

58. Title: Catalyst composition for conversion of sulfur trioxide for hydrogen production process

Inventor: Prof. Sreedevi Upadhyayula, Department of Chemical Engineering

Keywords: Hydrogen production, Catalyst, Conversion of sulphur trioxide

Domain: Renewable Energy

Summary: A catalyst composition is developed for decomposition of sulfuric acid to sulphur dioxide and oxygen in the Iodine-Sulphur process for hydrogen production. The developed catalyst solves the problem of accelerating the rate of the high temperature sulfuric acid decomposition step in iodine-sulphur process for hydrogen production. Pre-treated, high heat-transferable catalyst support helps in accelerating this high temperature endothermic reaction.

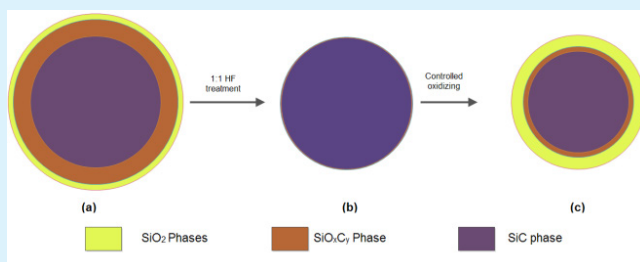


Diagram: Optically distinct phases of catalyst composition

Advantages:

- » Active catalyst composition for a highly endothermic, high temperatures (850-1000°C) decomposition of sulfuric acid to sulphur dioxide and oxygen
- » Economical (non-noble metal) catalyst composition for this process.
- » Non-toxic, environmentally benign catalyst composition.

Applications: Sulfuric acid decomposition for hydrogen production and various other processes where sulfuric acid is to be decomposed to sulphur dioxide and oxygen

Scale of development: Catalyst composition for conversion of sulfur trioxide for process of production of hydrogen is developed and results are validated by testing extensively in Laboratory.

Technology Readiness Level: 5

IP status: Granted Indian Patent 319639