

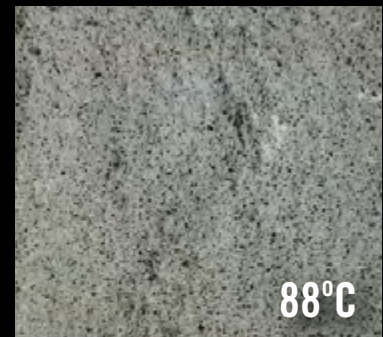
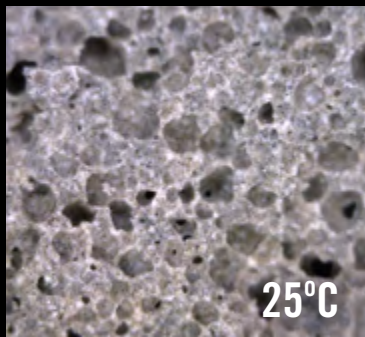
CEMENT FOAMERS

Stepan Oilfield Solutions' PETROSTEP® CF-1 and CF-2 are foamers designed specifically for incorporating air into oilfield cement slurry. Foamed cements can be used in many of the same oilfield applications as portland cement, including primary and remedial cementing, without imparting the hydrostatic pressure of its heavier counterpart. This is particularly useful when cementing in formations with low fracture gradient as the weight of the cement can fracture the formation and cause problems with loss circulation.

The distribution and non-connectedness of the bubbles present in foamed cement also can help inhibit fluid and gas migration, and prevent fluid loss during the curing period. This characteristic makes foamed cement ideal for zonal isolation needs.

PETROSTEP CF-1

Images (right) show the product tested following API 10B-4 standard at 9 - 10 lb/gallon.



PHYSICAL PROPERTIES

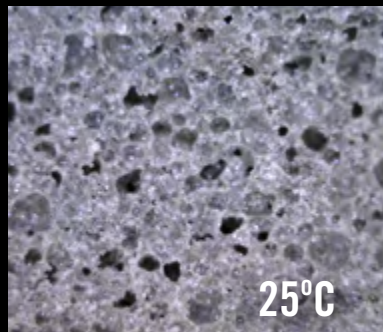
- pH (10% aqueous): 7.0 - 7.5
- Viscosity at 25°C, cps: 20
- Density at 25°C, lb/gallon: 8.6
- Compatible with anionic and nonionic surfactants

APPLICATIONS

- Foams Class H (or similar) cement to a density of 9 - 10 lb/gallon
- Typical loading: 0.1 - 0.2 gallons/sack
- Winterized and flashpoint versions available

PETROSTEP CF-2

Images (right) show the product tested following API 10B-4 standard at 9 - 10 lb/gallon.



PHYSICAL PROPERTIES

- pH (as is): 5.5 - 6.5
- Viscosity at 25°C, cps: 75
- Density at 25°C, lb/gallon: 8.9
- Thermally stable at 160°C
- Compatible with anionic, cationic and nonionic surfactants

APPLICATIONS

- Foams Class H (or similar) cement to a density of 9 - 10 lb/gallon
- Typical loading: 0.1 - 0.2 gallons/sack

For more information about PETROSTEP Cement Foams and other PETROSTEP products, email oilfield@stepan.com or call 713.955.8100.