

Activated Alumina filters

ACTIVATED ALUMINA FILTERS USED TO REMOVE EXCESS FLUORIDE LEVELS. A FIRST IN SOUTH AFRICA

OUR CLIENT



- Hantam Municipality



- The town's water is supplied by boreholes in the surrounding area



- Approximately 3000 people call Brandvlei home

THE CHALLENGE



- High fluoride levels were detected in the municipal borehole water



- In addition to facing penalties, the contaminated water posed health risks to the townspeople



- Overexposure to fluoride:
 - Can result in dental fluorosis, a condition that affects teeth
 - Can also lead to skeletal fluorosis. A bone disease that can cause damage to the bones plus contribute to impaired joint mobility



THE OUTCOME

PROXA was approached to remove excess fluoride from municipal borehole water to comply with SANS241 Drinking Water Standards to ensure the wellbeing of Brandvlei's population. PROXA, working closely together with the client, carried out:

- Robust on-site testing and a thorough needs evaluation
- Comprehensive R&D
- A presentation of a range of viable technology solutions for the client to take into consideration

HOW PROXA ADDED VALUE

1



PROXA carried out extensive testing and proposed several technology options, including coagulation-precipitation, membrane separation, ion exchange and adsorption.

2



Given the secluded nature of the borehole treatment plant, the process robustness and ease of operation required, the client opted for Activated Alumina (AA) which functions as an adsorbent.

3



The AA filters were custom-made in Spain and successfully commissioned and installed on-site. This is the first time that AA is used in South Africa.

“PROXA and its team provided an excellent and very professional service. The full- size plant performed considerably better than the laboratory scale tests indicated before construction. We received excellent communication at every project phase right from commissioning, design, procurement and construction to training and post-construction support. Congratulations and thanks to PROXA on a job well done!” – Gert Meiring, BVI, Consulting Engineers.

FEED WATER



Borehole water with high fluoride levels

PRODUCT WATER



SANS241 Drinking Water Standards

PROCESS

The borehole is water pumped to a collection tank.



The water is pumped to sand filters that are directly coupled with PROXA's Activated Alumina columns.



The standby configuration allows continuous operation should one of the columns require regeneration. (The Sodium Hydroxide (NaOH) and Sulphuric Acid (H₂SO₄) used in the dosing stations is provided.)



The treated water is collected in a reservoir prior to pumping it to town.



SUCCESSFUL OUTCOMES

- ✓ Safe drinking water for the people of Brandvlei
- ✓ The first successful application of AA in South Africa
- ✓ Joint commitment to solving and completing the challenge
- ✓ A solution customised to the client's needs
- ✓ The prospect of any fines was eliminated

Contact us to learn how we can promote water security for your company.

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