

**ENGELHARD**

# F-200

Activated alumina for liquid and gas drying

## Product Information

Engelhard F-200 is a smooth sphere of activated alumina produced by Engelhard's unique manufacturing process. Engelhard F-200 is an excellent desiccant for drying a wide variety of liquids and gases. Although all molecules are adsorbed to some extent on Engelhard F-200 activated alumina, those molecules having the highest polarity are preferentially absorbed. Stream conditions such as pressure, concentration and molecular weight of the molecules, temperature and site competing molecules affect the efficiency of adsorption. Engelhard F-200 is available in nominal sizes of 1/16", 1/8", 3/16" and 1/4" spheres.

### Product benefits

**1. Uniform ball size.** This property is especially useful in high pressure gas dehydration where minimizing pressure drop is important. The uniform size and sphericity of Engelhard F-200 prevents adsorbent segregation during pneumatic loading, thus minimizing channeling and yielding more efficient use of the entire desiccant tower.

**2. High crush strength.** Engelhard F-200 has high crush strength which allows rapid pneumatic loading of towers. The high crush strength also allows use of taller towers that make more efficient use of the desiccant. Engelhard F-200 activated alumina is

highly resistant to amine attack. Furthermore, Engelhard F-200's high crush strength enables it to dehydrate acid containing gases and liquids, such as CO<sub>2</sub>, for a longer operating life.

**3. Low abrasion.** The low abrasion of Engelhard F-200 ensures less dusting during transport, loading, and service life which reduces pressure drop and minimizes downstream valve and filter plugging, common with dustier products.

**4. High adsorptive capacity.** Engelhard F-200's high surface area and tailored pore distribution provide a high dynamic H<sub>2</sub>O adsorption capacity. With proper tower design and effective regeneration, F-200 can achieve an ultra low H<sub>2</sub>O effluent specification (i.e. dew point). Engelhard F-200 also has excellent cyclic stability that yields a long life.

### Product applications

**1. Drying.** Nearly all gases and liquids can be dried with F-200. Water removal is often necessary for efficient processing, storage and transportation of fluids.

The 3/16" size is normally recommended for vapor phase dehydration applications where pressure drop minimization yet high H<sub>2</sub>O adsorptive capacity is desired.

The 1/8" and 7 x 14 Tyler mesh sizes are recommended for use in liquid

dehydration and other mass transfer limited adsorption applications.

Engelhard F-200 activated alumina is rapidly becoming the industry standard for drying compressed air. Providing long service life with performance at or below dew point specifications, F-200 is a 'peace of mind' product for both large and small dryers. Engelhard F-200 is appropriate for use in dehydrating gases in both thermally regenerative (350 to 600°F) and pressure swing (PSA) modes.

**2. Acid removal.** Transformer oils, lubricating oils, and refrigerants form degradation acids upon use. Engelhard F-200 will remove these acids during use. In the manufacture of chlorinated and/or fluorinated hydrocarbons, removal of these residual halides and water is essential for a non-corrosive product.

**3. Process stream purification.** Engelhard F-200 is excellent for removal of highly polar compounds such as water and alcohol. It also readily adsorbs TBC and heavy metal ions from hydrocarbons.

**4. Hydrocarbon adsorption.** Under proper operating conditions, the pore size distributions and surface chemistry of activated aluminas are conducive to the adsorption of hydrocarbons.

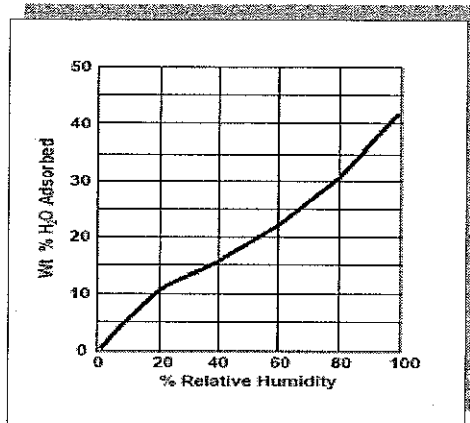
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**Available packaging**

- 50 lb bags
- 375 lbs steel drums
- 2000 lb super sacks

**About Engelhard**

Engelhard is a surface and materials science company that develops technologies to improve customers' products and processes. A Fortune® 500 company, Engelhard is a world-leading provider of technologies for environmental process, appearance and performance applications.



For more information about Engelhard F-200 activated alumina, simply call us at 318-336-9601, or visit us at [www.engelhard.com/alumina](http://www.engelhard.com/alumina).

Chemical composition (wt %)				
Al <sub>2</sub> O <sub>3</sub>	92.7			
SiO <sub>2</sub>	0.02			
Fe <sub>2</sub> O <sub>3</sub>	0.02			
Na <sub>2</sub> O	0.30			
LOI (250-1100°C)	7.0			
Physical properties	7X14 Tyler Mesh (2.0 mm)	1/8" (3.2 mm)	3/16" (4.7 mm)	1/4" (6.4 mm)
Surface area, m <sup>2</sup> /g	360	350	340	320
Total pore volume, cc/g	0.5	0.5	0.5	0.5
Packed bulk density, lbs/ft <sup>3</sup> (kg/m <sup>3</sup> )	48 (769)	48 (769)	48 (769)	48 (769)
Crush strength, lbs (kg)	11 (5)	30 (14)	55 (25)	70 (32)
Abrasion loss, wt %	0.1	0.1	0.1	0.1

All data represent typical product properties and are based upon Engelhard standard test methods. All test methods are available upon request. Information presented herein is believed to be accurate and reliable but does not imply any guarantee or warranty by Engelhard.

**ENGELHARD**

Change the nature of things.

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