ZEOLITE
CLINOPTILOLITE
APPLICATION FOR

WASTE TREATMENT

INDUSTRIAL / SEWAGE SLUDGE AND ORGANIC SOLID WASTE SOLIDIFICATION & COMPOSTING

Composting is the transformation of organic waste matter into a stable product. If the toxic elements inside the sludge can be removed or stabilized, compost can be used as soil additive. During composting, the ammonia emission must be controlled, since during the decomposition of nitrogenous materials ammonia is released. The addition of zeolite into sewage sludge effectively removes ammonium and heavy metals; increases the compost and effluent quality and decreases leachate. Zeolite can successfully produce compost that is compliant with the regulations and that can be used as soil additive. During composting, zeolite decreases the temperature and the moisture of the sludge and improves organic matter degradation.

Solidification / stabilization is to convert the waste into a less soluble form and to encapsulate it into a matrix. Again the leachability and the mobility of the hazardous waste should be constantly monitored. Clinoptilolite can quickly solidify the hazardous waste, and stabilize them. It strengthens the solidified waste, prevents leaching and decreases DOC, TOC and ammonia values in the effluent. It enables easy handling and transportation.

LANDFILL LEACHATE TREATMENT

Industrial and municipal wastes are still widely disposed at sanitary landfills due to economic reasons. Rain and the water produced by the decomposition of the waste generates toxic leachate that contains hazardous pollutants. Zeolite is an ecological and economical liner material in the barrier system that can prevent shrinkage and remove heavy metals at the same time. Among many liner materials, zeolite gives the highest removal efficiency for heavy metals. It provides a barrier between landfill and the enviroment. It increases the quality of the leachate and prevents ground water contamination.

MUNICIPAL & INDUSTRIAL WASTE WATER TREATMENT

Zeolite is used in many industries to remove ammonium, heavy metals and nutrients from the waste water; decrease the COD and BOD parameters and increase the effluent quality. Here's a list of application areas:

Industrial Zones	Sludge Solidification and Stabilization, Ammonium & Heavy Metal Removal, Reduction of COD and BOD parameters
Electroplating Ind.	Cr, Cu and Fe Removal
Leather Industry	Cr and Heavy Metals Removal
Metal Working Ind.	Cu, Fe and Heavy Metals Removal
Textile & Dye Ind.	Dye Removal
Battery Industry	Lead & Heavy Metal Removal
Glass Industry	Metal Removal
Food Industry	Nutrient Removal

OIL & CHEMICAL SPILLS

Zeolite has a very large surface area and high absorbing capacity. It is safely used as an absorbent grit in industrial accidents, oil spills, chemicals leaks and leachates. It quickly absorbs spills, eliminates bad odors and it is easily cleaned.

RADIOACTIVE WASTE TREATMENT

Apart from heavy metals, zeolite can also bind Uranium, Cesium and Strontium elements by cation exchange. It is successfully used in the construction of nuclear power plants and landfills. It provides an excellent barrier and stability for low level radiation. Natural zeolite was widely used in Chernobyl and most recently in Fukushima nuclear disasters.

As a silicate, zeolite reacts readily with cement and glass binding systems to safely contain and entrap radioactive waste in a cementituous matrix.

AIR TREATMENT & GAS SEPERATION

Zeolite, shows a very good capability in gas separation technology, as a molecular sieve. It can absorb formaldehyde, chloroforms, ammonia, polar and nonpolar molecules like CO2, SO2, NO2, NO, H2S, NH3, H2O, aliphatic hydrocarbons, aromatic hydrocarbons, alcohols, ketons, and other similar molecules. It is applicable for steel mills, facility stacks, gas plants, landfills, sewage treatments, poultry houses, etc. Zeolite is an important material for separation and removal of pollutant from air and other waste stream.

STARKE AQUACARE TECHNOLOGIES

ZEOLITE
CLINOPTILOLITE

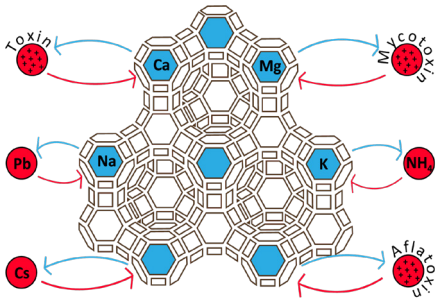
WASTE TREATMENT

CONTENT

Zeolite is a crystalline, hydrated aluminosilicate that has an infinite three dimensional structure. Zeolite contains extremely pure Clinoptilolite (**92% by mass on average**), which is one of the most effective Heulandite type of zeolite. Its highly porous structure (with a porosity reaching 50%) provides an extremely large surface area on which chemical reactions and cation exchanges can take place at a very high degree. It can absorb incredible amounts of water/liquid into its pores. Clinoptilolite has a natural negative ion charge which furnishes it with a tremendously high cation exchange capacity (CEC). Thanks to CEC, it adsorbs and binds ammonium, toxins, mycotoxins and heavy metals like Ni, Pb, Hg and Cd, very efficiently and effectively.

CATION EXCHANGE CAPACITY

Cation exchange capacity (CEC) is a measure of the amount of cations (positively-charged ions) that a clay can catch. As mycotoxins, toxins, heavy metals and ammonium are all positively charged, they are all easily trapped by cation exchangers.



APPLICATION

Composting, Solidification, Stabilization, Spills: Generally zeolite in powder form is mixed with the waste in certain ratios.

Leachate, Waste Water, Air, Radioactive Waste Treatment: Generally zeolite in granule form is used as a barrier and filtering medium.

SUITABLE SIZES

- 0 - 0,4 mm
- 0 - 1,6 mm
- 0,7 - 1,6 mm
- 1,6 - 3 mm
- 3 - 5 mm
- 5 - 9 mm
- 9 - 16 mm
- 16 - 50 mm

ENVIRONMENT-FRIENDLY

100% natural and safe product; produced under the strict quality control system and surveillance of FamiQs.

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