

ImproChem

Technobrief

# Water our most precious resource...



# Potable and Sewage Water Treatment Capabilities

## Description

ImproChem has vast experience and expertise in the treatment and management of potable and sewage water. The treatment of water for drinking purposes requires physical and chemical processes such as coagulation, settling, filtration, adsorption and disinfection. Our application expertise ranges from operational optimisation to the selection and application of the best chemical treatment programmes for solids separation; disinfection, and colour, taste and odour removal.

Sewage dewatering allows for the removal of water in order to provide sludge of high solids content, ready for compost formation. The dewatering of sewage reduces the costs of transport and handling of the slurry.

At ImproChem, we work with our customers to build relationships, solve complex challenges and develop innovative solutions that add value to our customers' operations. Through understanding our customer processes, we are able to offer customised solutions, proven technologies and advanced chemistries for foam control, odour control, oil removal, organic contaminant removal and metals removal when required.

## Potable Water Treatment

### Coagulation and Flocculation

ImproChem manufactures and supplies a comprehensive range of coagulants and flocculants for solids separation. The well-known and NSF-approved SUDFLOC coagulant range can reliably and cost effectively remove suspended solids from the raw feed water, thereby improving the potable water production process. ImproChem coagulants consist of various inorganic salts, polymers, or a blend of both.

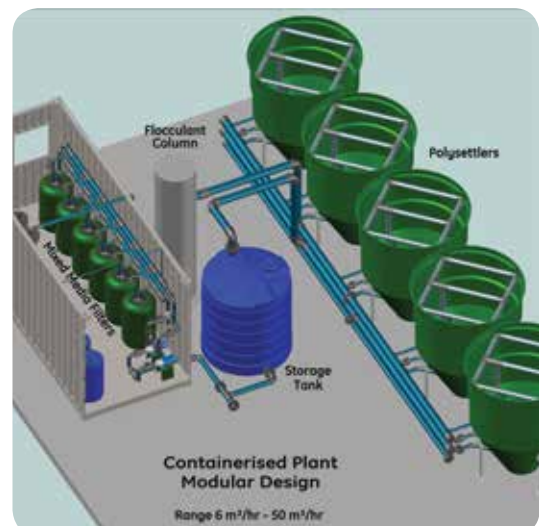
The ImproChem SENFLOC range covers a wide spectrum of charge types, molecular weights and physical forms. Whether you need liquids, powders, cationic or anionic products, ImproChem has the solution for raw water clarification. Our sales representatives are trained in the art of product selection using "jar testing" procedures and will tailor each treatment programme to meet our customers' specific water quality needs. Reliability of operation is our number one objective.

### Potable Water Treatment Plants

ImproChem offers small to medium sized potable treatment plants in three categories: free-standing plants, containerised plants and medium-sized engineered plants. Free-standing plants are typically small plants that can be built into an existing plant room, or are skid-mounted. These plants offer flow rates of between 1m<sup>3</sup>/h and 10m<sup>3</sup>/h. Containerised plants are fully automated; tested at our factory and easy to install on site. Containerised plants offer flow rates of between 6m<sup>3</sup>/h and 120m<sup>3</sup>/h. Medium-sized engineered plants are designed to specification, usually with flow rates of 10m<sup>3</sup>/h to 250m<sup>3</sup>/h.

Potable plants may contain the following unit processes, depending on the raw water composition:

- Flocculation and sedimentation (clarification with lamella plate option)
- Aeration, Dissolved Air Flotation
- Filtration (mixed media and activated carbon)
- Softening (cold lime softening, ion exchange)
- Membrane (Ultra-filtration, Nano-filtration, Reverse Osmosis and Membrane Bio-Reactors)
- Sterilisation (Chlorination, Ultra-violet, Chlorine Dioxide)



