

# Capabilities Profile

## Upstream Oil & Gas Exploration and Production



# Asset Protection & Production Enhancement Solutions for Oil & Gas Exploration and Production

ImproChem specialises in providing state-of-the-art treatment chemicals, application technology and technical services to upstream oil and gas exploration and production facilities. This encompasses chemical supply logistics, advanced delivery systems, laboratory testing and field support services to drilling operations as well as production facilities prior to downstream refining. Our highly experienced team of Upstream Technologists work closely with our Customers to identify and solve problems associated with oil and gas production.

Although headquartered in South Africa, ImproChem has registered companies, and operate in, many other African countries including Nigeria, Angola, Ghana, Mozambique, Tanzania, Uganda, Kenya, Zimbabwe, Namibia, Botswana and Zambia.



ImproChem manufactures a wide range of chemicals at their plant located in Durban, South Africa. The plant is certified according to ISO 9001, ISO 14001 and OHSAS 18001 accreditation systems. Upstream chemical product formulations are provided by our technology partner, SUEZ Water Technologies and Solutions (SUEZ), with whom we have a manufacturing licence and exclusive distribution agreement for Sub-Saharan Africa. Ongoing research and development is conducted in collaboration with SUEZ to provide customised site specific solutions. ImproChem has vast experience in both offshore and onshore operations which is supported and extended by SUEZ's global footprint.

## PROSOLV™ Chemical Treatment Solutions

- **Drilling Fluid Polymers, Viscosity Modifiers and Clarifying Agents:** Anionic, cationic and non-ionic products are available in liquid and powder form. Eco-friendly water-based products (green chemistries) are now also available for more environmentally sensitive areas.
- **Corrosion Inhibitors:** protect the integrity of casing, production tubing, flowlines, process equipment and pipelines. Water and hydrocarbon based products are available for drilling, transfer, production and water injection systems.
- **Scale Inhibitors:** for prevention and dispersion of scale formation in production and water injection systems. Inhibitors are available for all types of scale including calcium carbonate, barium sulphate, calcium sulphate, strontium sulphate and iron complexes.
- **Biocides:** control aerobic and anaerobic (primarily SRB's) microbiological activity in systems to prevent corrosion, process fouling and crude souring.
- **Defoamers:** control foam formation during drilling and in process equipment. Products are available for oil and water processes as well as gas dehydration systems.
- **Demulsifiers:** to separate regular and reverse emulsions of hydrocarbons and water. On-site service is provided to test and select products from our standard range of demulsification chemistries, or to customise a formulation specific to the conditions on site.
- **Electrolytes:** to aid with filtration and polishing of effluent water.
- **Oxygen Scavengers:** elimination of dissolved oxygen in water injection and drilling systems to prevent oxidative corrosion and aerobic bacteria growth.
- **Hydrogen Sulphide Scavengers:** elimination of dissolved hydrogen sulphide in production and drilling systems to prevent corrosive attack.
- **Hydrate Inhibitors:** prevention of subsea hydrates with thermodynamic and customised kinetic inhibitors.
- **Asphaltene & Paraffin Inhibitors:** for the prevention of deposit build-up in subsea and process equipment.
- **Acid Treatments:** for downhole and flowline scale remediation treatments that provide maximum scale removal and protection of metal integrity.
- **Foaming agents:** to deliquify wells and reduce hydrostatic pressure.
- **Drag Reducing Agents:** for friction reduction in drilling operations and improving flow properties in restricted crude oil flowlines, pipelines and water injection systems.
- **Lost Circulation Materials (LCM's):** Synthetic graded particulates and minerals for different mud loss solutions.

# Desalination Chemicals and Equipment

ImproChem offers the full range of SUEZ desalination plants and chemicals for upgrading water quality. This encompasses the entire process from pre-treatment to reverse osmosis to post-treatment.



**Chemicals:** Nanofiltration (NF) and Reverse Osmosis (RO) membrane performance can be negatively impacted by impurities that build up on the membrane surface during operation. SUEZ's class-leading membrane chemicals can help keep suspended solids, microorganisms, and mineral scale from fouling your membrane elements.

- **Membrane Pre-treatment:** Pre-treatment chemistries increase pre-filtration efficiency, remove chlorine and control pH in your feedwater systems to improve productivity and longevity of downstream membrane systems.
- **Membrane Scale and Fouling Control:** SUEZ's patented membrane scale inhibitors are designed to eliminate scale and reduce fouling, regardless of the feedwater source.
- **Membrane Biocides:** Non-oxidizing biocides are EPA registered and are most effective for sanitizing systems.
- **Membrane Cleaners:** SUEZ's line of cleaners are formulated to function on all types of membrane systems and are designed to restore flux rates close to that of new membranes, prolong membrane life and protect membranes from irreversible fouling.

**Equipment:** Developed exclusively for the Oil and Gas industry, the **SWSR** is a Nanofiltration membrane element portfolio developed for **SeaWater Sulphate Removal** that effectively prevents strontium/barium sulphate scale and souring in water injection wells.

In addition to **SWSR** Nanofiltration, the following SUEZ filtration equipment is also available:

- Activated carbon and Multi-media filters
- Oil filters / Depth filters
- Ultrafiltration (UF)
- Reverse Osmosis (RO)

**Optimisation Tools:** ImproChem can also apply industry leading SUEZ tools to optimize element performance at membrane plants. These include **Argo Analyser Software**, used to determine scaling potential, and **Winflows Software**, used to determine best operation conditions for different membrane types.

## Hydraulic Fracturing Solutions

Speciality chemicals for drilling, hydraulic fluids, water injection and oil & gas production are offered for this industry with a view on effective, but environmentally-friendly, solutions.

In addition, produced water flowback is treated by ImproChem following analysis of the water and the installation of bespoke equipment which may include centralised plants, site-specific plants or mobile plants.



## Laboratory Facilities

ImproChem has extensive laboratory facilities in Johannesburg and Durban to provide analytical services and product development for site-specific applications. Furthermore, ImproChem has access to SUEZ's global state-of-the-art analytical and R&D laboratory facilities, as well as domain expertise, for specialised testwork or solution development.





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