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(54) Title: AN IONIC LIQUID CATALYST HAVING A HIGH MOLAR RATIO OF ALUMINUM TO NITROGEN

(57) Abstract: An ionic liquid catalyst is provided comprising an ammonium chloroaluminate salt, and having a molar ratio of Al to N greater than 2.0 when held at a temperature at or below 25°C for at least two hours. There is also provided an ionic liquid catalyst comprising an alkyl-pyridinium haloaluminate and an impurity, wherein the ionic liquid catalyst has a molar ratio of Al to N greater than 2.0 when held at a temperature at or below 25°C for at least two hours. In a third embodiment, there is provided an ionic liquid system for isoparaffin/olefin alkylation, comprising a quaternary ammonium chloroaluminate, a conjunct polymer, and a hydrogen chloride. The ionic liquid system has a molar ratio of Al to N from 2.1 to 8.0. Less than 0.1 wt% AlCl₃ precipitates from the ionic liquid system when it is held for three hours or longer at or below 25°C.



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