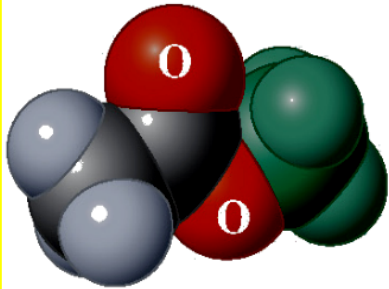
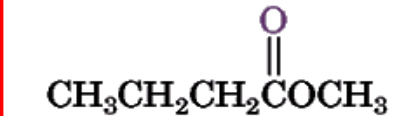
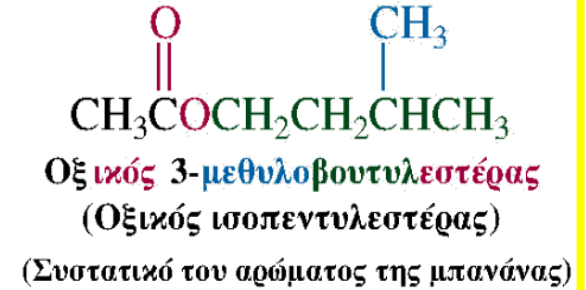
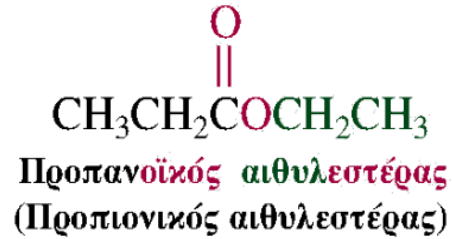


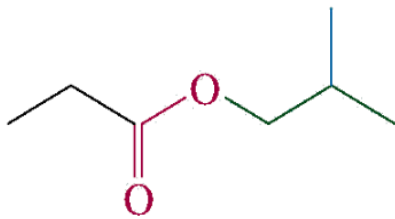
Εστέρες Καρβοξυλικών Οξέων



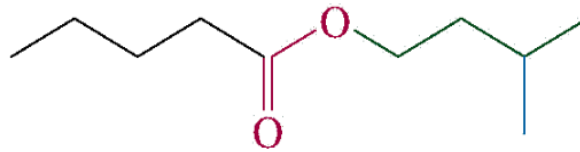
Οξικός μεθυλεστέρας



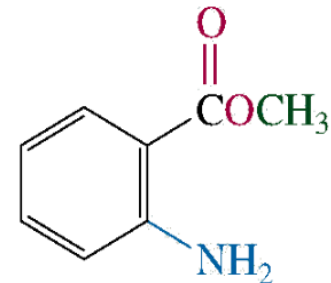
Βουτανοϊκό μεθύλιο
(συστατικό του ανανά)



Προπανοϊκός 2-μεθυλοπροπυλεστέρας
(Προπιονικός ισοβουτυλεστέρας)
(Συστατικό του αρώματος που δίνει το ρούμι)



Πεντανοϊκός 2-μεθυλοβουτυλεστέρας
(Βαλερικός ισοπεντυλεστέρας)
(Συστατικό του αρώματος του μήλου)



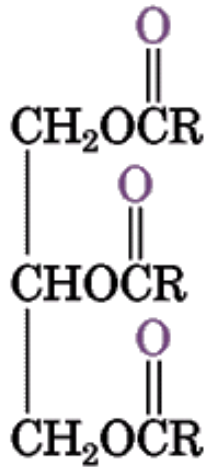
2-Αμινοβενζοϊκός μεθυλεστέρας
(Ανθρανιλικός μεθυλεστέρας)
(Συστατικό του αρώματος των σταφυλιών)

ΕΣΤΕΡΕΣ

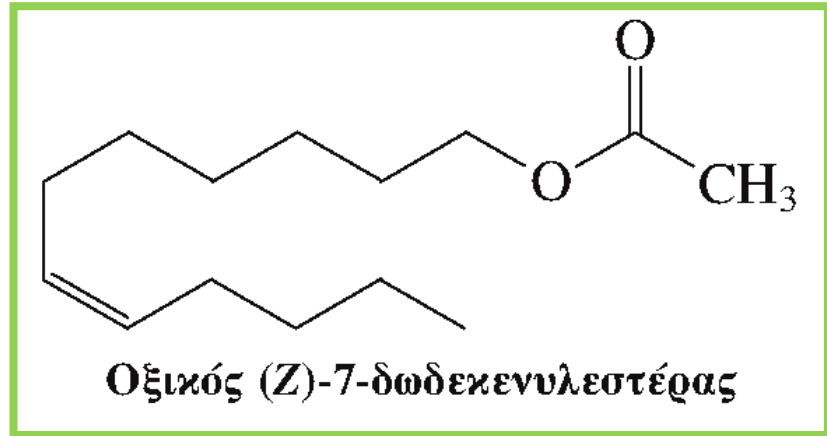
from the alcohol (first word)

