



US007649099B2

(12) **United States Patent**  
**Holladay et al.**

(10) **Patent No.:** **US 7,649,099 B2**  
(45) **Date of Patent:** **Jan. 19, 2010**

(54) **METHOD OF FORMING A DIANHYDROSUGAR ALCOHOL**  
  
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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 521 days.

(21) Appl. No.: **11/341,961**

(22) Filed: **Jan. 26, 2006**

(65) **Prior Publication Data**  
US 2007/0173652 A1 Jul. 26, 2007

(51) **Int. Cl.**  
**C07C 29/00** (2006.01)  
**C07D 315/00** (2006.01)  
**C07D 493/00** (2006.01)  
**C07H 1/00** (2006.01)  
**C07H 17/00** (2006.01)  
**C07H 5/04** (2006.01)  
**C07H 1/06** (2006.01)  
**C13K 5/00** (2006.01)

(52) **U.S. Cl.** ..... **549/464**; 536/18.5; 536/18.6; 536/55.3; 536/123.1; 536/124; 536/126; 549/417; 568/902

(58) **Field of Classification Search** ..... 536/18.5, 536/18.6, 18.7, 55.3, 123.1, 124, 126; 549/417, 549/464; 568/902

See application file for complete search history.

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(57) **ABSTRACT**

The invention includes methods of producing dianhydrosugars. A polyol is reacted in the presence of a first catalyst to form a monocyclic sugar. The monocyclic sugar is transferred to a second reactor where it is converted to a dianhydrosugar alcohol in the presence of a second catalyst. The invention includes a process of forming isosorbide. An initial reaction is conducted at a first temperature in the presence of a solid acid catalyst. The initial reaction involves reacting sorbitol to produce 1,4-sorbitan, 3,6-sorbitan, 2,5-mannitan and 2,5-iditan. Utilizing a second temperature, the 1,4-sorbitan and 3,6-sorbitan are converted to isosorbide. The invention includes a method of purifying isosorbide from a mixture containing isosorbide and at least one additional component. A first distillation removes a first portion of the isosorbide from the mixture. A second distillation is then conducted at a higher temperature to remove a second portion of isosorbide from the mixture.

**24 Claims, 5 Drawing Sheets**

