

Product Name: NiQuan CDF™

Product Category: Clean Drilling Fluids



NiQuan Energy
CLEAN ENERGY FUELING A CLEANER WORLD

Description:

NiQuan Clean Drilling Fluid (NiQuan CDF™) is an on-spec and environmentally friendly product. Biodegradable and with very low toxicity, NiQuan CDF™ meets OGP Group III standards. NiQuan CDF™ is an ideal base fluid component for Synthetic Drilling Muds as they are a cleaner key component of drilling fluids used to maintain bore hole stability when deep sea drilling and are non-toxic, therefore they do not contribute to pollution of waterways.

NiQuan CDF™ has a low pour point, low viscosity and a narrow boiling range which improves its rheological performance. It has near-zero sulfur content and is characterized by very low aromatics and greatly reduced nitrogen content. With a high flash point and low absorbency, NiQuan CDF™ is safe to store and handle.

NiQuan CDF™ is produced using X-to-Liquids (XTL) technology featuring the Fischer-Tropsch catalytic process; a cost-efficient and low emission means of producing Group III NABFs. During an extensive testing program carried out by Intertek Laboratories in Houston, Texas, its performance as a base for the preparation of drilling fluids was in accordance with industry-accepted parameters.

NiQuan CDF™ Specifications

| | Property | Unit | Value | Test Method | |
|-------------------------------------|----------------------------|-----------------------------|------------------------------------|-------------------------|------------|
| Chemical Properties | Total Paraffin | %m | 97 | ASTM D1319/GC | |
| | Total Aromatic | %vol | < 0.5 | ASTM D391 | |
| | Sulphur Content | ppm | 0.2 | ASTM D4294 / ASTM D5453 | |
| Physical Properties | Saybolt Color | | > +30 | ASTM D156 | |
| | Boiling Range | | | ASTM D86 | |
| | | IBP | °C | 175 | |
| | | 90% Recovered | °C | 310 | |
| | | Aniline Point | °C | 87 | ASTM D611 |
| | | Pour Point | °C | -18 | ASTM D97 |
| | | Flash Point | °C | 75 | ASTM D93 |
| | | Vapor Pressure | psi | < 0.02 | ASTM D6378 |
| | | Kinematic Viscosity @ 40°C | cSt | 2.2 | ASTM D445 |
| | | Kinematic Viscosity @ 100°C | cSt | 1.32 | ASTM D445 |
| Environmental Properties | Biodegradability | Unit | Expected Value | Test Method | |
| | Aerobic (Marine Water) | % after 28 days | 75 | OECD 306 | |
| | Aerobic (Soil) | Half-life (days) | 21 | OECD 307 | |
| | Water Column Toxicity * | | | | |
| | Acartia Tonsa | mg/L | > 1,000 (non-toxic) | PARCOM, ISO 14569 | |
| | Skeletonema Costatum | mg/L | > 1,000 (non-toxic) | OSPAR / PARCOM | |
| | Mysidopsis Bahia | ppm | > 1,000,000 of 10% SPP (non-toxic) | US-EPA 2001 40 CFR 435 | |
| | Pagrus Auratus | mg/L | 7d LC50: > 100,000 (non-toxic) | US-EPA 2003 | |
| | Daphnia Magna | mg/L | > 1,000 (non-toxic) | OECD 202 | |
| | Brachydanio Rerio | mg/L | > 1,000 (non-toxic) | OECD 203 | |
| | Sediment Organism Toxicity | | | | |
| | Corophium Volutator | mg/kg | > 20,000 | PARCOM Protocol 1995 | |
| | Bioaccumulation Potential | | | | |
| Octanol-Water Partition Coefficient | | Log Kow > 6.5 | OECD 117 | | |

* Results reflect expected values as water column toxicity is region specific. As per Trinidad and Tobago's Local Testing Parameters NABF was found to be Biodegradable and non-toxic to its relevant marine organism.

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