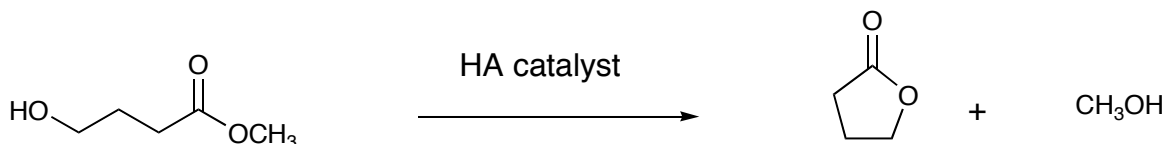


### Problems from your text

21.3, 21.4, 21.6, 21.11, 21.13, 21.16, 21.17, 21.21, 21.35, 21.36, 21.37, 21.46, 21.52, 21.54

### Additional Practice Problems

When methyl 4-hydroxybutanoate is treated with an acid catalyst a transesterification takes place to yield a lactone. The mechanism is identical to a Fischer esterification except methanol is the leaving group instead of water. Write out the complete mechanism showing all intermediates and arrows indicating electron flow.



Provide the missing reagents and/or products.

