



ChemTech

International Journal of ChemTechResearch

CODEN(USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555

Vol.9, No.11pp 157-163,2016

## Development of Sulfonated Latex Membranes and Modified with $Va_2O_5$ for Application in PEM Fuel Cells

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**Abstract:** Proton Exchange Membranes were prepared with sulfonated natural latex and modified with different loaded percentages (0,2,4 and 6%) of vanadium pentoxide for application in fuel cells. Physicochemical properties as water uptake, ionic exchange capacity, oxidative capacity and FTIR analysis were evaluated. Membranes loaded with 2% and 6% of vanadium pentoxide presented the highest values of water uptake and exchange ionic conductivity with 23.9% and 0.33 meq/g, respectively. Mechanical properties values for tensile stretch and elongation average are lower than Nafion 117; however, these membranes have potential for applications in fuel cells.

**Keywords-** fuel cell, membrane, natural latex, sulfonation, Vanadium pentoxide.

Álvaro Realpe *et al*/International Journal of ChemTechResearch, 2016,9(11),pp 157-163.

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