

Anti-Sludging Agent KMA005

1. Introduction

Some crude oils react with acid to form a black asphaltic sludge by the coagulation of unstable colloidal material in the oil. The sludge is a mixture of asphaltic compounds, resins, paraffins and other high-molecular weight constituents of crude oil. Sludge can stabilize emulsions, cause plugging of pore spaces and may be responsible for the poor performance of matrix treatments in some reservoirs.

KMA005 is used in acid fluids to control acid sludging problems during matrix treatments. It is also a good emulsion-preventing agent to be used to prevent emulsions caused by acid mixing with the produced oil.

2. Physical Properties and Hazards

Additive	Form	Specific Gravity	Water Solubility	Melting/Flash Point (°C)	Health Hazard	Physical Hazard	pH
KMA005	Amber Liquid	0.95-1.05	Dispersible	32	Eyes, Skin, Inhalation	Fire	2.0-3.0 (1%)

3. Chemical Properties and Application

KMA005 is a good surface-active agent for low pH systems. It provides low-surface tension properties to matrix treatment fluids and water-wets sandstone and limestone formations. KMA005 functions by stabilizing the colloidal asphaltic material in the oil and preventing the contact of cationic counter ions of the acid (H^+), iron (Fe^{3+}) and/or calcium (Ca^{2+}) with the colloid.

KMA005 is also effective in preventing and breaking emulsions due to its unique chemical nature.

KMA005 is compatible with most additives in stimulation fluid systems. It is also readily biodegradable and presents lower toxicity to organisms than other surface-active agents.

4. Treatment

Typical concentrations range from 2 to 10 Gal/1,000 Gal (2 to 10 L/m³) of acid. Laboratory testing is required to determine the optimum concentration that will prevent the formation of crude oil sludge or an emulsion.

5. Packaging

KMA005 is supplied in 55 gallons high density polyethylene (HDPE) or steel drums.

Keep it away from extreme conditions such as places near flames or direct sunlight.