

## RARE WATER TREATMENT



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### Which applications and markets does your company cater to?

RWT focuses on acidic coal mine water. The focus is to remove metals and reduce sulphate with minimal, or no, chemical addition. In this regard, RWT partnered with one of the world's largest mining groups. A tailor-made solution for coal mines is about to go on trial at a large coal-washing plant. This treatment was achieved at operating costs of less than R4/m<sup>3</sup>.

Apart from the acidic coal mine water, RWT also provides tailor-made water treatment solutions to address COD, landfill leachate and cyanide destruction. These EO solutions require development work as each application will vary from site to site. The initial bench-scanning work is usually followed by a plant trial in order to prove the concept. This process is normally followed as reference sites rarely answer all customer concerns. **35**

RWT technology presents electrochemical water treatment in various forms. This easy-to-handle 1.2 M<sup>3</sup>/d pilot plant is ready to be installed as part of a trial at a large coal water treatment plant

### How do your company's plants and services offer a convenient, cost-effective, sustainable solution?

Rare Water Treatment (RWT) technology presents electrochemical water treatment in various forms. Apart from fully integrated, permanently installed treatment plants, RWT also offers containerised modular plants. The major benefits are:

- fast into action – six to eight weeks for equipment delivery and operational in one week after arrival on-site, depending on the complexity of the application
- decentralised roll-out possible as very little civil work is needed
- scalable to meet growing treatment demand as and when needed
- simple to operate and maintain
- low running costs – complex water can be treated at less than R2/m<sup>3</sup>
- low power demand, contributing to sustainability, and a low carbon footprint
- simple, proven equipment with few moving parts
- a low volume of sludge is created through the process and the sludge formed settles easily and dewatered quickly
- flocs created through the electrochemical process are larger and so contain less bound water; they are stable and settle faster
- most feed water quality variations can be handled during continuous operation
- high level of water recovery – up to 99% water recovery is achieved.

### What key technologies does your company offer?

RWT's technology consists of various applications of electrochemical water treatment (ECWT). Rare's ECWT consists of electro coagulation (EC), electro

oxidation (EO), electro reduction (ER), electro aeration (EA) and electro flocculation (EF).

Single treatments or combinations of treatments are used to treat complex wastewater streams.

### What types of water do your plants treat; are they adaptable and how are they specialised?

Apart from state-of-the-art electrode design tailored to specific requirements for every application, the RWT technology offers very special power electronics to reduce power consumption to lower than ever in the industry. This world-class solution is rolled out for the following applications:

- acid mine water: in coal mine applications, a combination of ER, EC and EO is used to reduce metals to less than 0.1 mg/ℓ and simultaneously reduce sulphate up to 70% of the original loading
- stable colloidal solutions: an EC process has been used to cause good separation in the most stubborn colloidal situation. A clear overflow of less than 1 ppm TSS was achieved continuously where the previous scenario was constantly more than 100 ppm TSS
- organics: an EC and EO application, where organic and inorganic contamination was treated together, had been implemented on a landfill leachate application. Metals were reduced to below required levels while chemical oxygen demand (COD) was reduced to less than 2 mg/ℓ and ammonia was reduced to less than 0.5 mg/ℓ.

### What partnerships has your company established to increase its product offering?

RWT does not manufacture any ancillary equipment needed in water purification solutions.

RWT focuses on manufacturing only the electrochemical water treatment units. The company has formed strategic alliances with various water treatment companies to assist with technical consulting, engineering, ancillary plant supply and building of the total solution.

### How do these products fit within SANS specifications?

RWT's electro oxidation solution for disinfection carries a SANS certification.

### What services does your company offer and how does your customer engagement deliver client assurance?

RWT offers build, operate and maintain scenarios but also outright purchases. In the case of outright purchases, RWT supplies the full value chain of project implementation services. Included in this are remote monitoring, fault finding and corrective action supplied on a 24/7 basis.

The RWT containerised modular units are very simple to operate and maintain. In addition, the company offers full training packages as part of its service offering.

