

TABULAR ALUMINA



High-Density, Fully Shrunken, Coarse Crystalline Alpha Aluminas

AluChem AC-99 tabular aluminas are high-density, fully shrunken, 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% Al₂O₃
- 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 ₂ O 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 ₂ O ₃), %	99.5	99.7
Silica (SiO ₂), %	0.04	0.04
Ferric Oxide (Fe ₂ O ₃), %	0.06	0.06
Sodium Oxide (Na ₂ O), %	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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Made in the USA



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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)							X100 Microtrac (Micron)		
	+70	+100	+140	+200	+270	PAN***	AFS	d10	d50	d90
AC99 -80+200	0-2.5	9-35	45-65	4-20	0-5	0-2	95-110	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.

Safety

Before handling this material, review the corresponding Safety Data Sheet (SDS).

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