## 5530168

## PROCESS FOR THE SYNTHESIS OF A C2+ ALIPHATIC ALCOHOL IN A SLURRY REACTOR COMPRISING AN IN-SITU CATALYST IMPREGNATION STEP

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A process is set forth for the synthesis of a C2+ aliphatic alcohol from hydrogen and carbon oxides in the presence of a copper-based catalyst which has been impregnated with an alkali metal compound. The process differs from the prior art in that the catalyst is impregnated with the alkali metal compound in the same slurry reactor which is used for reacting the hydrogen and carbon oxides. By contrast, in the prior art C2+ aliphatic alcohol synthesis, impregnation of the copper-based catalyst with the alkali metal compound is accomplished by a separate step in a separate vessel. By eliminating this separate step, the present invention realizes a savings in processing and equipment costs.

## 5530171

## PROCESS FOR THE CATALYTIC DEHYDROGENATION OF ALKANES TO ALKENES WITH SIMULTANEOUS COMBUSTION OF HYDROGEN

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There is provided a process for the net catalytic oxidative dehydrogenation of alkanes to produce alkenes. The process involves simultaneous equilibrium dehydrogenation of alkanes to alkenes and combustion of the hydrogen formed to drive the equilibrium dehydrogenation reaction further to the product alkenes. In the present reaction, the alkane feed is passed into a reactor containing both an equilibrium dehydrogenation catalyst and a reducible metal oxide, whereby the alkane is dehydrogenated and the hydrogen produced is simultaneously and selectively combusted in oxidation/reduction (REDOX) reaction with the reducible metal oxide. This particular mode of operation is termed a same reactor, REDOX mode. The equilibrium dehydrogenation catalyst may comprise platinum and the reducible metal oxide may contain bismuth, antimony, indium, or molybdenum, or a mixture thereof.

## 5532198

## ZIRCONIUM/CERIUM MIXED OXIDE CATALYST/CATALYST SUPPORT COMPOSITIONS HAVING HIGH/STABLE SPECIFIC SURFACES

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Zirconium/cerium mixed oxides (optionally including thermally stabilizing dopant values), comprising solid solutions thereof, having contents of zirconium of up to 99% by weight, and having high specific surface areas, are well suited as catalysts and/or catalyst supports, notably for the treatment/conversion of vehicular exhaust gases; such ZrO2/CeO2 mixed oxides are conveniently prepared by (i) intimately admixing a zirconium sol with a cerium sol, the ratio r of the mean diameter r1 of the particles of the zirconium sol to the diameter r2 of the particles of the cerium sol being at least 5, (ii) spray drying the admixture thus obtained, and (iii) calcining the dried material.