

Zeolite Catalyzed Isomerization Of 1 Hexene To Trans 2

Understanding the Role of Internal Diffusion Barriers in ... "Ab initio" synthesis of zeolites for preestablished ... Monomolecular Skeletal Isomerization of 1-Butene over ... a Zeolite-catalyzed isomerization of oleic acid to a ... Exploring the acid catalyzed isomerization of phenanthrene ... Metalloenzyme-like catalyzed isomerizations of sugars by ... Monomolecular Skeletal Isomerization of 1 Butene over ... Zeolite-Catalyzed Isomerization of Triose Sugars ... Combined Function of Brønsted and Lewis Acidity in the ... Tin-containing zeolites are highly active catalysts for ... Density functional theory studies on the skeletal ... Zeolite-catalyzed Transformation of Glucose: A Review ... On the origin of the difference between type A and type B ... Bing: Zeolite Catalyzed Isomerization Of 1 Zeolite-catalyzed Isomerization of 1-Hexene to trans-2 ... Unraveling the Homologation Reaction Sequence of the ... Tin-containing zeolites are highly active catalysts for ... Zeolite Catalyzed Isomerization Of 1 Efficient Isomerization of Glucose to Fructose over ... Density functional theory studies on the skeletal ...

Understanding the Role of Internal Diffusion Barriers in ...

catalyzed skeletal isomerization of UFA. OA was converted to bc-UFA isomers with up to 85% yield (after hydrogenation to bc-SFA) in the presence of modified Ferrierite zeolites (after Pd-catalyzed hydrogenation). The formation of dimer and trimer byproducts was greatly suppressed when Ferrierite zeolites were used as catalysts.

"Ab initio" synthesis of zeolites for preestablished ...

Results: Substantial achievements have been made with regard to the zeolite-catalyzed isomerization of glucose to fructose. The joint experimental-computational studies provide insightful clues to reaction mechanisms; e.g., the isomerization reaction proceeds in sequence of pyranose ring opening, hydride shift from C2 to C1 (rate-decisive) and ...

Monomolecular Skeletal Isomerization of 1-Butene over ...

ABSTRACT: The mechanism of the 1-butene skeletal isomerization catalyzed by zeolites has remained elusive. We present direct evidence that even the initial isobutene formation over H-ferrierite, the best-known isomerization catalyst, is monomolecular in nature, whereas a bimolecular pathway is significant over the unselective H-ZSM-5.

a Zeolite-catalyzed isomerization of oleic acid to a ...

The isomerization reaction of 1,2-dihydrophenanthrene catalyzed by a mordenite zeolite is explored theoretically in the present study. It was found that the electrostatic adducts which resemble ion-pair and π complexes, detected for zeolite catalysts, could enable the reaction to proceed through an energy favorable channel and explain its selectivity.

Exploring the acid catalyzed isomerization of phenanthrene ...

We have shown that the isomerization of glucose to fructose can be catalyzed in aqueous media by hydrophobic zeolites that contain Lewis acids (1 \downarrow -3). Specifically, pure-silica zeolites with the zeolite beta structure containing small amounts of framework Ti 4+ or Sn 4+ (denoted as Ti-Beta and Sn-Beta, respectively) were able to isomerize glucose to fructose in high yield at relatively ...

Metalloenzyme-like catalyzed isomerizations of sugars by ...

The mechanism of the isomerization of 1-butene on HZSM-48. The isomerization mechanism on HZSM-48 is similar to that on HZSM-23. The adsorbed 1-butene (REAC) is first protonated by the acid proton of the zeolite. The 2-butoxide is formed via the transition of a secondary carbenium.

Monomolecular Skeletal Isomerization of 1 Butene over ...

Zeolite ITQ-27 showed high disproportionation activity, and ITQ-64 showed high selectivity for the desired para and ortho isomers. For the case of a product and TS of similar size, we synthesized a catalyst, MIT-1, for the isomerization of endo-dicyclopentane into adamantane.

Zeolite-Catalyzed Isomerization of Triose Sugars ...

Combined Function of Brønsted and Lewis Acidity in the Zeolite-Catalyzed Isomerization of Glucose to Fructose in Alcohols. Dr. Shunmugavel Saravanamurugan. Department of Chemistry, Technical University of Denmark, Kemitorvet, 2800- Kgs. Lyngby, Denmark 1, Denmark.

Combined Function of Brønsted and Lewis Acidity in the ...

