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(54) Title: SELECTIVE HYDROGENATION CATALYST HAVING A MIXED ALUMINA PHASE SUPPORT

(57) Abstract: A method of making a selective hydrogenation catalyst includes forming a mixed phase alumina support having a BET surface area in the range of between approximately 30 to approximately 60 square meters/gram (m²/g). The mixed phase alumina support includes alpha alumina and theta alumina. The method also includes impregnating the mixed phase alumina support with an impregnation solution having one or more metals selected from Group VIIIB, Group IB, or both of the Periodic Table of Elements to form an impregnated support, drying the impregnated support at a temperature in the range of between approximately 100 degrees Celsius (°C) and 150 °C to form a dried impregnated support, calcining the dried impregnated support at a temperature range of between 350 °C and approximately 500 °C to form a calcined impregnated support, and reducing the one or more metals on the calcined impregnated support at a temperature in the range of between approximately 400 °C and approximately 600 °C in the presence of hydrogen to form the selective hydrogenation catalyst.



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