Title (en)

COOPERATIVE CHEMICAL ADSORPTION OF ACID GASES IN FUNCTIONALIZED METAL-ORGANIC FRAMEWORKS

Title (de)

KOOPERATIVE CHEMISCHE ADSORPTION VON SAUREN GASEN IN FUNKTIONALISIERTEN METALLORGANISCHEN GERÜSTEN

Title (fr)

ADSORPTION CHIMIQUE COOPÉRATIVE DE GAZ ACIDES DANS DES STRUCTURES ORGANOMÉTALLIQUES FONCTIONNALISÉES

Publication

EP 3134197 A4 20171129 (EN)

Application

EP 15782401 A 20150422

Priority

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- US 2015027165 W 20150422

Abstract (en)

[origin: WO2015164543A1] A system and method for acid gas separations using porous frameworks of metal atoms coordinatively bound to polytopic linkers that are functionalized with basic nitrogen ligands that expose nitrogen atoms to the pore volumes forming adsorption sites. Adjacent basic nitrogen ligands on the metal-organic framework can form an ammonium from one ligand and a carbamate from the other. The formation of one ammonium carbamate pair influences the formation of ammonium carbamate on adjacent adsorption sites. Adsorption of acid gas at the adsorption sites form covalently linked aggregates of more than one ammonium carbamate ion pair. The acid gas adsorption isotherm can be tuned to match the step position with the partial pressure of acid gas in the gas mixture stream through manipulation of the metal-ligand bond strength by selection of the ligand, metal and polytopic linker materials.

IPC 8 full level

B01D 53/02 (2006.01); **B01J 20/22** (2006.01)

CPC (source: EP)

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Citation (search report)

No further relevant documents disclosed

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WO 2015164543 A1 20151029; AU 2015249696 A1 20161103; AU 2015249696 B2 20200305; CA 2945783 A1 20151029; CA 2945783 C 20231003; CA 3209245 A1 20151029; CN 106457120 A 20170222; CN 106457120 B 20210427; EP 3134197 A1 20170301; EP 3134197 A4 20171129; JP 2017518169 A 20170706

DOCDB simple family (application)

US 2015027165 W 20150422; AU 2015249696 A 20150422; CA 2945783 A 20150422; CA 3209245 A 20150422; CN 201580030107 A 20150422; EP 15782401 A 20150422; JP 2016562842 A 20150422