

RARE GROUP



**Wally van Coller**  
CEO, Rare Group

**How do your pipes, pumps and valves aid in the construction of water and wastewater reticulation?**

**WvC** The preferred methods to join HDPE pipes are either electro-fusion or butt welding, as this ensures a permanent joint. Rare Plastics manufactures flexible HDPE pipes that are ideal for dolomitic areas, as the flexibility of the pipe and the joint ensure no leaks occur when there is movement in the soil. This butt-welded jointed method can be used across our entire range of 110 mm to 1 000 mm pipes.

**What specialist technical services does your company deploy and how are they all coordinated?**

Rare Plastic Lining offers interference-fit HDPE liners into existing pipelines, thereby extending the life expectancy of that line. Interference fit means the outer diameter of the liner is 10% to 15% greater than the inner diameter of the host pipe. The host pipe material can be steel, ductile iron, clay, cement or fibre cement. The lining can be installed in new or used pipelines. Flanged spools can be manufactured, but lengths of 500 m can also be continuously lined using the Rare Plastic Lining process, resulting in pipelines with less joints and a much lower probability to develop leaks. The lining of pipelines can be done in situ, which offers a significant cost advantage.

Additionally, Rare Water Treatment provides water cleaning technology quite new to the Southern African region. Electrochemical water treatment is a cost-effective, low-carbon-footprint process that requires short implementation times with minimal civil preparation. Direct treatment of water with little to no adding of chemicals

is fast becoming a desired pre-treatment option and, in specific cases, a final treatment solution.

**Concerning research and development, what innovations do you bring to the water and wastewater industry?**

Rare Water Treatment does not specialise in basic research and development. Each wastewater stream has its own specific challenges and that is why we have a developmental approach to this industry. The development is aimed to provide our clients with a tailor-made solution.

Apart from efficient basic water disinfection units, Rare Water Treatment provides innovative solutions via variations in electrochemical water treatment. These include:

- electro-coagulation
- electro-reduction
- electro-flocculation
- electro-aeration
- electro-flotation.

The most exciting recent developments have been the industrial applications of advance oxidation potential with non-sacrificial mixed metal oxide electrodes.

**Please tell us about some recent projects and successes. Any challenges and how this was overcome?**

Rare Water Treatment has made good progress with an electrochemical process that can remove metals from acid mine water while simultaneously reducing the sulphate content. The advantages are:

- low operating cost
- green technology with low power requirements
- small footprint with minimal civil requirements
- fast implementation.

The clear fluid from this operation yields an ideal feed for final adjustment or polishing via reverse osmosis and ultra-

filtration processes with lower osmotic pressures.

A trial is currently implemented at a major coal mine over a three-month period and the expected success here will provide mines an innovative pre-treatment or final treatment solution for metal- and sulphate-rich wastewater.

**How will your company's service and maintenance agreements benefit the proposed project placing a special emphasis on the quality of the end result?**

Rare Water Treatment provides a 'build, operate and maintain' solution where the client enters into a service agreement to pay for treated water and the client can then focus on the core competencies of its main business.

On fully purchased transactions, we will provide a full service on the technology and electrode maintenance/ replacement if required.

**What challenging work environments have you encountered and how have you overcome these?**

Rare Pipeline Services are also involved in Ghana and Zambia. Metal contamination is a problem along most rivers near

mining operations. Via the relationship with our plastic

lining services at many mines, water treatment opportunities are discovered. We are working with the European Union to implement solar-driven water treatment units along rivers to produce drinking water of acceptable international standards.

In one innovative case, the sludge produced from a copper- and cobalt-contaminated waste stream was sold, offsetting the capital and operational costs of our electro-coagulation solution.

**What specialties does your company bring to operating efficiencies in the water sector?**

Electrochemical water treatment has inherent efficiencies such as:

- The process is absolutely scalable. No big, upfront investments in unused capacity.
- Sustainable solutions since power requirements are low.
- No undesired 'spectator' chemicals.
- Fast and flexible implementation with fast, redeployable solutions.
- Easy operation.
- Solutions are remotely monitored and operational intervention can take place. **35**

**RIGHT** A containerised advance oxidation potential plant is prepared to be shipped to Africa

**BELOW** This existing pipeline is being prepared to be lined in situ with HDPE liners, offering a significant cost advantage

