

Technical Bulletin

Correct use of thread compounds

Background

FPDSE have investigated a significant number of connection failures where the root cause has been attributed to incorrect or insufficient thread lubricants being used for connection make-up. In most cases, the thread damage was not found until the connections were broken out. This presents a high risk of downhole failure.

How can this happen?

Some equipment Owners / Machine Shops apply Storage Compounds to connections after they have been inspected & repaired. Storage Compounds (Rust Veto / Korr Guard etc) are specifically designed as corrosion inhibitors and as a result, they are not suitable for use as Running Compounds. Running Compounds are carefully designed to provide a known "Friction Factor" which should be close to 1, and contain solid "bearing elements" to prevent the threads sticking together (i.e. galling). These elements used to be Copper, Lead or Zinc, but due to environmental constraints, are now usually Teflon or Graphite.



This damage on the first few threads occurred during initial stabbing. The pin & box threads galled together under load & the continued application of rotation/torque simply caused the threads to tear each other to bits.



Uncovered bucket of dope, contaminated with water & oil. This caused significant thread & seal damage - **WRONG**



'Used Connection' as found in Heavy Tool Store with Running Compound & General Purpose Grease - **WRONG**

How to ensure that connections last as long as possible and perform as per design

1 > It is important that dope buckets and brushes are kept free of contaminants that will affect the product performance. Lids should be used to prevent water/ mud mixing with the compound. When opened, new buckets should be thoroughly stirred to re-distribute settled solids.

2 > If you are not sure what is on the component when it arrives, totally remove it & apply fresh. That same rule applies if the connections become badly contaminated during use with drilling fluid as it will alter the Friction Factor.

3 > Ensure sufficient compound is applied to all mating surfaces.
DO NOT MIX DIFFERENT COMPOUNDS!!

4 > The Friction Factor of the thread compound must be checked and accounted for when making up connections. eg: For normal applications, Jetlube NCS-30 ECF has a Friction Factor of 1.0. Connection manufacturers usually specify recommended make-up torques for their connections assuming a Friction of 1.0, therefore when NCS-30ECF is used, no adjustment is necessary. However, Jetlube Kopr-kote has a Friction Factor of 1.15, so if that is used the reference MUT figure should be multiplied by 1.15 & the resultant value applied to the connection.



More info:

For more information or assistance in compound selection and use, refer to NS-19 or contact Fearnley Procter Drill String Engineering at DShelp@fp-g.com

