NUT PLUG

NUT PLUG* cellulose comprises ground walnut or pecan hulls and is used as a treatment for lost circulation. NUT PLUG material is available in fine, medium, and coarse particle sizes, and may be used in all types and densities of fluid systems. NUT PLUG may be also used as a granular-type lubricant to reduce torque and drag

Typical Physical Properties

Physical appearance .....Tan to brown granules
Specific gravity .....1.2 – 1.4
Solubility in water ..... Insoluble
Bulk density ..... 580 – 640 kg/m3 (36 – 40 lb/ft3)

Grade	Median Particle Size d50 (µm)**	Recommended Test Procedure
Fine	400 - 500	Dry sieve analysis
Medium	1200 - 1500	Dry sieve analysis
Coarse	1600 - 2000	Dry sieve analysis

Applications

NUT PLUG cellulose is an effective lost circulation treating material.
NUT PLUG hulls possess high compressive strength. They are available from two sources: pecan and walnut with walnut hulls being the stronger of the two.
Treatment levels depend on the severity of the losses and type of formation where the losses occur. Typical preventative treatment levels are 6 to 14 kg/m3 (2 to 5 lb/bbl) for moderate losses and 14 to 71 kg/m3 (5 to 25 lb/bbl) for more severe losses. It may be used to treat the entire system or added as a high-concentration pill.
NUT PLUG has a granular shape, and can be used in a blend of various sizes (fine, medium, and coarse) to prevent lost circulation or regain returns once losses begin. It also may be mixed with particulates of other shapes and sizes to provide a wide variation in particle properties for optimum control.
** Median Particle Size (d50) is reported as a size range due to variations in the manufacturing and grinding process. If a precise size distribution of a product is critical to a drilling operation, it should be measured with the appropriate Recommended Test Procedure using samples that are representative of those expected to be used in that operation. Nominal d10 and d90 values are available from Houston Technical Services upon request.

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ADVANTAGES

- Inert additive, compatible in all types and densities of fluids
- Will not ferment
- Unaffected by pH or temperature
- Based on particle shape, size, and compressive strength, it is a superior lost circulation additive

Limitations

- Larger-sized shale-shaker screens are needed to retain the material in the system
- When using large concentrations in non-aqueous fluids, increased amounts of wetting agent may be needed

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