



# MOLSIEVE 4A<sup>®</sup>

MOLSIEVE 4A is crystalline aluminosilicate with  $\text{SiO}_2 : \text{Al}_2\text{O}_3$  as 2:1. It is formed by an extensive cross-linking of  $\text{AlO}_4$  and  $\text{SiO}_4$  tetrahedra, resulting in a uniform pore opening of 0.4 nm. GMGB manufactures 4A molecular sieve in the form 3 mm dia extruded pellets by the State of the Art technology in its plant at Mehsana. The products have at least equal to and, in some cases, better properties than what have been Specified in the Bureau of Indian Standards : BIS 14211:1994. Specifically, it has very high water adsorption capacity, and mechanical strength, and at the same time very low attrition loss. Its main application is in air and associated gas drying; however, it may be used favorably also in place of activated alumina, where a lower dew point is required. The robust nature of the product makes it suitable for application in high pressure, GMGB used clays form its own mines in the manufacture of this product, ensuring better control and uniformity in the quality of the final product.

## Specifications

### GMGB Molsieve 4A (N)

Nominal Dia : 4A°		(1 A° = 10 <sup>-8</sup> cm)				
Form : Fine Powder, Cylindrical Pallets and Spheres						
Sr. NO	PHYSICO-CHEMICAL PROPERTIES	Unit	White fine powder	1.5 mm dia cylindrical pallets	3.0 mm dia cylindrical pallets	2-4 mm dia spheres
1	Equilibrium Water Adsorption Capacity at 30°C and 15% RH	% w/w	20 - 24	18 - 20	18 - 20	18 - 20
2	75% RH	% w/w	23 - 27	20 - 23	20 - 23	20 - 23
3	Thermal Stability after 600°C Equilibrium Water Adsorption capacity at 30°C & 15% RH	% w/w	--	18 - 20	18 - 20	18 - 20
4	Crushing Strength (Active)	Kg.	--	3 - 7	6 - 16	3 - 8
5	Attrition Loss on Tumbling	% w/w	--	0.02 - 0.3	0.02 - 0.3	0.02 - 0.2
6	Free Moisture (Max)	% w/w	2.0	1.5	1.5	1.5
7	Bulk Density	g/L	300 - 600	600 - 700	600 - 700	700 - 800
8	Bed Crushing Strength	%	--	80 - 90	80 - 90	80 - 90
9	Avg. Particle size d(50)	micron	9.0	--	--	--



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▲ MOL-SIEVE 4A in pellets form



▲ MOL-SIEVE 4A in Spheres form



▲ MOL-SIEVE 4A Powder

### **Packing :**

MOL SIEVE 4A is packed for industrial use in airtight MS drums under hot condition with proper sealing arrangement so that there is no ingress of moisture during storage and transportation. Standard Packing : 210 Lit. drum size 565 × 865 (H) mm

### **Life :**

MOL-SIEVE 4A has infinite shelf life, when stores in packed condition. The active service life would depend, however, on the operating conditions of the plant, actual application, and the usage by the customer.

### **Loading :**

MOLSIEVE 4A does not require any special precaution or procedure during loading. However, the health of the grid support is to be checked, and the vessel is to be cleaned of dust, foreign particles, etc. before the adsorbent is loaded. During actual loading, the material should be poured carefully through funnel and chute so as to avoid dusting and attrition. The drums should be kept in open condition, as the adsorbent would adsorb moisture. In case of prolonged exposure of the adsorbent to moisture during storage / loading, it may require prolonged regeneration at higher temperature to restore its full adsorptive capacity.

### **Material Safety Data :**

The product as such is neither inflammable, nor toxic. Over all, it is not hazardous. Repeated exposure may irritate skin, eyes and respiratory system. The product gets hot as it is first exposed to atmosphere due to adsorption of moisture.

### **Regeneration :**

MOLSIEVE 4A should be regenerated thermally or by evacuation with simultaneous purge. For thermal regeneration, the adsorbent may be heated to 180° - 300° C by a hot and dry gas. However, the exact regeneration condition (temperature, purge gas flow, etc) depends on the application, feed quality and other operating conditions. For a better performance over prolonged period, GMGB's 4A molecular sieve MOLSIEVE 4A(N) should not be exposed to temperatures above 450° C repeatedly.

### **Applications :**

1. Moisture removal / Drying from Associated Gas (LPG) down to dew point of around -90°C.
2. Simultaneous removal of moisture and CO<sub>2</sub> from gaseous streams.
3. Organic Liquid Drying.
4. Removal of Moisture & CO<sub>2</sub> from feed air to cryogenic plants (N<sub>2</sub> - O<sub>2</sub> Plant).
5. Air Drying for dew point of less than 60°C.

