

ROCK BIT GREASE COMPOSITION

Abstract

A rock bit grease composition is prepared by combining synthetic polymer lubricant basestocks comprising a first ethylene-alphaolefin polymer having an average molecular weight in the range of from 3,500 to 4,000, and a polyisobutylene polymer to form a first master. A metal complex soap base thickener is prepared by combining a synthetic polymer lubricant basestocks comprising a second ethylene-alphaolefin having an average molecular weight in the range of from 400 to 800, with an alkali-metal or alkaline-earth metal hydroxide, and at least one fatty acid. A preferred fatty acid is a blend of a first fatty acid having in the range of from 15 to 20 carbon atoms, and a second fatty acid having in the range of from 5 to 12 carbon atoms. The first master and metal complex soap base thickener are mixed together in desired proportions. Boron nitride extreme pressure agent, molybdenum disulfide lubricant additive, and copper powder anti-seize agent are added to the mixture to produce a grease composition having a Brookfield viscosity at 120°C in the range of from 600 to 750 centipoise, that is not harmful to elastomeric rock bit seals and boots, and that is free of metal lubricant additives that are toxic to humans and/or hazardous to the environment.

FIGURE 1