

# NATURALGEL®

## Unpeptized Bentonite

### HIGHER FLUID VISCOSITY & GEL STRENGTH

**Naturalgel®** is an unpeptized bentonite (sodium montmorillonite). **Naturalgel** has the unusual property of expanding several times its original volume when placed in water. The result is higher fluid viscosity, gel strength, and solids suspending ability. Bentonite can be added up to 20% by volume by weight of cement. Above 6%, the addition of a dispersant is usually necessary to reduce the slurry viscosity and gel strength.

As shown in the table below, the slurry density decreases and the yield increases quickly with bentonite concentrations. High bentonite concentrations tend to improve fluid loss control; however the compromise is higher cement permeability and lower compressive strength. **Naturalgel** can also be used as an extender at elevated temperatures.

Bentonite %	Slurry Weight kg/m <sup>3</sup>	Mix Water m <sup>3</sup> /ton	Slurry Yield m <sup>3</sup> /ton
0	1893.3	0.440	0.757
2	1785.4	0.547	0.870
4	1713.5	0.653	0.984
6	1665.6	0.759	1.097
8	1593.7	0.867	1.218
10	1569.7	0.971	1.323
12	1521.8	1.078	1.440
16	1461.9	1.291	1.880

### MIXING & HANDLING

The extending properties of bentonite can be greatly enhanced if the material is allowed to completely hydrate in the mix water prior to slurry mixing. The presence of high concentrations of calcium ion in the aqueous phase of cement slurry inhibits the hydration of **Naturalgel**. For further safety and handling instructions consult Material Safety Data Sheet.

**WHMIS:** Controlled (see SDS)

**TDG:** Not regulated

**Packaging:** 50 kg bags

### PHYSICAL PROPERTIES:

**Appearance:** Grey powder - odorless

**Bulk Density:** 960 kg/m<sup>3</sup>

**Particle Size:** 80% passing 200 mesh (75µ)

**pH (5% Suspension):** 9.1

**Loss of Ignition:** 4.4%

### CHEMICAL PROPERTIES:

**Silicon Oxide (SiO<sub>2</sub>):** 61%

**Aluminum Oxide (Al<sub>2</sub>O<sub>3</sub>):** 18.1%

**Ferric Oxide(Fe<sub>2</sub>O<sub>3</sub>):** 3.5%

**Sodium Oxide (Na<sub>2</sub>O):** 2.3%

**Magnesium Oxide (MgO):** 1.7%

**Calcium Oxide (CaO):** 0.2%

**Titanium Oxide (TiO<sub>2</sub>):** 0.1%

**Potassium Oxide (K<sub>2</sub>O):** 0.07%

**Other:** 7.8%