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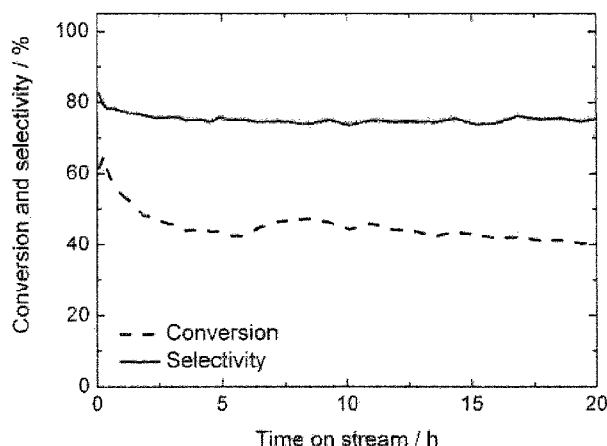
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(54) **Title:** ORDERED COBALT-ALUMINUM AND IRON-ALUMINUM INTERMETALLIC COMPOUNDS AS HYDROGENATION CATALYSTS

Fig. 1



(57) **Abstract:** The present invention relates to a process for the hydrogenation, in particular the selective hydrogenation of unsaturated hydrocarbon compounds, such as the selective hydrogenation of acetylene to ethylene, using a hydrogenation catalyst comprising an ordered intermetallic compound, namely an ordered cobalt- aluminum or iron- aluminum intermetallic compound. According to another aspect, the present invention relates to a catalyst comprising a support and at least one specific ordered cobalt -aluminum and/or iron-aluminum intermetallic compound supported thereon, as well as to the use of specific ordered intermetallic cobalt-aluminum and iron -aluminum intermetallic compounds as catalysts. The ordered cobalt-aluminum and iron-aluminum intermetallic compounds proved to be highly selective and long-term stable catalysts, e.g. in the selective hydrogenation of acetylene to ethylene in a large excess of ethylene.



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