Tabular alumina

AluChem AC-99 tabular aluminas are high-density, fully shrunk, coarse crystalline alpha aluminas that have been converted to the corundum form.

Tabular alumina is produced by sintering ball-formed calcined alumina at a temperature just under the 3704°F (2040°C) fusion point of aluminum oxide.

These tabular alumina balls are then crushed, graded or screened, and ground to a wide range of granular or powdered particle size distributions.

The typical chemical and physical properties which characterize AluChem's AC-99 tabular aluminas are presented in this product data. Some of these properties are highlighted by the following:

- Chemical purity – 99.5% Al_2O_3
- Chemical inertness – resistant to most alkalis and mineral acids
- High density – true density of 3.96 with a bulk specific gravity of 3.55 and an apparent porosity of 4.0%
- Low water absorption – 1.0%
- Extreme hardness – 9 on the Mohs' scale and a Knoop hardness of 2,000
- High thermal conductivity – at 100°C 0.069 cal/sec cm °C
- Good resistance to thermal and mechanical shock
- High heat capacity – specific heat at 20°C 0.21 cal/gm/°C
- High electrical resistivity
- Excellent abrasion resistance

General Characteristics

Chemical Formula	Al_2O_3
Bulk Specific Gravity	3.55
Apparent Porosity	4.0%
Water Absorption	1.0%
Melting Temperature	3704°F (2040°C)
Refractive Index	1.76
Mohs' Hardness	9
Appearance	White Crystalline Granules or Powder

Typical Material Properties*

Properties	AC-99	AC-99 LS
Alumina (Al_2O_3), %	99.5	99.7
Silica (SiO_2), %	0.04	0.04
Ferric Oxide (Fe_2O_3), %	0.06	0.06
Sodium Oxide (Na_2O), %	0.2	0.1
LOI 572°F-2192°F(300°C-1200°C), %	0.00	0.00
Alpha Phase	99+	99+

*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.

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Sieve Properties for Standard Products

Graded Sizes	Sieve Analysis	
	2% Max. On	5% Max. Through
14 Mesh to 28 Mesh	#16 US Sieve	#40 US Sieve
28 Mesh to 48 Mesh	#30 US Sieve	#70 US Sieve
Ground Sizes	**Sieve Analysis (Tyler Mesh / US Sieve #)**	
	5% Max. On	
Minus 325 Mesh - Low Iron	#325 US Sieve	

Zircon Substitution Recommendations

Particle Size Distribution**

	US Standard Screen (% Retained)						
	+70	+100	+140	+200	+270	PAN***	AFS
AC99 -80+200	0-2.5	9-35	45-65	4-20	0-5	0-2	95-110

	X100 Microtrac (Micron)		
	d10	d50	d90
AC99 325Li	1.6-3.1	10.0-16.0	32.0-47.0

**AluChem Inc. has determined test method and provided analysis as noted herein.
***PAN designates the percentage of material passing the last reported screen for each size.

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