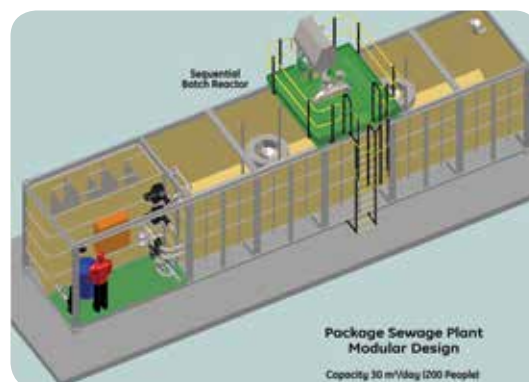
# Sewage Water Treatment

## Sludge Dewatering

ImproChem carries a wide range of products to cost-effectively condition sludge prior to thickening or dewatering operations. Sludge handling is often the single largest cost in many wastewater plants. Our range of polymers include powder and liquid flocculants specifically developed for optimising sludge dewatering operations. These products have been used for many years on a wide variety of thickeners and dewatering devices, such as belt presses and centrifuges. In addition, ImproChem can offer cost-effective products and technologies for final disinfection, phosphate removal and bio-augmentation with GE's unique BioPlus™ technology.

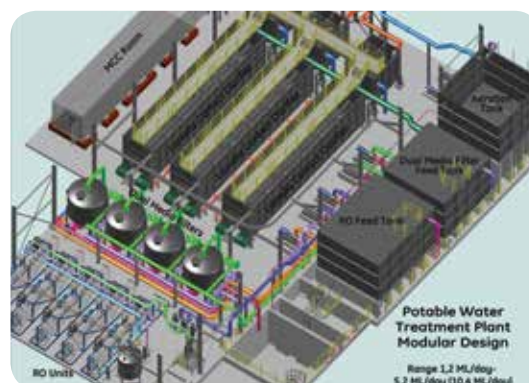
## Containerised Sewage Plants

ImproChem has the unique capability and expertise to offer containerised "plug-and-play" sewage systems, which are designed as sequential batch reactors. The installation typically comprises two reactors with one inlet. The tank has a "flow-through" system, with raw sewage water (influent) charged at one end and treated water (effluent) discharged at the other. The treatment process consists of 5 stages: fill, react, settle, decant and idle for each reactor. Aeration of the mixed liquor is performed during the first two stages, by the use of a fixed mechanical pump and by transferring air through an aeration system. Such plants are capable of treating and handling sewage generated by 200 - 400 people at 150 litres per capita per day.



## Modular Water Treatment Plants

We work closely with our customers to engineer various customised water treatment plants to meet site-specific treatment, re-use or recycle requirements. Apart from our standard range of potable and sewage plants, we design plants to specification which cater for the treatment of site-specific raw water composition and treated water quality requirements. Engineered plants may consist of multiple combinations of various unit processes to address the spectrum of treatment required to produce safe drinking water, process water, ingredient water or wastewater that meets discharge regulations.



Custom-engineered plants are typically fully automatic, with either mimic or touch screen indication and PLC control. We have the in-house capability to design, fabricate and manage the project from inception to completion. Numerous potable water treatment plants have been designed, installed and successfully commissioned in a number of countries in Africa, South America and Malaysia.

Plant designs conform to customer-specific engineering requirements, or to accepted industrial specifications. A large number of our potable water treatment plants have been in operation for many years with a proven track record of reliable operation and low cost of ownership; hence the reason for many of these plants being purchased by discerning customers in Africa.

Other design features of our modular water treatment plants include:

- Filter systems consist of either fibreglass vessels or Copon-lined steel vessels.
- Settlers are either conical HDPE, or epoxy-coated steel.
- DAF systems are either fibreglass or epoxy-coated steel.
- Softeners are either seamless fibreglass or Copon-lined steel vessels.
- Ultra-filtration systems are fully automatic, modular sections.
- Reverse osmosis systems (skid-mounted, fully automated and/or designed with energy-recovery systems)
- Ultra-violet sterilisation and Chlorination (designed to suit application and conforms to WHO standards)

# Water Testing Equipment

ImproChem is the authorised distributor for all Palintest and Wagtech (a division and Phipps & Bird) products in Southern Africa. Palintest manufacture and supply a full range of high performance products for monitoring water quality in a wide range of applications. Palintest products are used in drinking (potable) water, wastewater and industrial water applications.

- Wagtech – supplies portable water quality laboratories
- Phipps & Bird – leader in jar stirring equipment (floc testers)
- Palintest – Wide range of laboratory equipment and test methods including photometers; reagents (DPD and other tablets and liquids); turbidity/ TSS meters; digital and visual colorimetric arsenic test kits; electrochemical meters; electrochemical sensors for disinfection products; sludge bed monitors, and microbiological monitoring kits.



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