Tin-containing zeolites are highly active catalysts for the isomerization of glucose in water. 1. Proc Natl Acad Sci U S A. 2010

Apr 6;107(14):6164-8. doi:10.1073/pnas.1002358107. Epub 2010 Mar 22. Tin-containing zeolites are highly active catalysts for the isomerization of glucose in water. Moliner M(1), Román-Leshkov Y, Davis ME.

Tin-containing zeolites are highly active catalysts for ...

The reaction mechanism of the skeletal isomerization of 1-butene to isobutene on 10-membered ring zeolites HZSM-23 and HZSM-48 was investigated using the ONIOM(B3LYP/6-31G(d,p):UFF) method. It is demonstrated that the skeletal isomerization follows a monomolecular process, which involves the formation of two important intermediates: 2-butoxide and butoxide. The active centers on both zeolites

Density functional theory studies on the skeletal ...

The isomerization reactions of alkenes are typically catalyzed by acid zeolites at temperatures around 250 °C and at a partial pressure of H₂ of around 1–10 bars, . The isomerization is classified as type A when it does not lead to any branching degree change (in practice, this corresponds to a direct 1,n hydride or alkyl transfer [17]), or type B when an increase in the branching degree of the chain occurs.

Zeolite-catalyzed Transformation of Glucose: A Review ...

Simplified illustration of the alcohol homologation reaction sequence during zeolite-catalyzed MTH (in green) and ETH (in blue). Homologation is a reaction that increases the carbon skeleton of the reactant molecule to form the next higher analogues in multiples of n, where n is the number of carbon atom(s) in the reactant molecule (C_n; that is, n=1 in MTH, n=2 in ETH).

On the origin of the difference between type A and type B ...

Zeozymes: Sn-Beta zeolite is found to be a highly active catalyst for the conversion of triose sugars. If the solvent is water, isomerization of the triose sugars takes place to form lactic acid in 90 % yield at 125 °C. If methanol is used as the solvent, an overall isomerization–esterification reaction takes place and methyl lactate is formed in quantitative yields at 80 °C.

Bing: Zeolite Catalyzed Isomerization Of 1

The most active catalyst was zeolite Y, which was found to be more active than the zeolites beta, ZSM-5, and mordenite.

The novel reaction pathway involves glucose isomerization to fructose and subsequent reaction with methanol to form methyl fructoside (step 1), followed by hydrolysis to re-form fructose after water addition (step 2).

Zeolite-catalyzed Isomerization of 1-Hexene to trans-2 ...

It is therefore plausible that Sn in zeolite Beta performs the isomerization reaction following an intramolecular hydride shift mechanism between the carbonyl-containing C-1 and the hydroxyl-bearing C-2 of glucose by way of a 5-member complex (Scheme 2 B).

Unraveling the Homologation Reaction Sequence of the ...

The mechanism of the 1-butene skeletal isomerization catalyzed by zeolites has remained elusive. We present direct evidence that even the initial isobutene formation over H-ferrierite, the best-known isomerization catalyst, is monomolecular in nature, whereas a bimolecular pathway is significant over the unselective H-ZSM-5. We also report that medium-pore high-silica H-HPM-1 outperforms H ...

Tin-containing zeolites are highly active catalysts for ...

We have shown that the isomerization of glucose to fructose can be catalyzed in aqueous media by hydrophobic zeolites that contain Lewis acids (1-3). Specifically, pure-silica zeolites with the zeolite beta structure containing small amounts of framework Ti 4por Sn (denoted as Ti-Beta and Sn-Beta, respectively) were

Zeolite Catalyzed Isomerization Of 1

The first type of diffusion resistance is well understood, the second is receiving increasing attention, while the diffusion barriers at internal interfaces remain largely unclear. We take Pt/Beta catalyzed isomerization of n-heptane as the model system to explore the role of internal diffusion barriers in zeolite catalysis. The two as ...

Efficient Isomerization of Glucose to Fructose over ...

Details of the double-bond isomerization of 1-hexene over H-ZSM-5 were clarified using density functional theory. It is found that the reaction proceeds by a mechanism which involves the Br \o \o nsted acid part of the zeolite solely. According to this mechanism, 1-hexene is first physically adsorbed on the acidic site, and then, the acidic proton transfers to one carbon

atom of the double bond, while the other carbon atom of the double bond bonds with the Br \o \o nsted host oxygen ...

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