

Molecular Sieve Selection Guide

Basic Type	Nominal Pore Diameter Angstroms	Common Form	Bulk Density lb/ft ³	Heat of Adsorption (max) btu/lb H ₂ O	Equilibrium H ₂ O Capacity % wt*	Molecules Adsorbed†	Molecules Excluded	Applications	
3A	3	Powder	30	1800	23	Molecules with an effective diameter <3 angstroms, including H ₂ O and NH ₃	Molecules with an effective diameter >3 angstroms, e.g. ethane	The preferred adsorbent for the dehydration of unsaturated hydrocarbon streams such as cracked gas, propylene, butadiene and acetylene. Also used for drying polar liquids such as methanol and ethanol.	
		1/16in Pellets	47		20				
		1/8in Pellets	47		20				
		8x12 Beads	44		20				
4x8 Beads	44	20							
AW 300	4	1/16in Pellets	55	1800	13	Molecules with an effective diameter <4 angstroms, including ethanol, H ₂ S, CO ₂ , SO ₂ , C ₂ H ₄ , C ₂ H ₆ and C ₃ H ₆	Molecules with an effective diameter >4 angstroms, e.g. propane	Used commercially to dry and purify process streams containing strong acid contaminants.	
		1/8in Pellets							
4A	4	Powder	30	1800	28.5	Molecules with an effective diameter <4 angstroms, including ethanol, H ₂ S, CO ₂ , SO ₂ , C ₂ H ₄ , C ₂ H ₆ and C ₃ H ₆	Molecules with an effective diameter >4 angstroms, e.g. propane	The preferred adsorbent for static dehydration in a closed gas or liquid system. Used as a static desiccant in household refrigeration systems; in packaging of drugs, electronic components and perishable chemicals; as a water scavenger in paint and plastic systems. In drying saturated hydrocarbon streams.	
		1/16in Pellets	45		22				
		1/8in Pellets	45		22				
		8x12 Beads	45		22				
		4x8 Beads	45		22				
14x30 Mesh	44	22							
AW 500	5	1/16in Pellets	45	1800	20	Molecules with an effective diameter <5 angstroms, including n-C ₄ H ₉ OH, n-C ₄ H ₁₀ , C ₃ H ₈ to C ₂₂ H ₄₆ and R-12	Molecules with an effective diameter >5 angstroms, e.g. iso compounds and all 4 carbon rings	Used commercially to dry and purify process streams containing strong acid contaminants.	
		1/8in Pellets							
5A	5	Powder	30	1800	28	Molecules with an effective diameter <5 angstroms, including n-C ₄ H ₉ OH, n-C ₄ H ₁₀ , C ₃ H ₈ to C ₂₂ H ₄₆ and R-12	Molecules with an effective diameter >5 angstroms, e.g. iso compounds and all 4 carbon rings	Separate normal paraffins from branched-chain and cyclic hydrocarbons through a selective adsorption process.	
		1/16in Pellets	43		21.5				
		1/8in Pellets	43		21.5				
1	10	Powder	30	1800	36	Molecules with an effective diameter <10 angstroms	Molecules with an effective diameter >10 angstroms, e.g. (C ₄ F ₉) ₃ N	Used for general gas drying, air plant feed purification (simultaneous removal of H ₂ O CO ₂) and liquid hydrocarbon and natural gas sweetening (H ₂ S mercaptan removal).	
		1/16in Pellets	40		28.5				
		1/8in Pellets	40		28.5				
		8x12 Beads	40		28.5				
4x8 Beads	40	28.5							

*Lb H₂O/100 lb activated adsorbent at 17.5mm Hg, 25°C.

†Each type adsorbs listed molecules plus those of preceding type.