AlZiPure™

Foundry and Refractory Mineral Sand

Product Information

AlZiPure™

AlZiPure™ is a loose blend of aluminosilicate minerals sands that are well-graded and have clean, sub-rounded to sub-angular surfaces. Mined from Chemours' mineral deposits in the southeastern United States, these naturally occurring sands are washed to ensure freedom from dirt, dust, and ultrafines. AlZiPure™ is composed primarily of aluminosilicate isomorphs kyanite and sillimanite (Al_2SiO_5). Corundum (Al_2O_3) and Zircon ($ZrSiO_4$) are also present in the blend.

Refractory and Ceramic Applications

The unique physical properties of AlZiPure™ products are used in several specialty refractory segments, including the manufacturing of refractory bricks and mortars, ceramic fibers and specialty fused applications.

Foundry Applications

AlZiPure™ can be used as a core and mold sand, facing sand, or replacement for specialty sands such as chromite, olivine, or zircon in many applications. When used as a core and mold or facing sand, AlZiPure™ yields improved surface finish when compared to traditional silica sand molds with less burn in, erosion, and penetration on the surface of the casting.

AlZiPure™ has proven results with carbon steel, low-alloy steel, cast iron, and other common casting metals in greensand, no-bake, and resin-coated applications.

AlZiPure™ Advantages:

- Free silica less than 1%
- Resistance to heat
- High dimensional stability
- Corrosion resistance
- Mechanical strength
- Bulk density greater than alumina and silica sand
- Reclaimable by mechanical, thermal, and microwave methods

Chemours™

Table 1. Mineral, Chemical and Physical Properties

Typical Screen Analysis**			
U.S. Sieve No.*	Sieve Opening, µm	% Retained on Sieve	
		Mean	Std. Dev.
50	300	6	1.6
70	212	38	4.2
100	150	50	4.6
140	106	6	1.5
200	75	<1	—
270	53	Trace	—
PAN	<53	Trace	—
D50	203		
AFS GFN	61		

Chemical Composition			
	Typical %**	Min %	Max %
Al_2O_3	59.5	58.00	-
ZrO_2	2.8	—	5.0
Fe_2O_3	0.5	—	1.0
TiO_2	0.7	—	1.0

Mineral Composition***		
	Typical %**	Max %
Kyanite + Sillimanite	84	--
Corundum	8	--
Zircon	4	7.5
Quartz	0.5	1.0
Other	3.5	--

Physical Properties	
	Typical %**
Deformation Temperature	>3279 °F
Pyrometric Cone Equivalent	>36 PCE
Bulk Density (Uncompacted)	135 lb/ft^3
	2162 kg/m^3
Specific Gravity	3.53 g/cc
Loss on Ignition (at 1000 °C, 24 hr, air)	0.21 wt%
pH	6.0—8.5 pH
Coefficient of Linear Expansion	4.60x10-6 in/in °F
Specific heat (at 800 °F in atmosphere)	0.253 Btu/lb
Heat Transfer Coefficient	2,460 W/(m^2 °C)

*U.S. Sieve Series according to ASTM E-11-70

**These columns give typical values based on historical production performance. Chemours does not make any expressed or implied warranty that future production will conform to these typical values.

Table 2. Uses of AlZiPure™

Features	
Shell Mold and Cores	Low binder requirements Good casting quality Low cost Low thermal expansion aids dimensional accuracy Excellent recycle qualities Good refractory properties Thermal stability Chilling effect can improve surface finish
Green Sand Molding	Requires a minimum amount of clay and water Easy mulling and ramming Low thermal expansion Good refractory properties
No-Bake Binders	Good mold strengths Low binder requirements Good permeability for venting of gases and wash penetration Low cost
Specialty Sand	Replacement for olivine, chromite, or zircon (certain applications) High fusion point Chilling effect can improve surface finish

Personal Safety

For safety information, please visit the product Safety Data Sheet (SDS).

Packaging

AlZiPure™ is available in semi-bulk (2-ton) bags, bulk hopper rail cars, and bulk pneumatic trucks. Department of Transportation (DOT) Hazard Classification*: NOT REGULATED.

* Due to changing governmental regulations, such as those of the Department of Transportation, Department of Labor, U.S. Environmental Protection Agency, and the Food and Drug Administration, references herein to governmental requirements may be superseded. Each user should consult and follow the current governmental regulations, such as Hazard Classifications, Labeling, Food Use Clearances, Worker Exposure Limitations, and Waste Disposal Procedures for the products described in this literature.

For more information, visit Chemoursabrasives.com

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