

FRAC-CL-310

Alkaline Borate Crosslinker

Field of Usage

FRAC-CL-310 is used for preparing aqueous fracturing fluids. The product provides an increasing of viscosity and gel formation up to 120 °C in conjunction with aqueous solutions of hydroxy-functionalized polymers (gellants). FRAC-CL-310 can be used for thickening of polysaccharides such as cellulose or guar or derivatives of them e.g. carboxymethyl-cellulose (CMC), hydroxypropyl-guar (HPG) etc. As a result of that crosslinking a pumpable means of transportation for propping agents e.g. sand arises. Furthermore a breakthrough of fracturing fluid through the crude oil can be avoid.

Attributes

The product is strong alkaline an it contains an internal borate buffer. That provides to a pH of 9.5 to 10.5 in application. After addition to gelling agents such as guar or derivatized guar the crosslinking starts immediately and the viscosity is significantly increasing. The product is frost resistant up to -15 °C.

Components

The product FRAC-CL-310 contains a mixture of sodium polyborates, polyvalent alcohols and complexing agents in an alkaline-aqueous solution.

Application

For making pumpable fracturing gels a quantity of 0.1 - 0,5 % of the Crosslinker FRAC-CL-310 is added under agitation to an aqueous polymer solution (e.g. guar or derivatized guar) with a concentration of 0.1 - 0.5%. The precise dosage depends on the kind of gelling agent, the target viscosity and application conditions of fracturing.

The gel is formed within about a half minute. After this the fracturing additives (proppant, non-emulsifier / nonemulsifier) / demulsifier gel breaker, gel formation delaying agent etc. can be added and stirred up. Oxidants such as ammonium persulfate, alkaline conditions and high temperatures advance significantly a decomposition of the gel. A decrease of viscosity to the initial value is can be managed by an applicative dosage of gel breakers (oxidizing agents).

The optimal dosages should be find out by means of laboratory tests - especially the concentration of gelling agent, crosslinker and gel breaker.

Physical Properties

Density: . . 1.23 - 1.26 g / cm³ Freezing point: . . < -15 °C Alkalinity: . . pH 12 (10%) / 10 (0.2%) Viscosity: . . 20 mPa*s

Delivery Form

190 liters in steel drums. 925 liters in containers (IBC).

DIN / ISO 9001 accredited manufacturer.

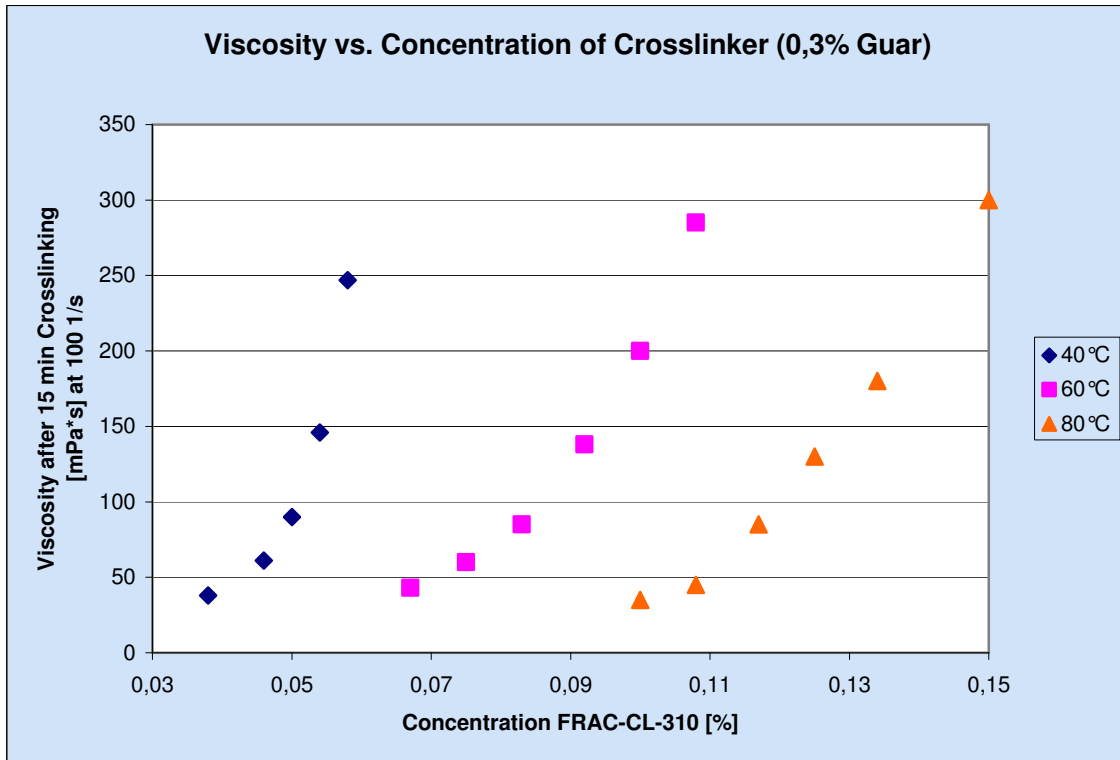
This information is based on our present state of knowledge and is intended to provide general notes on this product and its use. It should therefore not be construed as guaranteeing specific properties of the product described and does not justify a contractual legal relationship. The user basically accounts for using this product. It is only assigned for commercial usage.

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Obtainable Viscosity



Viscosity of Guar-Solutions

Guar [%]	1,0	1,2	1,4	1,6
Viscosity [mPa*s] D= 100 1/s T= 60°C	290	458	768	940