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Kinetics Controls & Innovation Ltd

IBS
Technical Data Sheet

Description: 2 part gel compound

Intended use: Wellhead isolations, solid, split and ball valve isolations.

Features: No heat transfer, organic product, can be frozen, chemically, kinetically reversible.

Technical data should be considered representative for specific applications contact KCI

Typical Physical Properties:

Curing time at 20°c = 12hrs. (Product cures faster in high temperatures)
Activator ratio 20:1
Premix form: Activator – Base oil (Buff)
Compound – Gel (Opaque White)

Breaker: Oxidiser in solution (PH7.0)
Breaker ratio 1:1 (Can be altered in consultation with KCI)
Breaker – Liquid (Colourless)

Mixed
Relative density = 0.99 - 1.03
Boiling Point = >180°c
Deployment Temperature + 5°c to +25°c

Cured
Colour – Off-white
Product self-levels whilst moulding to the profile of the filled area.
Structure: Gel
Operational Temperature -5°c to +90°c

Rheology
Following a 60s temperature equilibration period at rest the samples were subjected to a shear rate sweep ranging from 10s-1 to 300s-1, scaled logarithmically, data recorded at 6 data-points for every decade of shear rate. The test was performed at 25°C.

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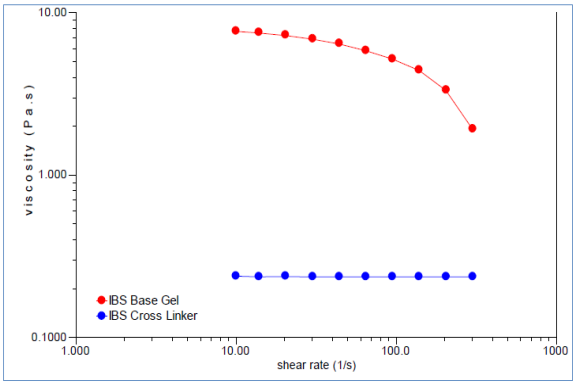
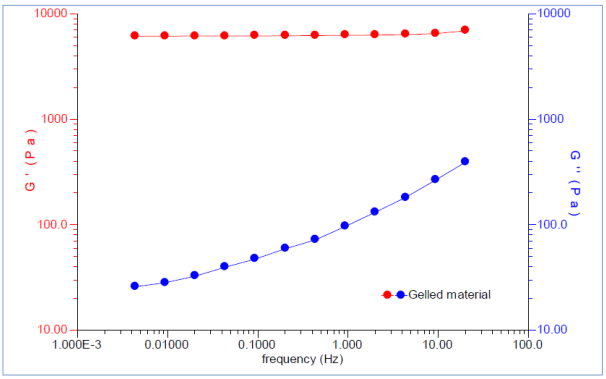
Viscosity is plotted as a function of shear rate to obtain:



The gelled mixture was profiled using an oscillatory frequency sweep technique. In oscillatory testing the sample is subjected to small amplitude oscillatory (i.e. clockwise then counter clockwise) shear. From the material's response it is possible to quantify two viscoelastic moduli: Elastic modulus (G'), a measure of the material's ability to store energy through elastic deformation, and Viscous Modulus (G"), a measure of the material's ability to dissipate energy through viscous flow. Oscillations are performed at various frequencies to obtain a viscoelastic profile as shown below:



Area Preparation: IBS will sink below oil and drilling mud and float on seawater and brine. fluids. The product can also be injected into dry, enclosed environments. IBS can be deployed for isolating both horizontally or vertically.

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Mixing Instructions:

1. Add full volume of activator provided unless discussed otherwise with KCI
2. Only mix product in tubs provided
3. Using mixing tool provided, mix products together until fully mixed.
4. Deploy product immediately after mixing

Deployment Instructions: KCI provide detailed procedures for each application.

Removal Instructions:

1. Allow to sit for 24-72hrs dependant on temperature and size of isolation.
2. Contain breaker around isolation product (don't operate valve)
3. Product can be sheared for removal due to high tensile, low shear strength.
4. Product can also be pigged out using conventional methods.

Storage: Store between 3°C & 8°C in a dark, dry environment

Shelf life: 6 Months

Expected Lifespan: Approximately 1 year+ if left undisturbed

Disposal: Once broken the product can be flushed through the production system with no adverse effects or sludge residue.

Precautions: Please refer to appropriate material safety data sheets (MSDS) prior to using this product.

For technical assistance call KCI on +44 1224 255480 (24hrs)

Disclaimer: Information on this data sheet is based on laboratory testing and is not intended for design purposes. KCI make no representations or warranties of any kind concerning this data.

For advice on specific applications contact KCI on +44 1224 255480 (24hrs)