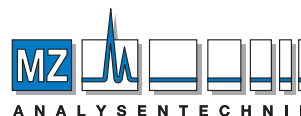


GammaBond™ Alumina



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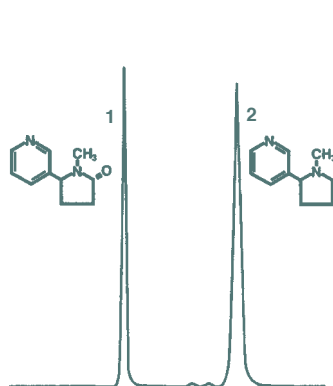
AUTHORIZED DISTRIBUTOR

- Stable from pH 1.3 to 12
- Efficiencies to compete with the best silica based columns
- Available in low load RP-1 and octyl based RP-8
- GammaBond RP-1 is used for USP method L29

GammaBond Alumina is a family of exceptionally stable alumina-based HPLC columns designed for extreme pH applications to provide high efficiency and unique selectivity. GammaBond Alumina is manufactured by bonding a polymer to a highly stable porous spherical 5 µm alumina particle. This proprietary manufacturing process yields polymer-coated packings with the same high efficiency as traditional silica columns, but with all the advantages of alumina. The ES Industries' GammaBond reversed phase columns may be used with any

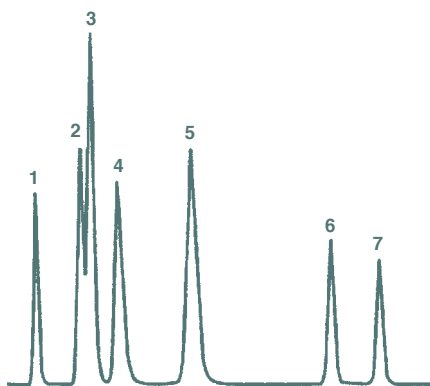
mobile phase from pH 1.3 to pH 12, and any desired buffer system or additive. GammaBond Alumina is available in two stationary phase types: GammaBond RP-1 and RP-8. GammaBond RP-1 is a low load polybutadiene coated alumina. This phase is used for USP method L-29. GammaBond RP-8 is an alumina based polysiloxane polymer to which n-octyl groups are appended.

GammaBond Alumina (RP1 or RP8):
 pore size = 80° A; pH range = 1.3-12.



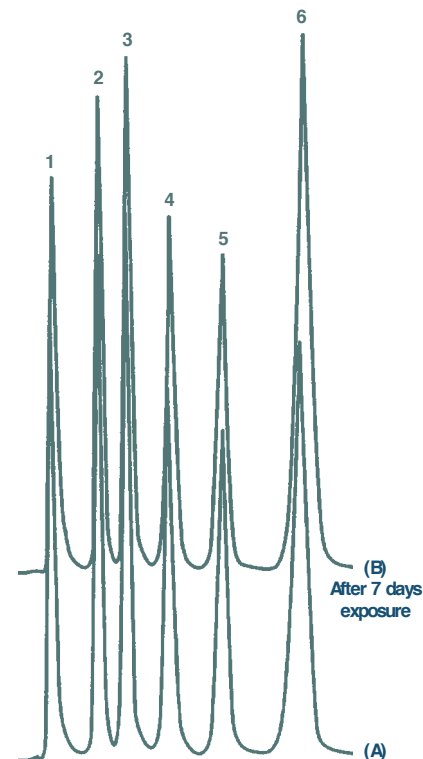
Alkyls

Column: GammaBond RP-2 (15 cm x 4.6 mm)
 Mobile phase: 90:10 Water:Acetonitrile 25 mm
 Borate Buffer pH = 12.0
 Flow rate: 1 mL/min.
 Temperature: 25°C
 1. Cotinine
 2. Nicotine



Long Term Base Test

Column: GammaBond RP-1 5 µ (15 cm x 4.6 mm)
 Mobile phase: Acetonitrile: pH 9.3 Borate Buffer 10:90
 with gradient to 30:70 from 4-8 minutes
 Flow rate: 1 mL/min.
 1. Simazine
 2. Atrazine
 3. Simetryn
 4. Prometon
 5. Ametryn
 6. Prometryn
 7. Terbutryn



Acid Stability

Column: GammaBond RP-1 (15 cm x 4.6 mm)
 Mobile phase: 90:10 Water:Acetonitrile
 pH = 1.3 (H₃PO₄)
 Flow rate: 1 mL/min.
 Temperature: 25°C
 1. Nicotinic Acid
 2. Furyl Acrylic Acid
 3. 4-Nitrophenol
 4. Hydrocinnamic Acid
 5. Methyl Benzoate
 6. Indole-3-propionic Acid

Description	Particle Size (µ)	Length (mm)	Standard-bore P/N (4.6 mm)	Standard-bore P/N (4.0 mm)	Small-bore P/N (3.2 mm)	Small-bore P/N (2.0 mm)
Polybutadiene RP-1	5	50	115271-ARP1	114271-ARP1	11d271-ARP1	112271-ARP1
Polybutadiene RP-1	5	100	125271-ARP1	124271-ARP1	12d271-ARP1	122271-ARP1
Polybutadiene RP-1	5	150	135271-ARP1	134271-ARP1	13d271-ARP1	132271-ARP1
Polybutadiene RP-1	5	250	155271-ARP1	154271-ARP1	15d271-ARP1	152271-ARP1
Polybutadiene RP-8	5	50	115271-ARP8	114271-ARP8	11d271-ARP8	112271-ARP1
Polybutadiene RP-8	5	100	125271-ARP8	124271-ARP8	12d271-ARP8	122271-ARP1
Polybutadiene RP-8	5	150	135271-ARP8	134271-ARP8	13d271-ARP8	132271-ARP1
Polybutadiene RP-8	5	250	155271-ARP8	154271-ARP8	15d271-ARP8	152271-ARP1