  | 9103            | 9107 | 9110 | 9115 |
| Median Particle Size (D50, um)             | 3               | 7    | 10   | 17.5 |
| % Passing 325 Mesh Sieve                   | 100             | 99.5 | 99   | 97   |
| % Passing 200 Mesh Sieve                   | 100             | 100  | 100  | 99   |
| Bulk Density, Loose (lbs/ft <sup>3</sup> ) | 16              | 23   | 28   | 33   |
| Tapped                                     | 45              | 59   | 68   | 77   |
| Color-L (CIE) Dry                          | 97              | 97   | 96   | 94   |
| Oil Absorption (gms/100 gms filler)        | 34              | 28   | 24   | 20   |
| Hegman Fineness                            | 6               | 4    | 3    | N/A  |

| Typical Chemical Analysis |                                | (WT) % |
|---------------------------|--------------------------------|--------|
| Silicon Dioxide           | SiO <sub>2</sub>               | 60     |
| Magnesium Oxide           | MgO                            | 30     |
| Calcium Oxide             | CaO                            | <1     |
| Aluminum Oxide            | Al <sub>2</sub> O <sub>3</sub> | <1     |
| Iron As                   | Fe <sub>2</sub> O <sub>3</sub> | <1     |
| Loss on Ignition          | LOI                            | 6.5    |

| Typical Properties |      |
|--------------------|------|
| Specific Gravity   | 2.78 |
| Moisture %         | 0.3  |
| pH                 | 8.7  |

All products are sold on the understanding that the user is solely responsible for determining their suitability for the intended use. All information given and recommendations made herein are based upon our research and are believed to be accurate, but no guarantee, either expressed or implied, is made with respect thereto or with respect to the infringement of any patent. CPM MAKES NO WARRANTY OF MERCHANTABILITY OR SUITABILITY FOR ANY PARTICULAR PURPOSE IN CONNECTION WITH ANY SALE OF THE PRODUCTS DESCRIBED HEREIN. Inconsistent terms and conditions contained in Buyer's purchase order shall not be binding on CPM unless reflected in writing signed by CPM's representative. This information is not to be copied, used in evidence, released for publication or public distribution without written permission from Cimbar Performance Minerals.