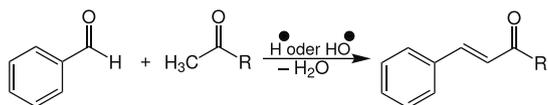


# Esterification of Dicarboxylic Acids in the Presence of pTsOH



Keywords: Esterification, Dicarboxylic Acids

## Summary

Esterification reactions of dicarboxylic acids in methanol conducted under reflux and magnetic stirring (700 rpm) for a long time.

## Equipment

| Item #       | Description                                |
|--------------|--|
| 8053 000 100 | XELSIUS Basic Unit, Software Version: 2.44 |
| 8053 000 201 | Reflux Condenser Module                    |
| 8053 000 202 | HV Vials Starter Kit, 1 - 30 ml            |

## Chemicals

|        | Description  |
|--------|--|
| 1 mmol | Dicarboxylic acids $\geq 99.0\%$ (NT)              |
| 2 mmol | p-Toluenesulfonic acid monohydrate - $\geq 98.5\%$ |
| 5 ml   | Ethanol > 99.9%, CAS                               |

## Methode

Reactions of esterification of dicarboxylic acids in MeOH conducted under reflux and magnetic stirring (700 rpm); reaction time: 4 h.

Add 1mmol of dicarboxylic acid into the reaction vessel with 2 mmol of PTSA or MSA. Dry ethanol (5 mL) was added and the mixture was heated progressively to 90°C for 4h. Extraction of the product: The reaction mixture was allowed to return to the room temperature, poured in water and extracted with ethyl acetate. The organic layer was separated, washed with aqueous NaHCO<sub>3</sub> saturated solution. The organic liquid was isolated, dried on MgSO<sub>4</sub> and evaporated in vacuum to afford a brown solid which was purified on silica gel. column chromatography using a mixture of EtOAc-cyclohexane (1:1) as eluent to afford the target.

## Best practice working with Xelsius:

Best results with 1 mmol of dicarboxylic acid in presence of 2 mmol of PTSA or MSA in 5 ml of EtOH was a 95% conversion.

### References:

Reaction quotation page1: Source: [https://commons.wikimedia.org/wiki/File:Claisen-Schmidt\\_Kondensation\\_%C3%9Cbbersichtsreaktion.svg](https://commons.wikimedia.org/wiki/File:Claisen-Schmidt_Kondensation_%C3%9Cbbersichtsreaktion.svg); Author: GUS88, License: <https://creativecommons.org/licenses/by-sa/4.0/deed.en>

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