

### Simulation of Desulphurization unit

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Diesel is containing sulfur component, such as dibenzothiophene (DBT), benzothiophene, and 4,6-methyldibenzothiophene. Sulfur component can poison catalyst in the steam reformer also fuel cell, for that reason a pre-treatment is needed to reduce the sulfur content called desulphurization. Among many types of desulphurization, the adsorptive desulphurization is considered in this work. It typically using adsorption process with a particular adsorbent, examples of commonly used adsorbents are activated carbon, zeolite and silica gel. Diesel feed containing 10 ppm of sulfur component, will reduce to 0.1 ppm in order to secure entry to a steam reformer and does not interfere the performance of the fuel cell. For a detailed study on the phenomena in adsorptive desulphurization systems, computational fluid dynamics (CFD) will be simulated by COMSOL software.