

212.6 91NE

WATER and ENGINEERING

technical information bulletin no. 003

NEW LUBRICATION FOR DOWN THE HOLE HAMMER DRILLING

A new lubrication fluid has been developed for D.T.H. hammers. The fluid saves money as well as increases the life when using D.T.H. hammer drilling.

This new lubrication fluid has been on the market and used in practical tests for approximately one year in USA, Canada and Europe. It has been found to be very advantageous compared to normal D.T.H. hammer lubrication oil.

The fluid comes in 1/3 litre bottles and is poured directly into the drill pipe when drilling starts.

Quantities of new lubrication fluid required for different types of hammer sizes and drilling depth are as follows:

- 4" D.T.H. hammer sufficient for 100 M drilling - 1/2 bottle.
- 5" D.T.H. hammer sufficient for 100 M drilling - 1 bottle.
- 6" D.T.H. hammer sufficient for 100 M drilling - 1 bottle.

No other lubrication fluid is required for the D.T.H. hammer after pouring the above mentioned quantity into the first drill pipe when one starts drilling a well.

Since most of the wells drilled in the UNICEF Water Programmes are less than 100 M, the above quantities can be considered sufficient for each well. If a well is to be drilled deeper than 100 M, simply pour additional lubricant into the drill pipe when the 100 M depth has been reached.

The normal oil consumption when using standard hammer oil lubrication is as follows:

- 6" hammer: 20 l/100 M
- 5" hammer: 18 l/100 M
- 4" hammer: 8 l/100 M

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What are the cost savings when using the new lubrication fluid? Using a cost of USD 1.50 per litre for normal lubrication oil and USD 19.00 per bottle for the new lubrication fluid, the comparison costs will be as follows:

	COST		SAVING
	Normal lube. oil	New lube. fluid	Per 100 M
6"	USD 30.00	USD 19.00	USD 11.00
5"	USD 27.00	USD 19.00	USD 8.00
4"	USD 12.00	USD 8.00	USD 4.00

These figures only show the dollars saved on the quantity of lubrication fluid used during drilling. Whereas other savings are also realized.e.g. transport costs, storage cost, and for those countries which have to import lubrication oil, a considerable saving in shipping costs due to less weight and volume.

The new lubrication fluid also has a lower coefficient of friction which results in less energy requirement for operating the piston in the hammer. This means less fuel consumption per drilled-metre and longer life of the hammer.

The new lubrication fluid is not washed away by either water or foam, which are often used with D.T.H. hammer drilling to stabilize the formations.

A blue color is added to the new lubrication fluid which is the same non-toxic chemical additive that is used in dentistry to locate microscopic cracks in human teeth. The same advantage can then be used in locating fine line fatigue cracks in steel components long before they become a major failure.

The new lubrication fluid has been tested by several health commissions and has been found to be:

- non-hazardous
- non-toxic
- biodegradable

If additional information is required regarding the new D.T.H. hammer lubrication fluid, please contact: UNICEF Supply Division, Copenhagen, Water and Sanitation Group.

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