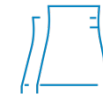


Filtration Group application example - Separation Technology

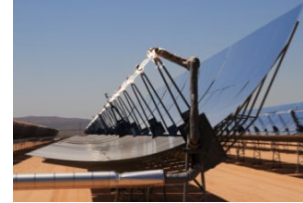
Surface water treatment in thermosolar plants



Power Plants & Energy

Initial situation

Over the last years **thermosolar plants** were built in selected regions of the earth to generate energy from sun radiation which can be used to supply thousands of households with power. For instance there is a thermosolar plant in Andalusia with **165.000 parabolic mirrors** and a **total area of 142 hectare** where sun radiation is reflected on a special thermal oil. This **oil is heated up to 400°C** and flows trough a **74 km long pipe** where it is pumped to big heat exchangers. Due to the high temperatures the water vaporizes and is conducted to a central placed 50 MW turbine which produces **CO₂-neutral power for approx. 43.000 households**.



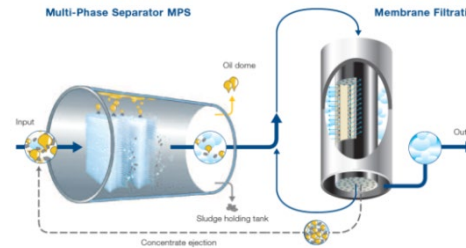
Challenge

Power generated by thermosolar generates a **much lower environmental stress** than the generation of power with conventional plants. Nevertheless the **collected surface water of the plant can be contaminated** due to leakages in the oil pipes. As the collected surface water should be used for watering the surrounding fields, it has to be guaranteed that **100% of the contaminations** are removed **before local farming people can reuse the water**. The currently used separation-system was not able to meet the requirements that's why a **Filtration Group separation system is inevitable**.



Solution statement

After a series of field tests, Filtration Group decided to install a **two-level membrane separation system with a downstream active carbon stage**. The system was developed, designed, wired and **built on a customer specific frame** in the plant in Hamburg. When the **MFEB** arrived on site the existing pipes were connected and the system was ready-to-operate. Experienced Filtration Group-technicians supported the local workers with all necessary works, until a **failure-free operation** was accomplished.



Customer value

- Surface water with a high level of contamination (up to 100%) can be treated reliably with the Filtration Group MFEB
- The combination of ceramic membranes and activated carbon can separate an oil-water-emulsion without any additional chemicals
- A reliable functionality of the system can be guaranteed due to the in years gained experiences in the automotive industry
- The residual oil content is < 5ppm which means that the treated water can be used for watering the local fields without any concerns
- Long lifetime-span and low maintenance costs



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