

WARP UF 44

High-density micronized weight material

APPLICATIONS

- Oil- and synthetic-based fluid applications
- Completion fluid applications
- Through-tubing rotary drilling (TTRD)
- Horizontal and extended-reach drilling (ERD)
- Reservoir drill-in fluids (RDF)
- Wells with narrow pore pressure and fracture gradient windows
- HPHT drilling
- Wells with a high risk of barite sag and settling
- High-density spacers
- Slimhole drilling
- Kill pills, logging, and testing fluids
- Packer fluids

BENEFITS

- Works with all fluid types
- Reduces risk of downhole losses due to lower overall fluid viscosity
- Lowers ECD, surge, and swab pressures
- Enables finer shaker screens to be used, as fine as API 500/API 635 mesh for improved solids removal efficiency
- Causes minimal annular density variations
- Reduces sag potential
- Flows through narrow apertures in completion hardware
- Contributes to low-viscosity fluid to minimize impact on pump pressure

FEATURES

- Small particle size
- Higher specific gravity than standard WARP* advanced fluids technology

WARP UF 44* high-density micronized weight material is a high-quality barite specially manufactured as a micronized weighting agent for fluid systems to minimize sag potential. WARP UF 44 material can be used as a weighting agent for oil- and synthetic-based drilling and completion applications.

The extremely small particle size enables low-rheology nonaqueous fluids (NAF) to be formulated with considerably reduced risk of barite sag and settling compared to fluids formulated with API drilling-grade barite. It also enables using thinner fluids, resulting in reduced risk of surge-swab pressures and better ECD management than conventional NAFs.

Primarily developed as a dry additive to increase the mud weight of low-sag fluid systems, WARP UF 44 material can also be used as a stand-alone weighting agent with potential applications that include TTRD, ERD, RDF, and others. However, the dry material cannot be conveyed pneumatically.

The amount of WARP UF 44 technology required to increase the mud density can be calculated with the following formulae:

$$\text{WARP UF 44 technology, lbm/bbl} = [1,540 (w_2 - w_1)] / (36.67 - w_2)$$

Where:

w_1 = Initial mud density in lbm/galUS

w_2 = Final mud density in lbm/galUS

$$\text{WARP UF 44 technology, kg/m}^3 = [4,400 (w_2 - w_1)] / (4.4 - w_2)$$

Where:

w_1 = Initial mud density in specific gravity

w_2 = Final mud density in specific gravity

Toxicity and handling

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes, and clothing. Avoid dust formation. Do not breathe dust. Material becomes slippery when wet. Use caution if wet. Observe the precautions as described on the Transportation and Safety Data Sheet (SDS). Bioassay information is available upon request.

Packaging and storage

WARP UF 44 material is normally packaged in 2,000- or 2,500-lbm [907- or 1,134-kg] bags. Big bag handling facilities need to be available for on-site rig use. Keep containers tightly closed in a dry, cool, and well-ventilated place. Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping, or stacking. Avoid wet and humid conditions.

Typical Physical Properties

Physical appearance	White-tan fine powder
Relative density at 68 degF [20 degC]	4.4-sg minimum
Flash point (Pensky-Martens closed cup)	D90 less than 5 um