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- (54) **MODIFIED ZEOLITES THAT INCLUDE ZIRCONIUM-CONTAINING ORGANOMETALLIC MOIETIES AND METHODS FOR MAKING SUCH**
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- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 294 days.

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CPC C01B 39/026 (2013.01); B01J 29/405 (2013.01); C01B 39/40 (2013.01);
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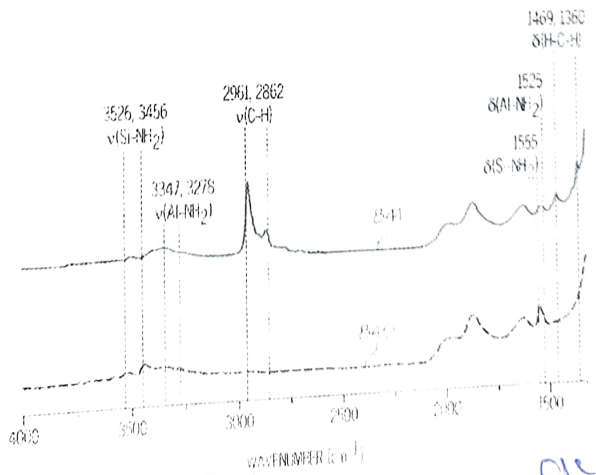
(58) **Field of Classification Search**
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See application file for complete search history.

(57) **ABSTRACT**

Disclosed herein are modified zeolites and methods for making modified zeolites. In one or more embodiments disclosed herein, a modified zeolite may include a microporous framework including a plurality of micropores having diameters of less than or equal to 2 nm. The microporous framework may include at least silicon atoms and oxygen atoms. The modified zeolite may further include organometallic moieties each bonded to a nitrogen atom of a secondary amine functional group including a nitrogen atom and a hydrogen atom. The organometallic moieties may include a zirconium atom that is bonded to the nitrogen atom of the secondary amine functional group. The nitrogen atom of the secondary amine function group may bridge the zirconium atom of the organometallic moiety and a silicon atom of the microporous framework.

20 Claims, 14 Drawing Sheets



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