IRON HORSE CHEMICALS

TECHNICAL DATA SHEET

DIVERTER

Our complete line of patent pending diverters have been field tested, in development and in use for the past 5 years with successful field results.

BENEFITS

About our Patent Pending Near and Far Field Diverters

- Developed by completions engineers who understand reservoir dynamics
- PLA based
- Wide temperature range - 120-to-330-degree F BHT
- Fully Degradable
- Environmentally friendly - Green process
- Permeability studies showing no formation damage
- Applicable for all formations
- More effective and lower cost than Pods

SUPERIOR PERFORMANCE

- Optimized blend that has been refined over past 5 years
- Over 2500 diverter stages pumped
- IHC will provide technical support with frac design and operational set-up
- Engineering plots showing effective diversion
- Pro-Technics study showing 95% completion efficiency
- Reservoir analysis showing 25% better EUR's than offset wells

NEAR WELL BORE DIVERTER

Our Near Well Bore diverters are an engineered slurry comprised degradable particles with multi-modal size distribution. The near wellbore particles bridge at the perforation tunnel for isolation making it more effective diversion than balls/pods. The diverter enhances the number of stimulated clusters and allows increased stage spacing, resulting in reduced well costs. It is also a great application for re-fracture candidates.

- PLA – Polylactic acid
- Engineered slurry comprised of patent pending blend of degradable sizes that bridge at perforation tunnel for isolation
- Particle degradation triggered by BHST without leaving residue
- Enhances completion; cluster efficiency
- Increases interval length in new completions – reduce well costs
- Customizable designs

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FAR FIELD DIVERTER

Our patent pending PLA diverter for far field diversion for fracture stimulations. The particle blend bridges at the fracture tip and provides fracture geometry control. Far Field Diverter minimizes communication to offset wells (parent / child relationship) and fracturing into undesirable (depleted) zones. The Far Field diverter also creates a more complex fracture network, resulting in more stimulated rock and drainage.

Our Far Field diverter is biodegradable and hydrolyzes based upon reservoir temperature, pressure, and water to a clear, no-hazardous liquid

- PLA – Polylactic acid
- Blend of patent pending particle sizes that bridge at the fracture tip
- Minimizes risk of communicating to offset wells (parent/child relationship)
- Minimizes risk of fracturing into undesirable zones; depleted zones
- Degrades by BHST without leaving residue
- Creates complex fracturing network for enhanced drainage

DRILLOUTS / CLEANOUTS

IHC offers material to enhance drill out and cleanout efficiency. Low pressure cleanout environments present challenges to maintain circulating rates to effectively cleanout the wellbore.

Our product provides a simple and effective solution to maintain circulation rate throughout cleanout operations. This blend has favorable degradation times in low temperature environments. Additionally, this is an economical option compared to usage of nitrogen and lightweight mud systems.

The diverter is biodegradable and hydrolyzes based upon reservoir temperature, pressure, and water to a clear, no-hazardous liquid.

ACIDIZING

Our acid diverter agent significantly improves matrix acidizing efficiency in production well acid operations. This is achieved with near wellbore diversion drops to increase overall acid placement throughout the wellbore. These are economical jobs to restore production in existing producing wells.

The diverter is biodegradable and hydrolyzes based upon reservoir temperature, pressure, and water to a clear, no-hazardous liquid.

DRILLING LOSS CIRCULATION

We can provide unique and effective blends for loss circulation throughout drilling operations. Our products are versatile in varying formations, can be utilized with various treatment applications such as squeezes and continuous circulation. Our products will help reduce the severity of loss circulation events..