

PHYSICAL PROPERTIES OF CETCO ORGANOCLAY® PM-100 PERTINENT TO USE IN PERMEABLE REACTIVE BARRIERS

CETCO PM-100 is a blend of 30% Organoclay adsorptive media and 70% Anthracite coal. Anthracite is chosen because its specific gravity is close to that of organoclay permitting homogenous mixing. The Anthracite provides spacing for the adsorptive media to prevent blinding off as the media adsorbs organics. The TOC for anthracite is approximately 63%, based on residual in TGA testing. CETCO can provide a mix ratio to meet your needs. Mixtures with Granular Activated Carbon can also be provided.

Particle Size Distribution

The (particle) size distribution (PSD) for PM-100 is 80% between .4 and 1mm with 20 percent passing the .4mm sieve. This distribution is dependant on the organoclay to anthracite mix ratio. The PSD for the anthracite and the pure organoclay (PM-199) is listed in the chart below. PSD can be varied to meet the project needs. CETCO can provide organoclay with maximum grain (particle) size of 3mm.

	Sieve (US standard)	mm	% Retained
Anthracite	10 mesh	2.00	0.0
	16 mesh	1.18	3.3
	18 mesh	1.00	12.6
	20 mesh	0.85	43.5
	25 mesh	0.71	27.5
	40 mesh	0.43	8.5
	Pan		4.6
PM-199	18 mesh	1.00	1% Max
	40 mesh	0.43	70% Min
	50 mesh	0.30	25% Max
	100 mesh	0.15	3% Max
	Pan		1% Max
PM-100	10 mesh	2.00	0.5% Max
	18 mesh	1.00	13% Max
	40 mesh	0.43	70% Min
	50 mesh	0.30	15% max
	Pan		2% Max

Hydraulic Conductivity

Hydraulic conductivity testing on PM-100 has shown an initial hydraulic conductivity of 1×10^{-2} cm per sec when tested at 25 psi confining stress. This result is for virgin media in fresh water. A decrease in permeability should be expected dependant as the media adsorbs contaminates. This is dependent on the contaminant of concern as well as the time and flow rates. It is recommended that project specific testing be conducted to ensure that the PRB will maintain adequate permeability over time.

Porosity

The porosity of PM-100 is approximately .55. This is based on a specific gravity of 1.8 for the PM-100 material and a bulk density of .78g/ml. The specific gravity for the PM-100 is 2.0 and for the anthracite is 1.66.