

ANNULAR SEAL AND WELL DESTRUCTION MATERIALS

BENTONITE		
Material/Manufacturer	Mixture (Ration)	Notes on Usage
BENSEAL Baroid Drilling Products	50 lbs/20 gallons water	Must be used with Aqua-Grout Catalyst. Amount of catalyst depends on desired set time. Do not use a centrifugal pump for mixing.
VOLCLAY GROUT CETCO, Inc.	50 lbs/23 gallons water	No initiator necessary. Mix with Venturi type jet hopper or commercial grout mixer.
ENVIROPLUG GROUT WYO-BEN, Inc.	50 lbs/14 gallons water	Slurry will resemble "pancake batter" with small lumps. Double diaphragm pump recommended for mixing.
BENTONITE CHIPS (Currently only authorized for use below the interval to be sealed)		
Bentonite Notes:		
<ul style="list-style-type: none"> The bentonite slurry must be mixed on-site from the original manufacturer's packaging. Bentonite slurries must be pumped from the bottom up through a tremie pipe or hose. Water used to mix bentonite slurry must be of potable quality. Allow seal to settle for at least 24 hours before installing well slab. Cannot be used in areas of heavy petroleum product contamination or high salt concentration. 		
CONCRETE/CEMENT		
NEAT CEMENT	94 lbs Portland cement 4 ½ - 6 ½ gal water	Will be fairly thick mixture.
SAND CEMENT	188 lbs (max) sand/94 lbs Portland Cement/7gallons water	Equivalent to "10.3 sack" mix.
CONCRETE	6 sacks Portland cement per cubic yard (Class A concrete) 5 sacks Portland cement per cubic yard (Class B concrete) 8 sacks Portland cement per cubic yard with 3/8" aggregate. Note: May require special cement pumping equipment.	
Concrete/Cement Notes:		
<ul style="list-style-type: none"> Additives may be used in cement/concrete if approved by Contra Costa Environmental Health. Additives include bentonite (up to 5% by volume) and hydrated lime (up to 10% by volume). Additives must meet ASTM C494. "Standard Specification for Chemical Admixtures for Concrete". Mix bentonite in water before adding cement/concrete. Cement must meet ASTM C150, "Standard Specification for Portland Cement". Cement or concrete must be from "Ready-Mix" Company with weight slip or mixed on-site from original manufacturer's packaging. Water used to mix cement/concrete must be of potable quality. The size of any aggregate must be less than 1/5 the radial thickness of the annular seal. Aggregate must meet ASTM C33 "Standard Specification for Concrete Aggregate". 		