

MICRO-WASH invert emulsion drill-in fluid filter cake breaker

Remove synthetic- and oil-based mud filter cake and drilling fluid damage

Applications

- Openhole reservoirs
- Producer/injector wells
- Pre- and post-production

Features and Benefits

- Restores wells back to its original permeability and predrilled state
 - Provides clean flow paths for optimal production or injection
- Destroys synthetic- or oil-based mud filter cakes and removes damage caused by invert emulsion systems or in-situ emulsions
 - Increases production when used as a preemptive measure in newly drilled wells or as a remediation treatment in underachieving wells
- Ultralow interfacial tension yields a highly efficient detergent that solubilizes oil
 - Removes oil to eradicate emulsions, mobilize solids, and water-wet all surfaces
- Disperses filter cake particles
 - Improves production rate while preventing screen blockage
- Solvent free
 - Environmentally acceptable
- Compatible with well fluids
 - Provides flexible formulations
- Reduced diffusion coefficient
 - Creates delay in filter cake removal to control losses

The **MICRO-WASH™ invert emulsion drill-in fluid filter cake breaker**, from Baker Hughes, is a customized, single-step mesophase system designed to remove oil/mud damage, in-situ emulsions, and synthetic-based mud (SBM) or oil-based mud (OBM) filter cakes in openhole wellbores

MICRO-WASH openhole restoration system can be customized to remove damage caused by any invert emulsion SBM and OBM, regardless of its base oil or emulsifier package. This system, based on microemulsion technology, is one of the most powerful and effective detergents on the market today.

The MICRO-WASH system contains a proprietary surfactant blend, organic acid (or acid precursor), corrosion inhibitor, and brine that are all pumped into the openhole section and allowed to soak.

During this soaking process, the ultralow interfacial tension properties of the breaker solution begin to diffuse into the rock matrix to solubilize the oil in the emulsions and filter cake, leaving the solids and surfaces in a water-wet state. The calcium carbonate bridging solids are then exposed and subsequently removed with an organic acid or acid precursor, while the remaining drill solids become dispersed and mobilized. This process stabilizes the wellbore, leaving optimized flow paths within the rock matrix and completions screen assembly, further enhancing production or injection of the well.

The MICRO-WASH system can be used either for post-production to remediate underachieving producer and injection wells, or to preemptively remove SBM and OBM filter cakes in newly drilled wells.

For new wells, the system can provide a delay to give the operator extended periods of fluid loss control. Additionally, the delay ensures the breaker remains in contact with the filter cake along the entire openhole interval, resulting in a more uniform removal.

Recommended treatment

Field concentrations for the MICRO-WASH system will be determined by the Baker Hughes regional laboratories on a case-by-case basis. The soak time for filter cake removal is typically greater than 12 hours, depending on the placement procedure. The system can be spotted with a conventional workstring.

The MICRO-WASH system's proprietary surfactant blends are mixed with brine, an acid corrosion inhibitor, and acid (in this order), in a blend tank or pit. Shear is neither required nor advised. A rig pit with a low-speed paddle stirrer is preferred to minimize possible foaming issues. The acid should be added just before pumping the spot downhole.

Environmental information

For information concerning environmental regulations applicable to this product, contact the Baker Hughes Health, Safety, and Environmental department.

Safe handling recommendations

Use normal safety precautions and equipment when handling this product for employee safety. Also, please see the safety data sheet prior to use.

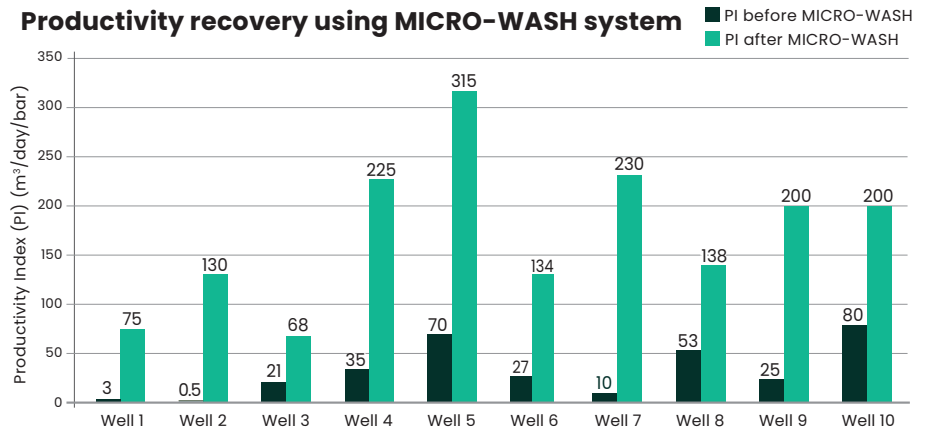
Packaging

The MICRO-WASH system is usually blended in the rig pits, but may also be delivered premixed in 275-gal (1050-L) and 1-m³ intermediate bulk containers. If mixed at the rig, the individual products are available in 1-m³ and 275-gal intermediate bulk containers or 55-gal (208.2-L) drums.

Intelligent Fluids Solutions

The MICRO-WASH filter cake breaker system is one of Baker Hughes' Intelligent Fluids Solutions designed to address your greatest well construction and production challenges.

Productivity recovery using MICRO-WASH system



These deepwater wells were completed with standalone sand exclusion screens in the openhole interval.