

# **RECOMMENDED DOPING PROCEDURES FOR ROTARY SHOULDERED CONNECTIONS**

The following are recommendations for the application and use of our thread compounds on rotary shouldered connections:

## **1. Compound Preparation and Contamination:**

Upon opening the container, the product should be stirred with either a dope brush or other suitable device to reblend any oil separation or settling of the component solids that may have occurred during shipment and storage. This is particularly critical for high density materials such as lead and zinc, and for high temperature (>90QF) storage conditions. Care should be taken that after opening the container, no contamination of the compound in the container occurs, i.e. drilling fluids, water, dirt and other debris. In no instance should any material such as diesel fuel, kerosene, motor oil, etc. be added to the compound to improve the ease of application. Contamination or adulteration can change the friction factor of the compound and also degrade the galling resistance properties.

## **2. Connection Surface Preparation:**

All connection contact surfaces should be cleaned and free of drilling fluids and any other contaminant residues prior to the application of the compound. Drilling fluids contain a large amount of various types of solids and cutting residues that when mixed with the thread compound can substantially change the friction factor of the thread compound and consequently, the amount of make-up for a given applied torque. The solids that are present in drilling fluids and muds, can promote galling and will degrade the galling resistance properties of the thread compound. Polymer-based mud systems can leave residues on the connection that will adversely affect the adherence of a compound. A substantial amount of water will also make it difficult for the compound to adhere to the connection surfaces. A small amount of moisture in most cases is unavoidable and will not affect compound performance.

## **3. Compound Application:**

The thread compound should be applied liberally and uniformly to the entire contact surface of both the pin and box. The practice of slapping a "gob" of pipe dope on one side of the pin or box and depending on the pipe rotation during make-up to distribute the compound over the connection surface, is not sufficient. The compound must be worked into the thread roots and should completely cover the shoulder surfaces. If the pins are doped while tripping or when the pipe is on a rack, care should be taken to ensure that when the string is stood up on the rig floor prior to running, that the compound does not pick up contaminants (e.g. dried mud, cuttings, etc.) off the rig floor. Ideally, protectors should be installed on the pins after doping and then removed just prior to stabbing on the rig floor. This practice would eliminate a source of compound contamination and also reduce pin nose damage when the pipe is stood up.

## **4. Connection Break-In / Nonmagnetic Materials:**

A break-in procedure should be established for new or just-refaced connections. This procedure should consist of 2-3 low torque, slow-speed make-ups at 50-75% of your final make-up torque prior to running. This practice will burnish and work harden the connection surfaces prior to applying full contact stress and will greatly improve their resistance to galling. Nonmagnetic materials such as monels and martensitic chromes are extremely galling prone. Depending on your operating conditions, a 60% lead-based compound may be required to resist galling damage with these materials. Lead is particularly effective for galling resistance because of its inherent lubricity and the ability to "smear out" and plate on the connection contact surfaces during make-up.



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