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HIGH PERFORMANCE DRILLING FLUID

SF-05 is a drilling base fluid derived from oil fraction, as main component of Oil Base Mud, which has special characteristics, excellent performance and enviromentally - friendly as well.





Produced from Pertamina Refinery Unit V Balikpapan

PRODUCTION CAPACITY 1.2 million

SF-05 has been successfully applied in Indonesia's drilling sites.

SPECIAL CHARACTERISTIC

- High local content
- Non-corrosive and compatible with drilling equipments such as gaskets and seals
- Has good stability and not easily oxidized at any operating condition
 Has good safety on working equipments
 Has good safety on swamp area
 Has good stability on long-term inventory

EXCELLENT PERFORMANCE

- Has good thermal stability Suitable for high-temparature and highpressure drilling
 Has good lubricity
 Minimize the risk of blow-out failures

ENVIROMENTALLY-FRIENDLY

- Certified as biodegradable product
- Non-irritating agent
- Low aromatic
- Low sulfur

SPESIFICATION	SF-(05
SPESIFICATION	3 [-(

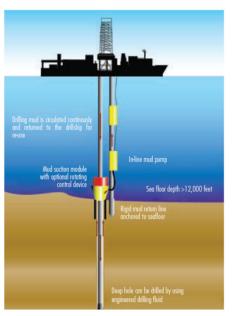
Properties	Method	Unit	Specification
SG at 60° F	ASTM D 1298	g/cm³	0.800 - 0.835
Flash Point PMCC	ASTM D 93	°C	min. 75
Aromatic (BTX)	Gas Chromatography	% Mass	Max. 0.05
Viscocity at 40°C	ASTM D 445	mm ² /s	2.5 - 3.5
Distillation (IBP)	ASTM D 86	°C	Min. 175
Pour Point	ASTM D 97	°C	Max. 3
Aniline Point	ASTM D 611	°C	Min. 80
Color ASTM	ASTM D 1500	-	Max. 1.5
Copper Strip	ASTM D 130	-	Max No. 1
Sulfur	ASTM D 2622	ppm	Max. 40
Appearance	Visual		Thin Yellow

NATURE OF TOXICITY AND **ENVIRONMENTALLY FRIENDLY**

SF-05

Properties	Method	Results
Toxicity Test	US - EPA	Non - Toxic
Biodegradability Test	OECD - 306	Ready Biodegradagable
Skin Irritation	OECD - 404	Non Irritation Material
Eye Irritation	OECD - 405	Non Irritation Material
BTX Content	Gas Chromatography	Traces

The specification above is valid when printed, for actual specification please contact Pertamina



TESTIMONIAL

(Drilling Engineer, North Sumatera, Indonesia)

We Used 100% Smooth Fluid 05 in our North Sumatera operation area such as Rantau, Wampu, Hamparan Perak and Secangaana for exploration and exploitation.

All those well, show as excellent Performance including in High Pressure High Temperature well

(Mud Engineer East Kalimantan, Indonesia)

Smooth Fluid 05 show us good hole stability. Less problem in run logging, run casing, and cementing jobs. Smooth Fluids 05 also have no environmental issues, so it is very safe to be used in whole drilling area.

Drilling Engineer, East Sumatera, Indonesia)

Our company began to use SF-05 in 2012 as a trial with the objective to replace Saraline as base fluid for a convetional drilling with Synthetic Oil Base Mud (SOBM) system. Since then, our company has been fully implementing SF-05 in almost all area.

Logistic practicality, similiar properties with other base oil, and prioritizing domestic-based product, are some contributors to our well-known Drilling efficiency.