

Description

SODIUM BICARBONATE (NaHCO₃) is used primarily to treat cement contaminated water-base drilling fluids.

Typical Properties

Appearance : White powder
pH (1% sol.) : 8.3 - 8.5
Specific Gravity : 2.2

Features and Benefits

SODIUM BICARBONATE effectively reduces soluble calcium ions and pH in cement contaminated water-base drilling fluids according to the following reaction.



SODIUM BICARBONATE is a cost effective chemical for control of cement contaminated drilling fluids.

Application

SODIUM BICARBONATE is used to correct the adverse effects of cement contamination on the water-base drilling fluids.

Limitations

Over treatment with SODIUM BICARBONATE causes bicarbonate and carbonate contamination which causes high gel strengths and high fluid losses.

SODIUM BICARBONATE is not suitable for low pH systems.

If massive green cement contamination occurs SODIUM BICARBONATE can not reduce pH by itself. An acid such as CITRIC ACID should be used with SODIUM BICARBONATE.

Treatment

Normal treatment levels of SODIUM BICARBONATE ranges from 0.5 to 2 lb/bbl (1.43 to 5.71 kg/m³) depending on fluid chemistry. Theoretically, SODIUM BICARBONATE concentration is calculated from

$$\text{Sodium Bicarbonate (lb/bbl)} = 0.59 \times P_m$$

or

$$\text{Sodium Bicarbonate (lb/bbl)} = 0.00074 \times F_w \times \text{Ca}^{2+} \text{ (mg/l)}$$

Where P_m is the mud alkalinity and F_w is water fraction in the fluid.

It is recommended to mix approximately 25 kg (55 lb) of sodium bicarbonate to pretreat one cubic feet (0.028 m³) of cement. More SODIUM BICARBONATE is added when green cement is drilled.

SODIUM BICARBONATE should be added slowly through a hopper or chemical barrel. When using a barrel, mix SODIUM BICARBONATE into a full barrel of fresh water and provide adequate agitation.

Packaging

SODIUM BICARBONATE is supplied in 25 kg (55 lb) or 50 kg (110 lb) multi-wall paper sacks.