Biomass-Derived Isoprene in High Yield

Technology #20170037

Converting 3-methyltetrahydrofuran to Isoprene

A new process uses a novel catalyst to synthesize isoprene in high yields. Isoprene is made by contacting 3-methyltetrahydrofuran (3-MTHF) with a heterogeneous acid catalyst (other than alumina, or Al2O3). This catalytic process dehydrates MTHF to isoprene via several combinations of temperatures, pressures, and space velocities (reactant volumetric flow rate per volume of catalyst) and achieves selectivity of 3-MTHF to isoprene of up to 100%.

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<thead>
<tr>
<th>MN-IP Try and Buy</th>
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<tr>
<td><strong>Try</strong></td>
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<tr>
<td>• Trial period is up to 6 months</td>
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<td>• Trial fee is $5,000 for six months</td>
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<td>• Trial fee is waived for MN companies or if sponsoring $50,000+ research with the University</td>
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<td>• No US patent expenses during trial period</td>
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<td><strong>Buy</strong></td>
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<td>• $40,000 conversion fee (TRY to BUY)</td>
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<td>• Royalty rate of 3% (2% for MN company)</td>
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<td>• Royalty free for first $1M in sales</td>
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** View the Term Sheet **
** Contact Larry Micek for specific details. **

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**Higher Yields, Lower Costs**

Isoprene, while traditionally produced from petroleum, can be produced from biomass. However, these production processes suffer from low overall yields or low conversion rates, preventing them from being economically feasible. This new method produces isoprene from a biomass-derived precursor at a high yield. Using a less expensive precursor, it is not only economically viable, but economically competitive with current petroleum processes.

**BENEFITS AND FEATURES:**

- Biomass-derived precursor
- One-step dehydration of MBDO to isoprene
- High yields (up to 100%)
- Catalyst technology

**APPLICATIONS:**

- Isoprene manufacture from biomass
- Tires
- Elastomers
- Adhesives and sealants

**Phase of Development** - Prototype

**Inventors**

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