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# Gold based catalyst for Low Temperature Water Gas Shift Reaction

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Ceria-zirconia-based gold is one of the most potent sources of low-temperature water that has been reported to be present but rapid action is taking place under reaction conditions. Four decades ago, the gold nanoparticles used have produced outstanding properties and continue to attract the interest of the scientific community. Several books and comprehensive reviews and numerous papers cover a wide range of and used features related to gold-reinforced reinforcement, multi-layered design, relationships between key support elements, electronic structures and gold particle frames, and smoothing function, and modelling. Among other AU distributions aimed at ensuring environmental protection and sustainable energy use, special attention is being paid to the production of pure hydrogen. The increasing demand for high hydrogen-purity of fuel cell systems has resulted in a renewed solution to water conversion. This well-known industrial process provides an attractive way to generate hydrogen generation and further increase its mixing in the gas mixture obtained by processes using coal, petroleum, or biomass resources. An effective step for further removal of CO data from a water conversion plant after a gas water conversion unit is the selected CO oxidation area. Cultivating highly efficient, stable and selective catalogues for this critical response to improving hydrogen purity in fuel cell utilization. This review aims to broaden the existing knowledge and understanding of the architecture of $H_2$ refining facilities. It has been reported that defective sites in $CeO_2$ can act as auxiliary nuclei sites of Au and strengthen small gold nanoparticles. Therefore, the potential strategy for stabilizing the auxiliary aught is to add support to a number of problems; one of those people is ceria-Titania. Although not widely studied as ceria-zirconia, it has been investigated as a practical support for applications such as CO oxidation and methane changing. The corresponding industrial processes for this process are based on Cu / ZnO and are often used to feed NH3 plants. The gas-water reactions (WGSR) are the most important reactions to industrial processes in which CO and water in the vapor phase react to the production of carbon dioxide and hydrogen. The reaction of aqueous transactions is rapid in alkalized catalysts, but only continuous catalysts cobalt. Synthetic gases from high-temperature coal- or heavy oil gas with high CO content can be used directly for FT-synthesis in iron. Copper-based catalysts are considered the methanol composite standard. And currently, CuO / ZnO / $Al_2O_3$ (CZA) is used as a low-temperature compound, but copper-based catalysts based on $SiO_2$, MgO, and Cr2O3 have also been used. CZA industrial additives currently used by WWSS usually operate in 493-553 K. Reactions to low temperatures lead to low reaction activity, and high temperatures cause damage to catalysts. Recently, it has been shown that supported gold catalysts promise lower WGSR temperatures. The Au / CeZrO4 catalysts are prepared in such a way as to show a tendency to have a high fluid reaction function and to use an auxiliary gas

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mixture with Au based on CeO2, TiO2 or ZrO2. The main purpose of this paper is to investigate and compare the function of the Au / CeZrO4 and CZA catalyst at low WGSR temperature. reduces ~ 1.9% of greenhouse gas emissions in the transportation sector. The findings highlight the importance of changing biogas consumption of automotive fuel to reduce greenhouse gas emissions.

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