CRYSTAL QUEST®
Water Filters

TRAPP XT

WHAT IS TRAPP XT?

STRUCTURE AND COMPOSITION OF TRAPP XT BEADS

Each Trapp XT bead is only a few microns across to be of use in fixed bed Adsorption process. It is necessary to form beads in the range of 2–5 mm in diameter. Within the above range a wide selection of Trapp XT beads sizes can be produced to suit the specific needs of the customer.

The information gained from last 40 years of research has shown that the usage of Bead-Shaped bodies of the Adsorber columns is the optimal solution due to the outstanding mechanical characteristics and excellent Adsorption rate properties.

Removal Of

- **AMMONIA**
- **BORON**
- **HYDROGEN SULFIDE**
- **HEAVY METALS**
- **PHOSPHORUS**
- **SUSPENDED SOLIDS**
- **SILICA and many more...**

PHYSICAL ADSORPTION

At present, commercially available filtration media's based on manganese oxide in the form of granules contains impurities which produce water with these impurities. The drinking water industry has required a high purity magnesium oxide to use as a pretreatment media for the removal of suspended solids, heavy metals and removing all types of acids from water.

The purest magnesium oxide now in the form of [Trapp XT] is available in the water treatment industry. The [Trapp XT] produced by Crystal Quest® is 99.99 % pure MgO + CaO free-flowing uniform beads.

Trapp X Tis a porous, amorphous form of Magnesium (MgO). Although it has the same chemical composition as granular products, it radically different to other MgO-based materials due to its unique outer surface and structure, it is composed of a unique manufacturing process giving it's uniformity and Macroscope pores. As opposed to granular MgO, Trapp XT have larger pores with a wide range of diameters. To ensure drinking Water Quality, all Adsorber division products are certified by WQA/NSF.

PHYSICS

Trapp XT porous outer surface, when exposed to liquids, exhibit a strong physical affinity for these fluids (Physisorption). The molecules of Ionic bounding in liquids, become trapped on the outer surface of Trapp XT macrospores. These molecules are called “Adsorbates” and are “Adsorbed” in the process of Adsorption.

Different surfaces exhibit different Adsorption properties and different molecules are Adsorbed to different capacities. For both, Outer surface and Outer Pores, this “Adsorption Process” is completely reversible. Molecules which have been adsorbed, can be released with slow backwash when reduce in pressure or concentration of molecules. Molecules larger than the pores opening of the molecular sieve can not be adsorbed. Smaller molecules can (Silica, Phospates, Ammonia ca be adsorbed on Trapp XT.

Mesoporous Magnesium Oxide is the world’s number 1 product for capturing CO_2 and H_2S.

USAGE OF TRAPPXT

This Brochure describes 10 applications where Trapp XT can be used to purify process water in 10 ways.

- ***To filter out suspended solids.***
- ***Due to its high alkalinity, its easy to control the pH without using any chemicals.***
- ***Remove silica effectively compared to Ion exchange Resin’s and Membranes.***
- ***Remove Phosphorus effectively compared to any other technology available in the Market.***
- ***Remove CO_2 and H_2S including Ammonia in the water or wastewater.***
- ***In the event that Heavy metals are present in the water or waste water, Trapp XT will be able to allow them to precipitate effectively and then extracted followed by a Filter.***
- ***Controlling Corrosion of the Municipal and Utilities network without adding any Corrosion inhibitors and through coating the inner surface of the pipes with Magnesium Hydroxide. No effect on scale.***
- ***The simplest process of enriching water with Mg^{2+} ions to be salinated and softened water.***
  -The world health regulations specify that the mineralization of desalinated water must confirm to the following water quality criteria:
  - ***– Mg^{2+} ion concentration to the level of 25–30 mg/l***
  - ***– Alkalinity content above 100 mg/l as $CaCO_3$.***
- ***High purity Magnesium Oxide in water forms a very stable corrosion resistant film which does not break. All results have proved that Magnesium Oxide coatings on surface are without the addition of any Anti-scalants and corrosion inhibitors.***
- ***Solve all scaling problems in waste water tanks with its long-lasting alkalinity/ pH control.***

Mechanism
- Adsorption
- Ion Exchange

Easy and safe to handle since:
- Non - Hazardous
- Non - Corrosive
- Non - Toxic

Adding different chemicals to raise pH in water, solutions of sodium hydroxide (NaOH), sodium carbonate ($NaCO_3$) or potassium hydroxide (KOH) are typically used. To add chemicals into water or waste water is difficult, problematic and very expensive. A dosing system for household, point of entry and point of use for raising pH in conjunction with another household device is not suitable and does not exist. If there is mechanical failure in the dosing system or if the storage tank containing (NaOH) is not periodically filled, the pH of the feed water will revert to the feed water pH.

For heavy metal's removal application, this means the consumer will drink water with feed, copper, zinc, nickel and will have corrosive and scale in household piping. Trapp XT will help the whole water treatment industry to get rid of expensive closing system's and using unhealthy caustic solution's to raise pH. The Trapp XT media is an adsorber media, meaning Trapping (see fig. 1).

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Positive ion's from the water to remove heavy metal's by a mechanism of adsorption and releasing OH□ Ions to increase move specifically, by predominantly adsorption or predominantly Ion-Exchange.

The Trapp XT media is non-bonded particulate and the material is in the form of RESIN BEADS. Casted molded material an invention of Crystal Quest.



TECHNICAL DESCRIPTION & DATA

Description:
Trapp XT beads specifically designed for potable water as well as waste water treatment. Removal of Silica, Phosphates, Ammonia, CO_2, H_2S and heavy metals. Neutralization of all acidic water as specifically designed for corrosive deionized, soft water and for enriching water with Magnesium and Calcium.

Chemical and Physical Properties	Magnesium Oxide (MgO): 80 % Calcium Oxide (CaO): 10 % Proprietary: 10 % Chemically inert, no metals present.
Bulk Density	Grade 2–5 mm and 5–8 mm beads SI: 1300 kg/m³ US: 81.16 lb/ft³
Packaging: Standard	28.3 liter/bag*
Storage:	Store in a dry place.
Sizing of Trapp XT Systems	See Crystal Quest® Pressure Filter Design and Installation Guidelines.
Manufacturing:	**Quest Technologies Inc.** **55 Chastain Rd NW #100** **Kennesaw, GA 30144**

If there is no sufficient raw water quality data, adequate water samples from all sources of supply should be collected and analyzed by state certified laboratory. The water analyzes are dependent on the parameters/contaminants (i.e Organic, Iron and Manganese, Arsenic, Radium, Hardness, pH and etc.) For proper design, please contact us.

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