



Z G A 451

Macroporous Weak Base Anion Exchange Resin

DESCRIPTION

“Zheng Guang” Brand ZGA 451 is a macroporous weak-base anion exchange resin with styrene-divinylbenzene matrix, having tertiary amine groups. ZGA 451 has superior kinetics and greater resistance to oxidation and osmotic shock. It has high regeneration efficiency with low amount of regenerant and yields high operating capacities. It is primarily used for the removal of strong acids such as chloride, sulfates and nitrates. Large organic molecules are also readily removed by the resin and easily eluted due to macroporous structure of ZGA451. It is supplied in free base form. ZGA 451 series contains three products: ZGA 451 for general applications; ZGA 451 FC for double compartment bed and floating bed system; ZGA 451 SC for dual bed system.

FEATURES & BENEFITS

- **COMPLES WITH FDA REGULATIONS FOR POTABLE WATER APPLICATIONS**

Conforms to paragraph 21CFR173.25 of the Food Additives Regulations of the F.D.A.

- **UNIFORM PARTICLE SIZE**

95% all beads are in the assignation range; giving a lower pressure drop and superior kinetics

- **SUPERIOR PHYSICAL STABILITY**

Over 93% sphericity combined with high crush strengths and uniform particle size provide greater resistance to bead breakage resulting in longer service life and lower pressure drop.

- **ORGANIC FOULING RESISTANCE AND HIGH OPERATING CAPACITY**

ZGA 451 tertiary amine functionality and its macroporous structure provides nearly 100% regeneration efficiency and the ability to reversibly sorb naturally occurring organic substances.

ZGA 451 PROPERTIES

Item	ZGA 451	ZGA 451 FC	ZGA 451 SC
Appearance	Light yellow or milky opaque spherical beads		
Polymer Matrix Structure	Polystyrene crosslinked with DVB		
Type	Macroporous weak base anion resin with tertiary amine		
Functional Group	R-N(CH ₃) ₂ · H ₂ O		
Moisture Content %	48~58		
Total Capacity meq/g	≥ 4.8 (Free Base)		
meq/ml	≥ 1.6 (Free Base)		
Capacity of Strong Base meq/g	≥ 0.9		
Screen Size Range	55~16	40~16	28~16
(U.S. standard screen)	≥ 95	≥ 95	≥ 95
Sphericity %	≥ 93		
Uniformity Coefficient, Approx.	≤ 1.6		
Shipping Weight, Approx. lb/ft ³	40~41		
Swelling, OH → Cl %	≤ 26	≤ 28	≤ 26

SUGGESTED OPERATING CONDITIONS

Maximum Temperature

Free Base Form	212 °F
Backwash Rate	50~75% Bed Expansion
pH range	1~9
Bed Depth(Industry)	0.6~3.0 m
Regenerant	NaOH
Regenerant Flow Rate	2~10 m/h
Regenerant Contact Time	> 30 min
Regenerant Level	45~60 g/eq
Displacement Rinse Rate	3~6 m/h
Service Flow Rate	10~40 m/h

HYDRAULIC PROPERTIES

Fig. 1 BACHWASH BED EXPANSION

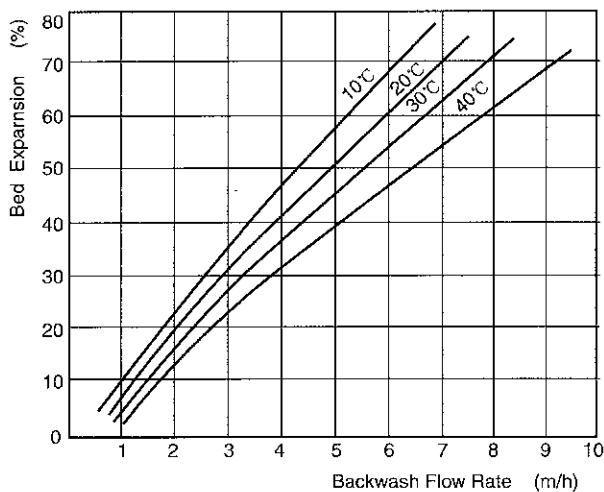


Fig.2 PRESSURE DROP VS FLOW RATE

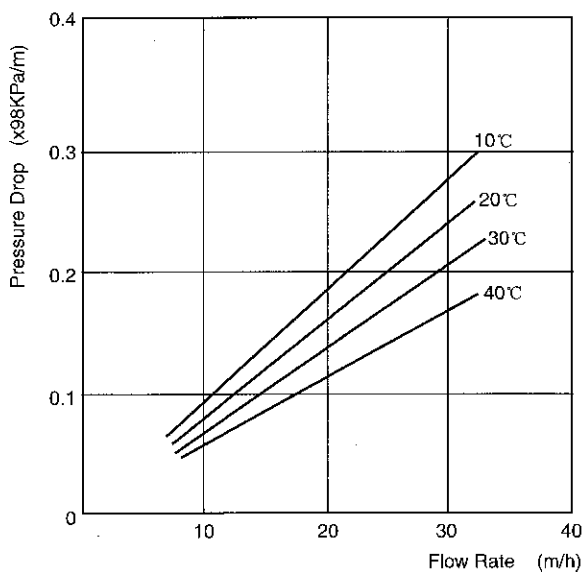
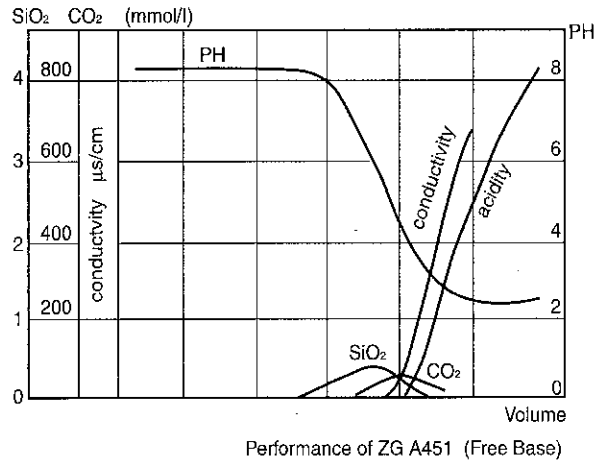


Fig.3 QUALITY OF TREATED WATER

Conditions:

Influent Acidity	7.1 meq/L
Flow rate	20 m/h
Water Temperature	20~26 °C



APPLICATIONS

Typical uses of the resin are in two bed system where weak acid ions (like silica and carbon dioxide) do not have to be removed. The resin is mainly used in making pure water and ultra-pure water. It can also be used for treating waste water containing chromium and other metals.

ZGA 451 series together with strong base anion exchange resin is used in water treatment, resulting in increasing the operating capacity and decreasing regenerant level and rinse. It can also protect strong base anion resin from organic molecules fouling.

ZGA 451 exhibits high chemical stress physical stability and is very resistant to thermal stress. These characteristics, in addition to the large pore size, allow ZGA 451 to be used in many special process applications including:

- Removal and separation of metals
- Treatment of acid wastes
- Pharmaceutical processing
- Cane sugar and corn syrup processing