

# MICRO-WASH DLA

## Remove synthetic and oil-based filter cake and near-wellbore drilling fluid damage

### Applications

- Invert emulsion filter cake breaker
- Invert emulsion near-wellbore damage
- Barefoot, sand screen, and gravel-pack completions
- Producer or injector wells
- Pre- or post-production

### Features and benefits

- Destroys synthetic or oil-based drilling fluid filter cakes and removes damage caused by invert emulsion systems or in-situ emulsions
  - Increases production or injection when used as a pre-emptive measure in newly drilled wells or as a remediation treatment in underachieving wells
- Ultra-low interfacial tension yields a highly efficient detergent that solubilizes oil from the filter cake and near-wellbore emulsions
  - Water-wets filter cake solids for optimal dispersion to enable maximum lift-off and prevent screen blockage upon flowback
- Remediates multiple near-wellbore formation damage mechanisms
- Free of hazardous solvents

The Baker Hughes **MICRO-WASH™ DLA** is a proprietary breaker system with engineered delayed filter cake breakthrough designed to work synergistically with an optimized synthetic or oil-based drill-in fluid (DIF) maximizing the efficiency of filter cake removal to enhance production or injection in open-hole wells with sand control completions. Additionally, MICRO-WASH DLA can be applied to remediated reservoir damaged caused by invert emulsion drilling fluids in the near-wellbore region.

MICRO-WASH DLA is a customizable solution that can be formulated to break the filter cake of any invert emulsion DIF, and remediate the near-wellbore-drilling-fluid-induced damage caused by S/OBM, regardless of its base oil or emulsifier package. MICRO-WASH DLA system, based on microemulsion technology, is one of the most powerful and effective detergents on the market today.

The MICRO-WASH DLA system contains a proprietary surfactant blend, DLA organic acid generator, corrosion inhibitor, and brine. The optimized formulation is a single-step blended pill that is spotted to the target zone in the open-hole section and allowed to soak.

The ultra-low interfacial tension property of MICRO-WASH DLA allows efficient diffusion into the rock matrix to solubilize the oil in the emulsions and filter cake, leaving solids and surfaces in a water-wet state. The calcium carbonate bridging solids are

then exposed and subsequently removed by the DLA organic acid generated in-situ, while any remaining solids become dispersed and mobilized. This process results in the removal of near-wellbore-fluid-induced damage, leaving optimized flow paths within the rock matrix and completions screen assembly, further enhancing production or injection for the well.

MICRO-WASH DLA can be engineered to allow for a delayed filter cake breakthrough by use of in-situ DLA organic acid generators. This enables the primary pressure barrier to remain intact for the duration of lower completion installation operations. Additionally, the delayed breakthrough ensures efficient breaker displacement along the entire open hole interval, resulting in a more uniform removal of the filter cake leading to maximum production area upon drawdown.

The MICRO-WASH DLA system can also be used for post-production applications to remediate underachieving producer/injector wells.

### Recommended treatment

Field concentrations for the MICRO-WASH DLA 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 work string.

MICRO-WASH DLA proprietary surfactant blends are mixed with brine, an acid corrosion inhibitor, and organic acid generator (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 Health, Safety, and Environmental department of Baker Hughes.

### Safe handling

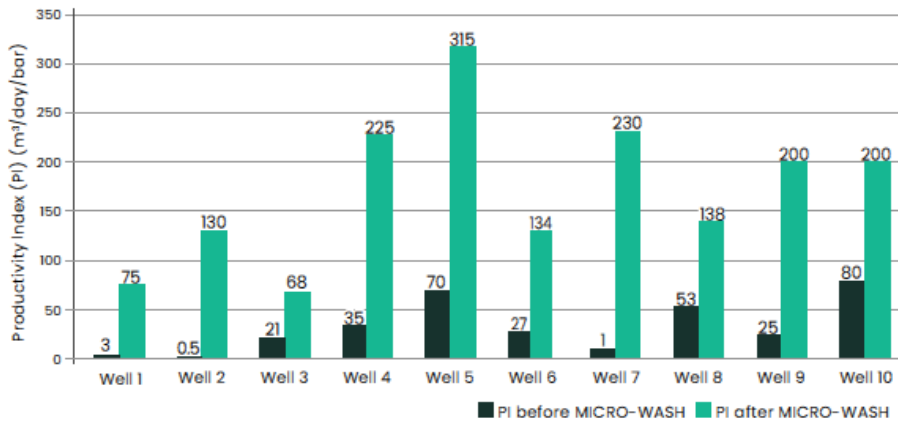
#### recommendations

Use normal precautions for employee protection when handling chemical products. See Safety Data Sheet (SDS) prior to use.

### Packaging

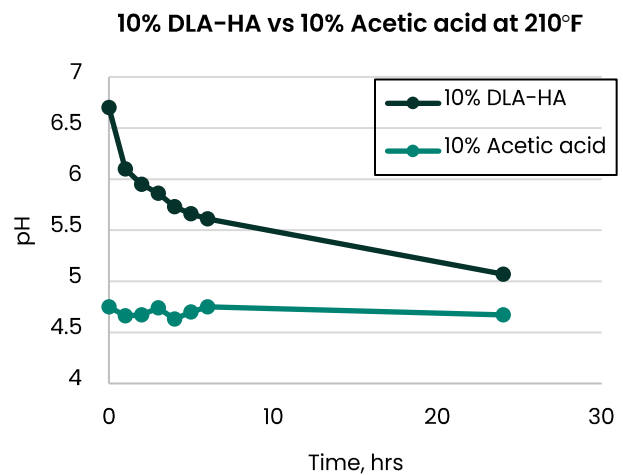
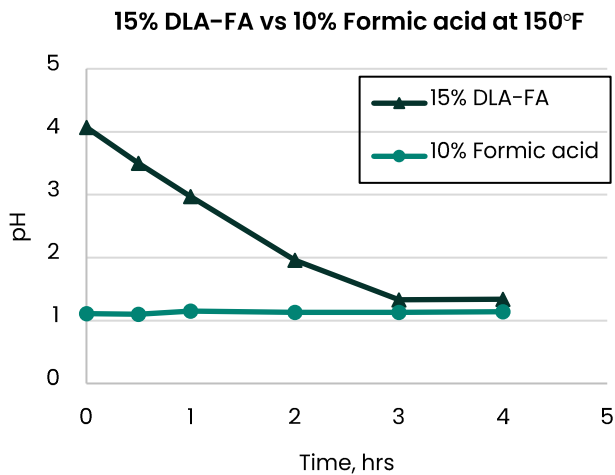
The MICRO-WASH DLA system is usually blended at the rig but may also be delivered premixed in 275-gal (1,050-L) and 1-m<sup>3</sup> intermediate bulk containers. If mixed at the rig, the individual products are available in 1-m<sup>3</sup> and 275-gal intermediate bulk containers (IBCs) or 55-gal (208.2-L) drums.

## Productivity recovery using MICRO-WASH system



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

## pH Comparison of MICRO-WASH solutions



DLA-FA™ and DLA-HA™ organic acid generators allow a uniform break in MICRO-WASH formulations.

**Baker Hughes** 