28. A method of synthesizing alcohols from CO or CO_2 comprising:

flowing a reactant gas mixture comprising H_2 and CO or CO_2 into contact with a catalyst;

wherein the catalyst comprises Pd and Zn dispersed on alumina; wherein the catalyst has been activated by reducing in the presence of hydrogen at a temperature of at least 350° C.; and

forming an alcohol or alcohols.

29. The method of claim 27 wherein the catalyst comprises 2 to 10 weight % Pd; and wherein the catalyst comprises Pd and Zn in a Pd:Zn molar ratio of 0.1 to 0.5.

30. The method of claim 27 wherein the catalyst has been activated by reducing in the presence of hydrogen at a temperature in the range of 400° C. to 500° C.

31. A method of synthesizing alcohols from CO or CO_2 comprising:

flowing a reactant gas mixture comprising H_2 and CO or CO_2 into contact with a catalyst;

wherein the catalyst comprises Pd and Zn dispersed on alumina;

wherein the catalyst is disposed in a microchannel and wherein heat generated in the microchannel is transferred to an adjacent heat exchanger; and

forming an alcohol or alcohols.

32. The method of claim 31 wherein the catalyst comprises 2 to 10 weight % Pd; and wherein the catalyst comprises Pd and Zn in a Pd:Zn molar ratio of 0.1 to 0.5.

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