

Name: _____

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CHEMISTRY 11
Organic Chemistry
Lesson #5

Esterification

The 8 Functional Groups Continued.

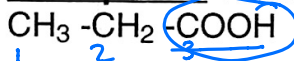
In the previous lesson we discussed how to name an alcohol. In this lesson we will learn will learn how to name organic acid and ester.

Rules for naming an ORGANIC ACID (CARBOXYLIC ACID)

Recall that an organic acid is a hydrocarbon that ends in a -COOH group. \swarrow H^+

1. use the parent name for the LONGEST CONTINUOUS CHAIN
2. change "e" to "oic" and add "acid"

Example 1: Name the following organic acids:



propanoic acid



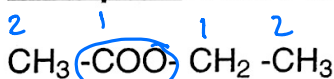
ethanoic acid

Rules for naming an ESTER:

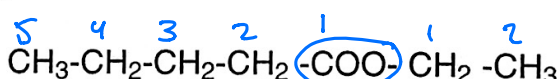
Recall that an ESTER is a hydrocarbon with a -COO- backbone

1. Parent name is for the number of carbons attached to the "c" of the "COO" ... change "e" to "oate"
2. The alkyl name is used for the number of carbons attached to the "o" of the "COO"

Example 2: Name the following esters:



ethyl ethanoate



ethyl pentanoate

ESTER FORMATION:

ESTERIFICATION

Combining an organic acid (-COOH) with an alcohol (-OH)

in the presence of an INORGANIC ACID such as HCl/H₂SO₄

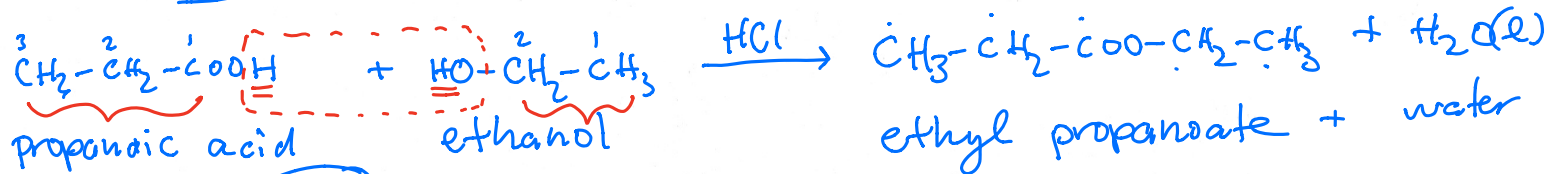
(Catalysts) forms an ESTER and WATER

Example 3: RULES FOR MAKING AN "ESTER"

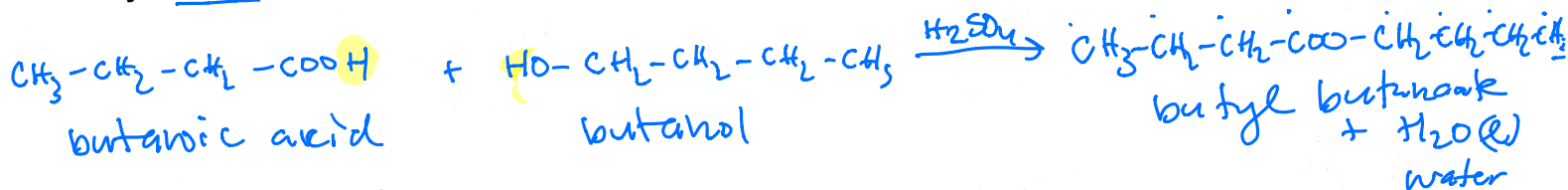
1. The "parent name" comes from an organic acid
2. The "alkyl name" comes from an alcohol
3. The "H" from the acid + "OH" from alcohol forms H₂O
4. The reaction is said to be a "dehydration reaction" as water is extracted

Example 4: Show the skeletal equation for the formation of the following esters in the presence of hydrochloric acid. Include the name for the alcohol and organic acid.

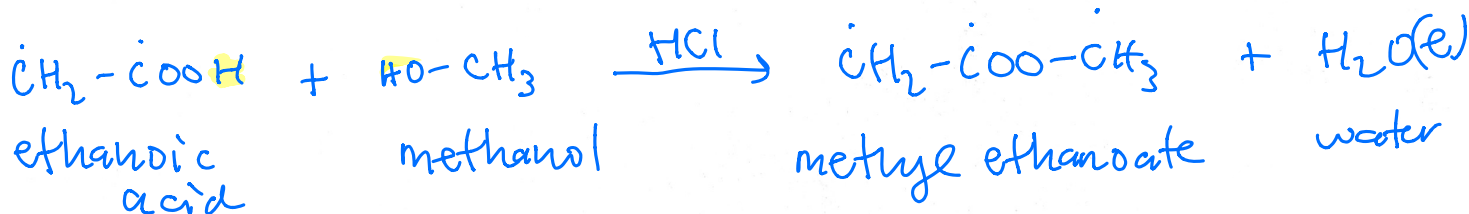
alcohol ← ② ① → acid
a. Ethyl propanoate



alcohol ② ① acid
b. butyl butanoate



alcohol ② ① acid
c. methyl ethanoate



HOMEWORK: Exercises 34-36

• methanoic acid



• ethyl methanoate :

