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(54) **Title:** PROMOTED CALCIUM-ALUMINATE SUPPORTED CATALYSTS FOR SYNTHESIS GAS GENERATION

(57) **Abstract:** A promoted calcium-alumina supported reforming catalyst that is particularly useful for reforming reactions where low H2/CO ratio synthesis gas, such as less than 2.3 is generated directly is disclosed. The catalyst comprises from about 25 wt% to about 98 wt % alumina, from about 0.5 wt% to about 35 wt% calcium oxide, from about 0.01 wt% to about 35 wt% of a promoter, and from about 0.05 wt% to about 30 wt% of an active metal. The promoter is selected from the group consisting of titanium, zirconium, yttrium, niobium, elements of the lanthanum-series, such as, without limitation, lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, ytterbium, and combinations thereof. The active metal is selected from the group consisting of nickel, cobalt, rhodium, ruthenium, palladium, platinum, iridium and combinations thereof as active metal, wherein the calcium oxide is combined with the alumina to form aluminum-rich calcium aluminates.

WO 2006/016983 A2