Zeolite

Adsorption and Reduction of Heavy Metals

KNOWN CONTAMINANTS REDUCED BY MODIFIED ZEOLITE:

- Aluminum
- Ammonium
- Antimony
- Arsenic
- Barium
- Cadmium
- Calcium
- Chrome
- Cobalt
- Copper
- Iron
- Lead
- Magnesium
- Manganese
- Mercury
- Nickel
- Potassium
- Selenium
- Silver
- Sodium
- Tin
- Zinc

In view of the necessity of prevention environmental pollution due to such harmful heavy metals as Chrome and Arsenic and because of the necessity of achieving the conservation of such expensive and limited resources as Zinc, Nickel and Copper for their utilization, it has been required that the techniques for effective removal or recovery of various kinds of heavy metals shoud be firmly established.

BASIC FACTS ABOUT ZEOLITE MINERAL MEDIA

- Blend Zeolite with other adsorbent media such as carbon, clay minerals, molecular bonding agents, elastomeric polymers.
- Selective in the presence of hard water (large concentrations of calcium and magnesium ions).
- High resistance to abrasion, breakage, and deterioration during use, assuring a long life in service.
- Will not dry out, crack, channel, or deteriorate, even when stored in dry, anhydrous conditions.
- Hydrophilic in nature, therefore, displays excellent performance in adsorbing metal ions.
- Relatively inert, non-toxic, non-corrosive, non-hazardous and not prone to oxidation.
- Mechanically strong in order to resist crushing, to which they are often subjected.
- Adsorbs, bonds and locks contaminants in a chemical bond with no leaching.
- Excellent performance, even in the low concentration ranges.
- Will not react with chlorine
- Rapid kinetics of uptake and high retention once adsorbed.
- Has 1% uptake capacity be weight, average.

ION EXCHANGE PROPERTIES:

Cation Exchange Capacity

- 2.4 meg/g (theoretical)
- 1.7-2.1 meg/g (typical)
- 1% uptake capacity be weight (typical)

Removal Efficiency

- Depends on temperature, pH, water quality, rate of flow and suspended solids.

Above ion exchange data are representative in simple solutions. Competing ion effects or other physical conditions may change or reduce effective ion exchange.

Selectivity Sequences

- $Ti^{+}>Cs^{+}>K^{+}>Ag^{+}>Rb^{+}>NH_4^{+}>Pb^{+1}>Na^{+}>Ba^{+2}>Sr^{+2}>Ca^{+2}>Li^{+1}$