

Often the biogas produced via anaerobic digestion can contain excessive concentrations of hydrogen sulphide which are problematic for re-use applications such as boilers and co-generation engines.

Aquatec Maxcon offers a robust, cost-effective technology for biogas H₂S removal. THIOPAQ is a biological process to convert hydrogen sulphide (H₂S) in gas streams to element sulphur. This process can be applied for a wide range of gas streams containing H₂S and it has been successfully applied in treating biogas, landfill gas, natural gas, solids digester gas and refinery gas worldwide. The majority of THIOPAQ applications are for treating biogas, which has become an important green energy resource.

Compared to conventional gas stream desulphurisation technology, THIOPAQ has lots of obvious advantages.



THIOPAQ technology contains three major processes:

1. **Scrubber:** In the scrubber, H₂S contained in the gas is absorbed in counter flow alkaline wash water (lean solution). The sulphide-loaded water (rich solution) then flows into the bioreactor.
2. **Bioreactor:** In the bioreactor, sulphide in the rich solution is biologically converted to elemental sulphur. Part of the bioreactor flow returns back to the scrubber as lean solution and the remainder flows to the next process – sulphur settler.
3. **Settler:** Element sulphur contained within the flow from the bioreactor is continuously fed into the settler. Supernatant flows back to the bioreactor and the sulphur sediment leaves the process.

Compared to the conventional methods of H₂S removal from gas streams (Caustic scrubber method etc), THIOPAQ technology has the following advantages:

- Minimal chemical consumption hence cost effective; only 10% cost of the caustic scrubber method.
- High H₂S removal efficiency; up to 99.99% removal.
- H₂S converted to element sulphur, which can be a potential fertiliser.
- Robust system and simple operation.
- No hazardous bleed stream.
- Good flexibility, with ability to handle peak loads and big turn down. Seed biomass can be stored for two years for easy restart.

