

## Water and Wastewater Treatment

Navajo Brand® pumice has several grades to meet the diverse needs of the Water Treatment Industry. The porous, lightweight, and surface activity of Navajo Brand® and PFM (Pumice Filtration Media)® provides unique advantages in these processes.

Application	Portable Water	Waste Water	Industrial Effluents	Waste Odor
Aerobic Digestion		Ballast	Ballast	
Anaerobic Digestion		Biomass Support	Biomass Support	
Clarification	Ballast		Ballast	
Filtration	Media	Media	Media	
Odor Control		Conditioning	Conditioning	Biomass Support
Sludge Treatment		Biomass Support	Biomass Support	Biomass Support



### Aerobic Digestion

Navajo Brand® pumice, in addition to its ability to assist clarification, is an essential addition in the Sequencing Batch Reactor (SBR) process where inadequate time has been allowed for phase separation to take place. The addition of small amounts of pumice just prior to the settlement stage enhances the settlement of the sludge allowing the water treatment plant to perform up to or beyond design capacity.

#### Recommended Products

- # 0-1/2      0.05 to 0.2 mm (80 to 325 Mesh)
- # 1/2        0.1 to 0.3 mm (50 to 120 Mesh)
- # 1-1/2      0.1 to 0.45 mm (40 to 100 Mesh)

### Anaerobic Digestion

The anaerobic digestion process destroys/digests organic wastes in the absence or air. This biological process, unlike aerobic digestion which produces CO<sub>2</sub>, produces methane gas, CH<sub>4</sub>. Navajo Brand® pumice acts as a biomass support in this process, typically employed in the treatment of wastes from municipal sludge, and industrial wastes from breweries, sugar processing, paper manufacturing, and dairies. The concentration of biomass is significantly increased, growing in ideal conditions on the porous surface of the pumice resulting in reduced retention times and higher methane gas generation.

#### Recommended Products

- # 1-1/2      0.1 to 0.45 mm (40 to 100 Mesh)
- # 3            0.2 to 0.6 mm (30 to 80 Mesh)
- # 4            0.6 to 1.6 mm (14 to 40 Mesh)

## Clarification

Navajo Brand® pumice, when added to the raw water, increases the density of the flocs that result from the coagulation process, and accelerates sedimentation. Coagulation occurs when the raw water reacts with the chemical coagulant and the flocs then attach themselves to the pumice particles, giving a ballast effect. Settlement occurs under gravity and the clarified water is recovered from the upper part of the clarifier with the sludge being removed from the bottom. This process is suited to potable water, sewage treatment, and industrial effluent treatment.

### Recommended Products

# 0-1/2	0.05 to 0.2 mm (80 to 325 Mesh)
# 1/2	0.1 to 0.3 mm (50 to 120 Mesh)
# 1-1/2	0.1 to 0.45 mm (40 to 100 Mesh)

## Odor Control

Hydrogen sulfide (H<sub>2</sub>S) gas is emitted during the treatment of municipal sewage and other industrial organic wastes. Hydrogen sulfide is a highly toxic and malodorous gas, which is severely irritating. When hydrogen sulfide gas is passed through a bed of Navajo Brand® pumice, the porous nature of pumice efficiently removes the corrosive gas. Oftentimes, odor control with pumice is a cost effective alternative to activated carbon, with the additional benefit that Navajo Brand® pumice is harder than activated carbon, and therefore less subject to mechanical breakage.

### Recommended Products

# 3	0.2 to 0.6 mm (30 to 80 Mesh)
# 4	0.6 to 1.6 mm (14 to 40 Mesh)
# 6	1.4 to 2.0 mm (10 to 14 Mesh)
# 8	2.0 to 3.5 mm (6 to 10 Mesh)

## Sludge Treatment

The safe disposal of sludge derived from the biological treatment of sewage or industrial effluents often requires an additional step of de-watering. De-watering by evaporation, centrifugation, or filtration are the most common methods of dewatering. The addition of Navajo Brand® pumice to the sludge prior to filtration provides improved de-watering. The porous nature of the pumice produces a more cohesive filter cake that reduces filter cloth blinding, allows greater filter runs with improved filtrate quality, and produces a cake that can be used for agricultural or horticultural purposes.

### Recommended Products

# 2-0	35% Finer than 44 microns (325 Mesh)
# 0-1/2	0.05 to 0.2 mm (80 to 325 Mesh)
# 1-1/2	0.1 to 0.45 mm (40 to 100 Mesh)

### Additional Information at [www.CRMinerals.com](http://www.CRMinerals.com)

To place an order or obtain additional information, please contact CR Minerals at 505-428-2940, or contact your local distributor.

CR Minerals is a worldwide supplier of pumice products to many diverse markets. It operates a state of the art processing facility in Ohkay Owingeh, New Mexico.

Although the information and suggestions in this publication are believed to be correct, CR Minerals makes no representations or warranties as to the accuracy or completeness of this information.