



The Chemical Company

Product Data Sheet

F-220

Activated Alumina for Liquid and Gas Drying

Superior capacity and hydrothermal stability

BASF F-220 is a smooth sphere of activated alumina produced by BASF's unique manufacturing process. It is available in a variety of sizes and is optimized for maximum adsorption capacity and hydrothermal stability.

BASF F-220 is an excellent desiccant for drying a wide variety of liquids and gases. Although all molecules are adsorbed to some extent on BASF F-220 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.

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 BASF F-220 prevents adsorbent segregation during pneumatic loading, thus minimizing channeling and yielding more efficient use of the entire desiccant tower.

2. High crush strength

BASF F-220 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. BASF F-220 activated alumina is highly resistant to amine attack. Furthermore, BASF F-220's high crush strength enables it to dehydrate acid containing gases and liquids, such as CO₂, for a longer operating life.

3. Low abrasion

The low abrasion of BASF F-220 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

BASF F-220's high surface area and tailored pore distribution provide a high dynamic H₂O adsorption capacity. With proper tower design and effective regeneration, F-220 can achieve an ultra low H₂O effluent specification (i.e. dew point). BASF F-220 also has excellent cyclic stability that yields a long life.

Product Applications

1. Drying

Nearly all gases and liquids can be dried with F-220. Water removal is often necessary for efficient processing, storage, and transportation of fluids.

The 1/8" is recommended for use in liquid dehydration and other mass transfer limited adsorption applications. BASF F-220 activated alumina 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. F-220 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

BASF F-220 is excellent for removal of highly polar compounds such as TBC, alcohols, ethers, etc. It also readily adsorbs 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.

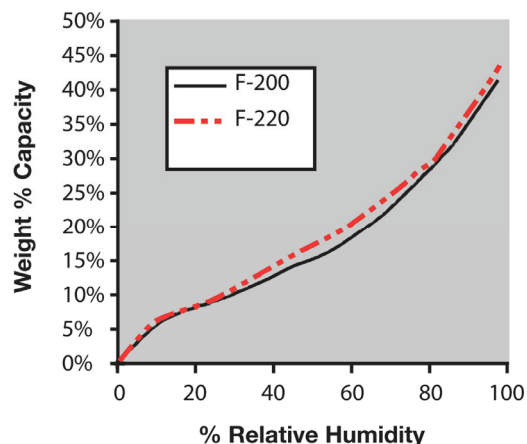
Typical Chemical Composition (wt %)

Al ₂ O ₃	93
SiO ₂	0.02
Fe ₂ O ₃	0.02
Na ₂ O	0.30
LOI (250-1100° C)	5.0

Typical Physical Properties 1/8" (3.2 mm)

Surface Area, m ² /g	355
Total Pore Volume, cc/g	0.5
Packed Bulk Density, lbs/ft ³ (kg/m ³)	49 (785)
Crush Strength, lbs (kg)	33 (15)
Abrasion Loss, wt %	0.08

**BASF Activated Alumina
Capacity Comparison**



About Us

BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The group offers exceptional expertise in the development of technologies that protect the air we breathe, produce the fuels that power our world and ensure efficient production of a wide variety of chemicals, plastics and other products. By leveraging our industry-leading R&D platforms, passion for innovation and deep knowledge of precious and base metals, BASF Catalysts develops unique, proprietary catalyst and adsorbent solutions that drive customer success.

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All data represents typical product properties and are based upon BASF standard test methods. All test methods are available upon request.

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