

***INSTRUCTIONS:***  
**DRILL PIPE CORROSION RINGS**

The placement of corrosion test rings in the drill string is routinely used to evaluate the corrosiveness of the drilling fluid environment on the drill string and other steel parts. Removal and examination of these rings after a period of exposure can be highly informative as to the corrosiveness of the drilling fluid and the type of corrosion encountered. A close examination of the scales and pits on the exposed rings will aid in choosing the proper remedial action.

**PROCEDURE:**

1. After a minimum of 40 hours exposure in the drill string (normal time is 100 hours), carefully remove the ring from the tool joint and immediately remove any drilling fluid residue by wiping with a clean cloth. The ring should be handled with clean, dry gloves, if possible.
2. Examine the ring for severe corrosion or mechanical damage and note on the mailing envelope form for that specific ring. Severe mechanical damage will invalidate the test and is most often seen as cuts or dents on the outer surfaces of the ring. This indicates considerable movement of the ring in the toolbox recess and should be noted in the report.
3. If severe corrosion is evident, the cause of the corrosion should be determined promptly and remedial action taken immediately.
4. After thoroughly drying the ring, place it in the corrosion inhibitor wrapper and then inside the original shipping envelope for that specific ring. Each ring and envelope is marked by a corresponding serial number. Be sure all the requested information is filled in along with a contact name and phone number.
5. If the ring is not reweighed onsite, ship the envelope via overnight or second day air to OFI in Houston, TX. This must be done as soon as possible to avoid further corrosion.

OFI TESTING EQUIPMENT, INC.  
1006 West 34<sup>th</sup> Street  
Houston, Texas 77018 (USA)  
Attn: Corrosion Testing

6. OFI will clean and weigh the coupon to the nearest milligram (3 decimals) and determine the weight loss. The corrosion weight is then calculated in pounds per square foot per year, kilograms per square meter per year, or in mils per year (metal loss in thousandths of an inch per year). A nominal fee is charged for this service.

It should be noted that the loss of metal is due to both corrosive and erosive effects of the drilling fluid, since the bore of the ring is exposed to the fluid pumped down the drill string. Loss from erosion may be substantial when the drilling fluid contains a high concentration of sand or abrasive material.

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