# ZGC 108

## Strong Acid Cation Exchange Resin

### DESCRIPTION

"Zheng Guang"Brand ZGC 108 is a bead-form polystyrene sulphonate cation exchange resin containing 8% DVB. It has excellent physical and chemical properties such as high capacity and operating capacity, lower pressure drop, well physical and chemical stability. The product is supplied in the sodium or hydrogen forms. ZGC 108 is used in all water softening, dealkalization, deionization, preparation of pure water and ultra-pure water, food industry, pharmaceuticals and chemical processing applications.

### FEATURES & BENEFITS

- **COMPLIES WITH FDA REGULATIONS FOR POTABLE WATER APPLICATIONS**
  Conforms to paragraph 21CFR 173.25 of the Food Additives Regulations of the F.D.A.
- **COMPLIES WITH USDA REGULATIONS FOR POTABLE WATER SYSTEMS**
  Meets standards for use in systems operating under the Federal meat and poultry products inspection program.
- **UNIFORM PARTICLE SIZE, LOW PRESSURE DROP**
  95% of beads are in the range from 16 to 45 mesh; giving a lower pressure drop.
- **SUPERIOR CHEMICAL AND PHYSICAL STABILITY**
  High sphericity and high crush strengths together with a very uniform particles size provide greater resistance to bead breakage.

### ZGC 108 PROPERTIES

| | | |
|---|---|---|
| Polymer Matrix Structure | Polystyrene crosslinked with 8% DVB | |
| Type | Gel strong acid resin | |
| Functional Group | $R^-(SO_3)^-M^+$ | |
| Appearance | Clear spherical beads | |
| Physical Form | Tough, Spherical beads | |
| Screen Size Range | 16~45 mesh, wet (U.S. standard screen) | |
| Sphericity % | ⩾ 93 | |
| Uniformity Coefficient, Approx. | 1.6 | |
| PH Range, Stability | 1 ~14 | |
| Ionic Form | $Na^+$ | $H^+$ |
| Moisture Content % | 45~49 | 49~54 |
| Shipping Weight, Approx. $lb/ft^3$ | 52 | 50 |
| Total Capacity meq/g<br>meq/ml | ⩾ 4.4<br>⩾ 1.95 | ⩾ 4.5<br>⩾ 1.85 |
| Swelling, $Ca^{++}$ or $Na^+ \rightarrow H^+$ % | 5 ~ 9 | |

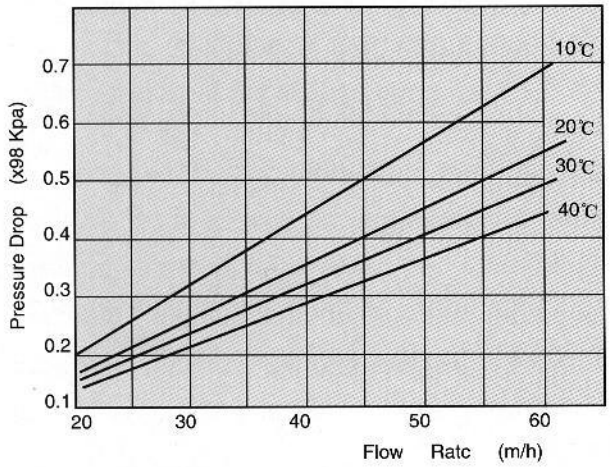
## SUGGESTED OPERATING CONDITIONS

| | |
|---|---|
| Maximum Temperature | |
| Sodium Form | 280 °F |
| Hydrogen Form | 265 °F |
| Backwash Rate | 50~75% Bed Expansion |
| pH range | 1~14 |
| Swelling, $Na^+ \rightarrow H^+$ | ⩽ 10% |

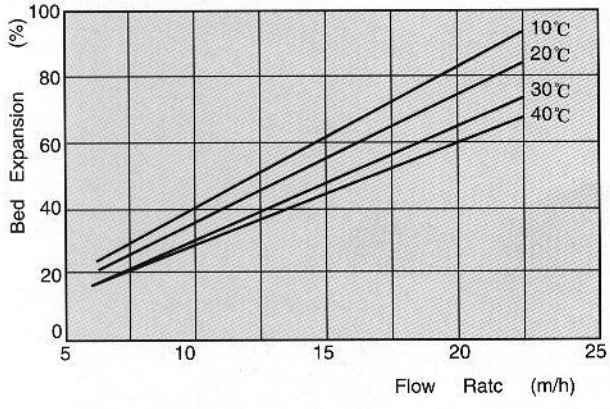
## HYDRAULIC PROPERTIES

The pressure drop(headloss)across a bed of ion exchange resin depends on the particle size distribution, bed depth, operating water temperature and downflow or upflow.

### Fig. 1 PRESSURE DROP VS FLOW RATE




### Fig. 2 BACKWASH BED EXPANSION




## OPERATING PERFORMAN

The major factors influencing operating capacity are

- Regenerant level
- Regenerant temperature
- Operating water temperature
- Flow rate of operating water
- Presence of fouling substances
- Presence of hardness
- Presence of oxidizing agents

### Fig.3 OPERATING CAPACITY VS REGENERATION LEVEL

Conditions:

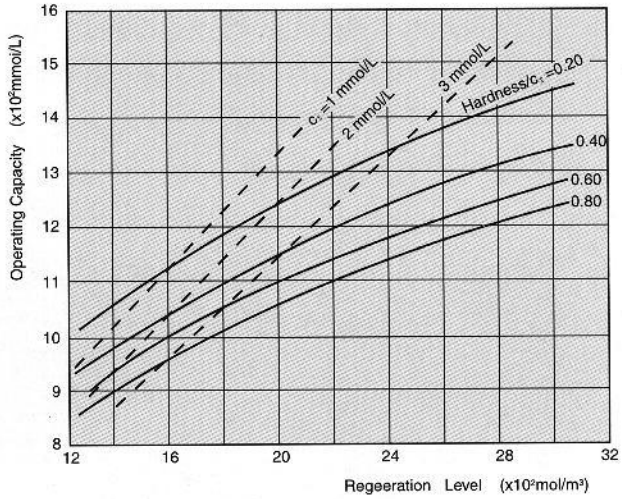
| | |
|---|---|
| Regenerant | HCl |
| Bed depth | 1 m |

Hardness $Ca^{++}$/ total hardness = 0.75

$C_{\Sigma}$ (Concentration of cations) = 4.0 mmol/L

Alkality / $C_{\Sigma}$ = 0.5

Operating water temperature 20℃




## APPLICATIONS

ZGC 108 strong acid cation exchange resin is widely used in water softening and preparation of pure water, hydro-metallury, sugar refining, production of glutamic acid. It can be as dehydrating agent and catalysts.