

TECHNOLOGY OFFER: TRIMETHYLENE CARBONATE AND 1,3-PROPANEDIOL

OVERVIEW

Description: Process , Pilot , Product , R&D knowledge , Other

Benefit summary: Technology package covering expertise in fermentation of glycerine to 1,3-propanediol and conversion of propanediol to trimethylene carbonate.

Development summary: A catalytic process and catalyst have been studied for conversion of 1,3-propanediol to trimethylene carbonate, a monomer to the biodegradable PTMC.

IP Summary: The technology is supported by priority filling.

Novelty

- **Technology Benefit description:** TriMethylene Carbonate (TMC) is prepared from 1,3-propanediol, which can be obtained by fermentation of glycerine. A new catalyst for this reaction has been patented.
- **Technology differentiation versus competition (and Uniqueness):** More efficient catalyst than what had been reported before has been protected

Development

- **Technology Readiness Level (Scale):** TRL 1 ; 2 ; 3 ; 4 ; 5 ; 6 ; 7 ; 8 ; 9
- **Development Status summary:** Catalyst efficiency has been proven at laboratory scale. Product separation has been studied at lab scale.

Intellectual Property

Patent Application / Granted				
Priority Patent Number	Title	Countries	Status	Priority date
EP13192912.7	Synthesis process of Trimethylene carbonate from 1,3-propanediol and urea by heterogeneous catalysts	EP	Filed	14/11/2013

Provider

- **Technology provided by:** Arkema France, CIRCC, TUHH
- **Related Expertise:**

Partner	Academic/Industry	Research / Pilot / Demonstration / Other
Arkema	Industry	Research, Intellectual Property
CIRCC	Academic	Research, Expertise in Catalyst preparation and catalytic process, and on fermentation technology
TUHH	Academic	Research, Expertise in fermentation technology



Instrument: Large Scale Collaborative Project
Thematic Priority: FP7-ENERGY.2009.3.3.1

Grant Agreement: 241718

Technical Details

- **Long description:** The invention relates to the synthesis of TMC by catalytic reaction. The solid catalyst improves both yield and selectivity of the reaction and makes easier downstream separation. Trimethylene carbonate can be used as a solvent, but also as a monomer of the biodegradable Polytrimethylene Carbonate (PTMC).

Licensing

- **Collaboration type sought:** Collaboration for technology development, Licensing, Transfer of IP. Technology package can be made available with or without fermentation technologies to produce 1,3-propanediol.
- **Support provided:** Documentation, Personnel, Pilot. CIRCC can provide technical support and R&D expertise in the field of catalysis and fermentation. TUHH can provide R&D expertise in the field of fermentation.

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