Caustic Potash

Caustic Potash is the common name for potassium hydroxide (KOH). It is sometimes used for pH stability and as an inhibitor for swelling shales. It is a strong base that is extremely soluble in water and dissociates into potassium (K+) and hydroxyl (OH -) ions in solution.

Typical Physical Properties

Physical appearance ..... White pellet or flake
Specific gravity 2.04
Solubility in water 100%

Application

Caustic Potash is used to maintain or increase pH. Increasing pH with Caustic Potash precipitates magnesium (Mg2+) and suppresses calcium (Ca2+) in high-hardness waters like seawater, reduces corrosion, and neutralizes acid gases such as carbon dioxide (CO2) and hydrogen sulphide (H2S). It is used instead of caustic soda in inhibitive water-base fluids and drill-in fluids to reduce the sodium ion content and avoid
dispersion of clays.
Typical concentrations range from 0.25 to 4 lb/bbl (0.7 to 11.4 kg/m3) with treatments depending on water chemistry and type of drilling fluid. A higher concentration of Caustic Potash is required in seawater and waters containing buffering salts. When treating muds with Spersene* or Tannathin*, which have low pH (±4), typical usage is one sack of Caustic Potash for every four sacks of Spersene* or Tannathin*. The recommended
treatments and concentrations can vary based on local area of purchase.
Recommended Treatments:
1. For pH control: ¼ lb/bbl = approx. pH 9.0
½ lb/bbl = approx. pH 10.0
1 lb/bbl = approx. pH 12.0
2. For inhibition: Maintain 500 ppm K

Advantages

- Widely available and economical source of hydroxyl ions to control pH
- Concentrated chemical that is very effective at small treatment levels
- Increases pH, which reduces corrosion of steel exposed to drilling fluids
- Can be used in most water-base drilling fluids

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Limitations

- In high-hardness brines such as CaCl2 and other naturally occurring mixed-salt brines, Caustic Potash cannot be used to effectively raise the pH due to the high level of cations that combine with hydroxyl ions to precipitate hydroxides such as Ca(OH)2 and Mg(OH)2.

Toxicity and Handling

Bioassay information is available upon request. Handle as an industrial chemical, wearing protective equipment and observing the precautions described in the Material Safety Data Sheet (MSDS). Also observe the health hazard information and emergency and first aid procedures described in the MSDS.
WARNING! Avoid exposure and handle only when fully protected. Caustic Potash is an extremely alkaline material and can cause severe burns to eyes, skin and respiratory tract and can react violently with water or acids. Considerable heat energy is generated when Caustic Potash is mixed with water, and care should be taken when mixing.
Caustic Potash should be added slowly to the mud system through a properly designed chemical barrel. Do not mix Caustic Potash with other chemicals or through the mud hopper. When using the chemical barrel, fill to the desired level with water, then add dry Caustic Potash.

Packaging and Storage

Caustic Potash is packaged in multi-wall, paper sacks with plastic liners. Packing container sizes and types vary based on local area of purchase.
Store in a dry area away from water and acids. Keep all containers sealed. Once a container is opened, it should be used immediately because Caustic Potash is hygroscopic and absorbs water from the air, which makes it more difficult to handle. Caustic Potash is corrosive to certain materials. Spills should be cleaned up with the utmost care using protective equipment described in the MSDS

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