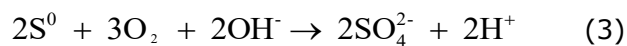
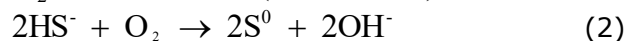


## Biogasclean's biogas desulfurization systems

### Process Description - Biotrickling

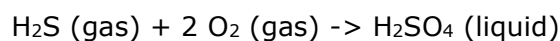
The H<sub>2</sub>S is removed from the biogas in an aerobic biological process; the process requires oxygen. First the H<sub>2</sub>S is dissolved in the liquid phase and thereafter oxidized to elemental sulfur (S) and sulfate (SO<sub>4</sub>) in two stages as shown in the equation below. In the first stage, hydrogen sulfide is partially oxidized to sulfur (2) and in the second step, sulfur is - in theory completely - oxidized to sulfate (3). However, the oxidation is a biochemical and not strict chemical process. In a full scale well-functioning desulfurization plant the conversion rate of H<sub>2</sub>S to SO<sub>4</sub> will be in the range of 85 %. The remaining H<sub>2</sub>S will end up as S and - depending on the presence of metals and COD (chemical oxygen demand) in the scrubber liquid - heavy salts like CaSO<sub>4</sub> and MgSO<sub>4</sub>.



The overall reaction can be described as follows:



Or even shorter:



This reaction both desulfurizes the biogas and causes the pH of the scrubber liquid to decrease. The produced sulfate is discharged with the used scrubber liquid from the process tank to the outflow from the anaerobic digester.