CURE
CHEMISTRY TO RESTORE FULL PRODUCTION

PRODUCTION TECHNOLOGIES.
FULL SERVICE.

Schlumberger
MAXIMIZE PRODUCTION FROM RESERVOIR TO REFINERY
UNLOCK POTENTIAL, OPTIMIZE PRODUCTION

Schlumberger provides integrated production technology services that deliver tangible benefits and assurance to customers’ worldwide oil and gas operations.

Firmly established at the forefront of technology, Schlumberger integrates pioneering chemical and process solutions, equipment, and software with unrivaled technical expertise.

Working with the world’s largest oilfield services provider, customers benefit from a truly unique combination of outstanding technological capability, blended with a distinct understanding of how to successfully address their production challenges in an increasingly competitive marketplace.

Our global footprint and exceptional service delivery ensures that customers reliably, safely, and efficiently maximize production—regardless of system complexities or geography.

Schlumberger uses specialist research laboratories and field support operations to analyze issues across production operations and to engineer integrated solutions that help increase revenue and reduce operational costs through protecting asset integrity, safely maximizing production, and enhancing product quality.
CURE
CHEMISTRY TO RESTORE
FULL PRODUCTION

Schlumberger production technology specialists deliver targeted, integrated strategies to decisively remediate production issues such as deposit formation and naturally occurring gases, helping customers safely restore and improve flow performance and revenue while avoiding costly repairs and shutdowns.

The team’s global footprint, together with the exceptional CURE suite of chemical removal portfolio and all-inclusive EXKAL services, ensure that customers reliably, safely and efficiently maximize production, regardless of system complexities or geography.
ASPHALTENE DISSOLVERS

Schlumberger provides considerable expertise in designing treatments to meet each customer’s specific asphaltene challenges.

Based on field information, laboratory tests are designed and performed to evaluate these solutions and to identify the safest, most effective approach.

**Mechanical cleaning methods include**
- pigging
- wireline cutting
- coiled tubing.

Chemical treatments include the injection of dispersants or solvents. Dispersants maintain precipitated asphaltenes in a dispersed state to prevent flocculation.

Product performance is monitored using instrumental and chemical assay methods.
CLEANERS

Schlumberger has the global expertise and footprint to select the right cleaner to maintain optimal asset operation.

The four most important characteristics to achieve the best cleaning result are

- **temperature**—a higher temperature will give a better result
- **solubility dispersibility**—the more soluble, or easily dispersed the dirt, the better the clean
- **mechanical treatment**—scrubbing and high-pressure spraying
- **soak time**.

Schlumberger uses six cleaning techniques to augment its range of solvent-based and aqueous cleaning compounds:

- fill and soak
- circulation
- cascade
- online
- foam
- vapor phase.

The total ownership of product supply, from manufacturing through site delivery, ensures logistical cost mitigation while reducing project risk and complexity.
In addition to the ground-breaking SULFATREAT* granular iron oxide–based hydrogen sulfide adsorbent and SELECT FAMILY* mixed metal oxide–based hydrogen sulfide adsorbent, Schlumberger offers a range of amine- and aldehyde-base liquid sulfide scavengers that have been developed for application in gas, water, and oil streams.

Schlumberger liquid scavengers may be applied as a solution in bubble towers for gas treating, either atomized directly into produced gas streams or via direct application in mixed fluid flow streams.

The most appropriate product is selected for the application based on the process conditions and the operational requirements. Regular field checks determine if further optimization is needed.
Schlumberger purification products are used in fixed-bed processes that are easy to operate and require minimal operator attention. The most suitable product is selected based on the process conditions and operational parameters.

Schlumberger offers two primary product lines for H₂S removal: SULFATREAT and SELECT FAMILY adsorbents. For mercury removal, we offer a mercury purification system.

Proprietary software modeling is used to deliver treatment system designs that are technically robust, reliable, and effective. Tailored support ranges from basic media provision through to a fully engineered technical solution comprising:

- basic system design
- media supply
- detailed engineering
- fabrication package
- equipment supply
- spent-media handling.
NAPHTHENATE DISSOLVERS

Schlumberger brings considerable expertise in designing dissolver packages tailor-made to give optimal removal efficiency against naphthenate deposits.

Naphthenate soap accumulations can occur very quickly and can lead to plugged valves, separator internals, and pumps. With a propensity to accumulate as hard, consolidated deposits, naphthenate soap scales can significantly reduce process system capacities, residence times, and operational efficiency. If untreated, total production shutdown and consequential revenue decrease can result.

Using field information, laboratory evaluations are designed and conducted to validate dissolver packages, ensuring that the safest and most effective remedial chemical treatment is selected.
OXYGEN SCAVENGERS

Schlumberger oxygen scavengers are an integral part of its comprehensive portfolio of corrosion inhibitors. Oxygen scavengers are ideally suited for application in reservoirs across the world to address oxygen-induced corrosion, regardless of environmental or geographical challenges.

The scavengers, used to remove oxygen from injected water, are normally applied together with deaeration towers.
Paraffin removal uses mechanical, thermal, and chemical means to physically treat waxes after they form. Chemical dissolution treatment necessitates application of solvents that will effectively and efficiently remove existing paraffin wax deposition.

Solvents available include chemistry based on condensate light gas oil, xylene, toluene, terpenes, and carbon disulfide.
Mineral scale deposition can seal even the most permeable reservoir, meaning operators have to find or create alternative pathways to maximize production. Regardless of scale type and location, deposition must be dealt with quickly, effectively, and safely.

Whether downhole or topside, scale species vary greatly and may also be associated with naturally occurring radioactive material (NORM), requiring specialist knowledge and management systems to provide safe controls in practice.

Scale can also be a challenge during decommissioning. As this area requires special attention, Schlumberger established a stand-alone business line to manage and service the specific challenges. This business line is known as EXKAL services.
EXKAL
ALL INCLUSIVE SOFTWARE, CHEMICAL AND MECHANICAL SERVICES

Combining chemical and mechanical decontamination solutions, EXKAL services minimize even the most challenging scale deposition, helping customers quickly restore and optimize production while demonstrating the best possible elastomer compatibility.

Supplied as concentrated blends, EXKAL services’ scale dissolvers effectively reduce chemical volumes to help manage overall treatment costs.

The EXKAL services package can be delivered onsite, making it ideal for remote locations or projects with restricted water and energy consumption. The very latest in mechanical solutions complement the chemical components of EXKAL services, including ultrahigh-pressure water jetting and proprietary plasma-cutting technologies.

Post-treatment analysis is provided by the proprietary D-SCAL* diagnostic software package.
Case Study

H₂S SCAVENGER ALSO INHIBITS CORROSION AND SCALE, NORTH LOUISIANA

CHALLENGE

A pipeline company’s produced gas averaged 13 ppm of H₂S within a range of 4–30 ppm. A multifunction chemical treatment program was required to scavenge H₂S, reduce pipeline corrosion, and inhibit scale deposition. The solution was to be applied to two fields, each with several wells.

SOLUTION

Schlumberger recommended HR-2636, a unique combination of a triazine H₂S scavenger, mixed amine corrosion package, and a phosphonate scale inhibitor. For high efficiency and maximum gas contact, the atomized product was continuously injected into the pipeline.

RESULTS

Calcium and barium scale were effectively controlled, and average corrosion rate was 0.15 mm/a. H₂S content was reduced to a maximum of 2 ppm.
GLOBAL PRESENCE,
OUTSTANDING CAPABILITY

Access unrivaled global management services.
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