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(54) **HYDROXYMETHYLFURFURAL
REDUCTION METHODS AND METHODS OF
PRODUCING FURANDIMETHANOL**

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(75) Inventors: **Michael A. Lilga**, Richland, WA (US);
Richard T. Hallen, Richland, WA (US);
James F. White, Richland, WA (US);
Michel J. Gray, Mesa, WA (US)

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(73) Assignee: **Battelle Memorial Institute**, Richland,
WA (US)

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(65) **Prior Publication Data**

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(51) **Int. Cl.**
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(52) **U.S. Cl.**
USPC **549/503**

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(58) **Field of Classification Search**
USPC 549/503
See application file for complete search history.

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(57) **ABSTRACT**

A method of reducing hydroxymethylfurfural (HMF) where a
starting material containing HMF in a solvent comprising
water is provided. H₂ is provided into the reactor and the
starting material is contacted with a catalyst containing at
least one metal selected from Ni, Co, Cu, Pd, Pt, Ru, Ir, Re and
Rh, at a temperature of less than or equal to 250° C. A method
of hydrogenating HMF includes providing an aqueous solu-
tion containing HMF and fructose. H₂ and a hydrogenation
catalyst are provided. The HMF is selectively hydrogenated
relative to the fructose at a temperature at or above 30° C. A
method of producing tetrahydrofuran dimethanol (THFDM)
includes providing a continuous flow reactor having first and
second catalysts and providing a feed comprising HMF into
the reactor. The feed is contacted with the first catalyst to
produce furan dimethanol (FDM) which is contacted with the
second catalyst to produce THFDM.

8 Claims, 80 Drawing Sheets