

# **MODIFICATION OF MATERIALS FOR HIGH OXIDATION RESISTANCE**

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## **ABSTRACT**

As a result of high oil prices and the increase effects of greenhouse gases due to the combustion of fossil fuels is necessary to find other sources of energy. Hydrogen has the potential to replace part of the fossil fuel used today and reduce the greenhouse effect. Prior to implementing this technology it is necessary to develop new materials to withstand the highly corrosive environmental conditions in the decomposition of an acid at high temperature. The diamond research group began an investigation to improve some materials to be used in the production of hydrogen from the decomposition of acids at high temperatures. As result of this work, samples of polycrystalline synthetic diamond films and stainless steel were prepared with a thin film of Pt deposited on the surface by magnetron sputtering. Also the samples were treated with others high resistances corrosion metals. The studied founded that the diamond and stainless steel improved its resistance to withstand the conditions found in the production of hydrogen at high temperature, when they were exposed in a sulfuric acid decomposer system. These results open the door for the new application of diamond and stainless steel in the production of hydrogen form the sulfuric acid decomposition.