



UCON™ Fluids and Lubricants

Case History

UCON Compressor Lubricant R-1 Cleans Gas Storage Formation and Dramatically Improves Flow Rates

The Problem

A major Gulf Coast gas storage facility using natural gas engine-driven compressors to inject pipeline natural gas into a storage formation experienced significant decreases in gas injection and withdrawal flow rates. This was found to be largely due to formation fouling caused by the use of mineral oil-based, compressor cylinder lubricants. The injection wells required chemical treatment two or three times a year at an annual cost of over \$150,000.

The Solution

Mineral oil-based lubricants were replaced with UCON Compressor Lubricant R-1.

The Results

Since switching to UCON Compressor Lubricant R-1, downhole fouling has been greatly reduced, and problems associated with sludge formation have dramatically diminished. The following photos illustrate the effectiveness of UCON R-1 in cleaning the formation. One year after conversion, the formation was substantially cleaner. No downhole treatment was required. Two years after conversion, the formation was even cleaner.

Since the changeover to UCON Compressor Lubricant R-1, it has not been necessary to chemically treat the wells at a savings of \$150,000 per year. This does not include other process savings related to the reduction of plugging and upsets caused by chemically treating the wells. The clean burn-off, together with the flushing and solvency properties of UCON R-1, have contributed directly to these recurring annual savings:

- Elimination of downhole treating
- Increased withdrawal rates (deliverability) of 10-15%
- Improved compressor reliability, especially at higher pressures
- No failure of lubricated parts or abnormal wear

Formation Before Conversion



One Year After Conversion



Two Years After Conversion



Product
Description

UCON Compressor Lubricant R-1 is a water-soluble polyalkylene glycol lubricant specially formulated for use in high-pressure reciprocating compressors in natural gas service. The product has found particular success in compressors used for the high-pressure injection of natural gas and nitrogen back into oil field formations for enhanced oil recovery, natural gas liquids production, and gas storage.

Special Features

- Low solubility with hydrocarbon gases and liquids
- Excellent lubricity for cylinder lubrication
- Nonplugging in oil field formations

Product
Stewardship

Dow encourages its customers and potential users to review their applications from the standpoint of human health and environmental aspects. To help ensure that Dow products are not used in ways for which they are not intended or tested, Dow personnel will assist customers in dealing with environmental and product safety considerations. Dow literature, including Material Safety Data Sheets, should be consulted prior to use.

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