



Supercritical fluid phase synthesis of methylene lactones using novel catalyst

Description of Technology: The invention pertains to a method of producing unsubstituted and substituted alpha-methylene lactones by a supercritical or near-critical fluid phase reaction of starting lactones with formaldehyde in the presence of a novel catalyst that not only exhibits high initial activity (conversion), but also provides high reactor productivity (mass of product per mass of catalyst per unit of time) and sustained maintenance of a high level of activity and productivity with time on stream.

Patent Listing:

1. **US Patent No. 7,164,032**, Issued January 16, 2007, "Supercritical fluid phase synthesis of methylene lactones using novel catalyst"

<http://patft.uspto.gov/netacgi/nph-Parser?Sect2=PTO1&Sect2=HITOFF&p=1&u=%2Fnetacgi%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&d=PALL&RefSrch=yes&Query=PN%2F7164032>

2. **US Patent No. 7,166,727**, Issued January 23, 2007, "Supercritical fluid phase synthesis of methylene lactones using novel catalyst"

<http://patft.uspto.gov/netacgi/nph-Parser?Sect2=PTO1&Sect2=HITOFF&p=1&u=%2Fnetacgi%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&d=PALL&RefSrch=yes&Query=PN%2F7166727>

Market Potential: Alpha-methylene-gamma-butyrolactone and methyl alpha-methylene-gamma-butyrolactone are useful monomers in the preparation of both homopolymers and copolymers. In addition, the alpha-methylene-gamma-butyrolactone group is an important structural feature of many sesquiterpenes of biological importance.

It would be advantageous to have a lactone conversion process that not only exhibits high initial activity (conversion), but also provides high reactor productivity (mass of product per mass of catalyst per unit of time) and sustained maintenance of a high level of activity and productivity with time on stream.

Benefits:

- Exhibits high initial activity
- Provides high reactor productivity
- Maintains a high level of activity and productivity with time on stream

Applications:

- Production of lactones

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