from the carboxylic acid (second word)

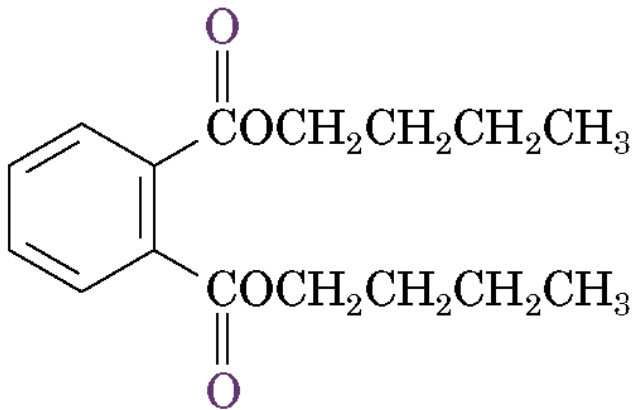
	methyl 1 carbon	ethyl 2 carbons	propyl 3 carbons	2-methyl propyl-	butyl 4 carbons	pentyl 5 carbons	hexyl 6 carbons	benzyl benzene ring	heptyl 7 carbons	octyl 8 carbons	nonyl 9 carbons	
methanoate 1 carbon	ETHEREAL			ETHEREAL							?	
ethanoate 2 carbons												
propanoate 3 carbons											?	
2-methyl propanoate 4 carbons, branched		ETHEREAL									?	
butanoate 4 carbons											?	
pentanoate 5 carbons					ETHEREAL					?	?	
hexanoate 6 carbons												
benzanoate benzene ring									?			
heptanoate 7 carbons						?						
salicylate from salicylic acid								DIFFERENT PEOPLE PERCEIVE DIFFERENT AROMAS!	?		?	
octanoate 8 carbons												
nonanoate 9 carbons										?		
cinnamate												
decanoate 10 carbons							?	?	?	?	?	



Λίπος
 (R = αλυσίδες C₁₁₋₁₇)

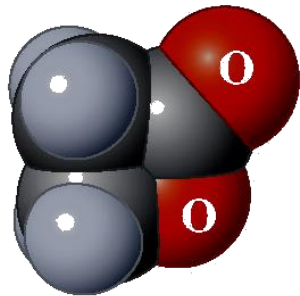
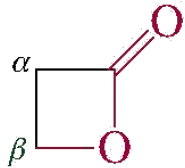


Φερομόνη λεπιδόπτερων και ελεφάντων



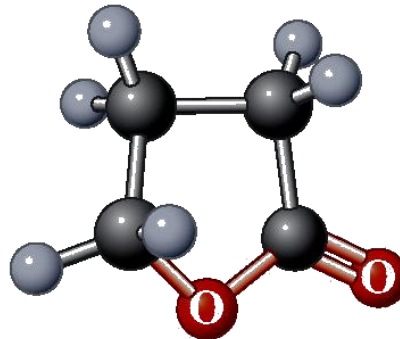
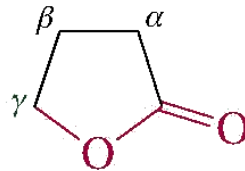
Φθαλικό διβουτύλιο (πλαστικοποιητής)

Λακτόνες



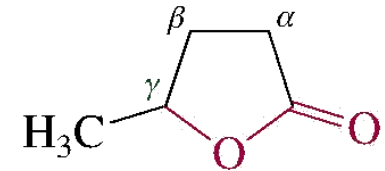
β -Προπιολακτόνη

(Η ένωση αυτή είναι καρκινογόνο και συστηματικά ονομάζεται οξα-2-κυκλοβουτανόνη· δείτε Παράγραφο 25-1)

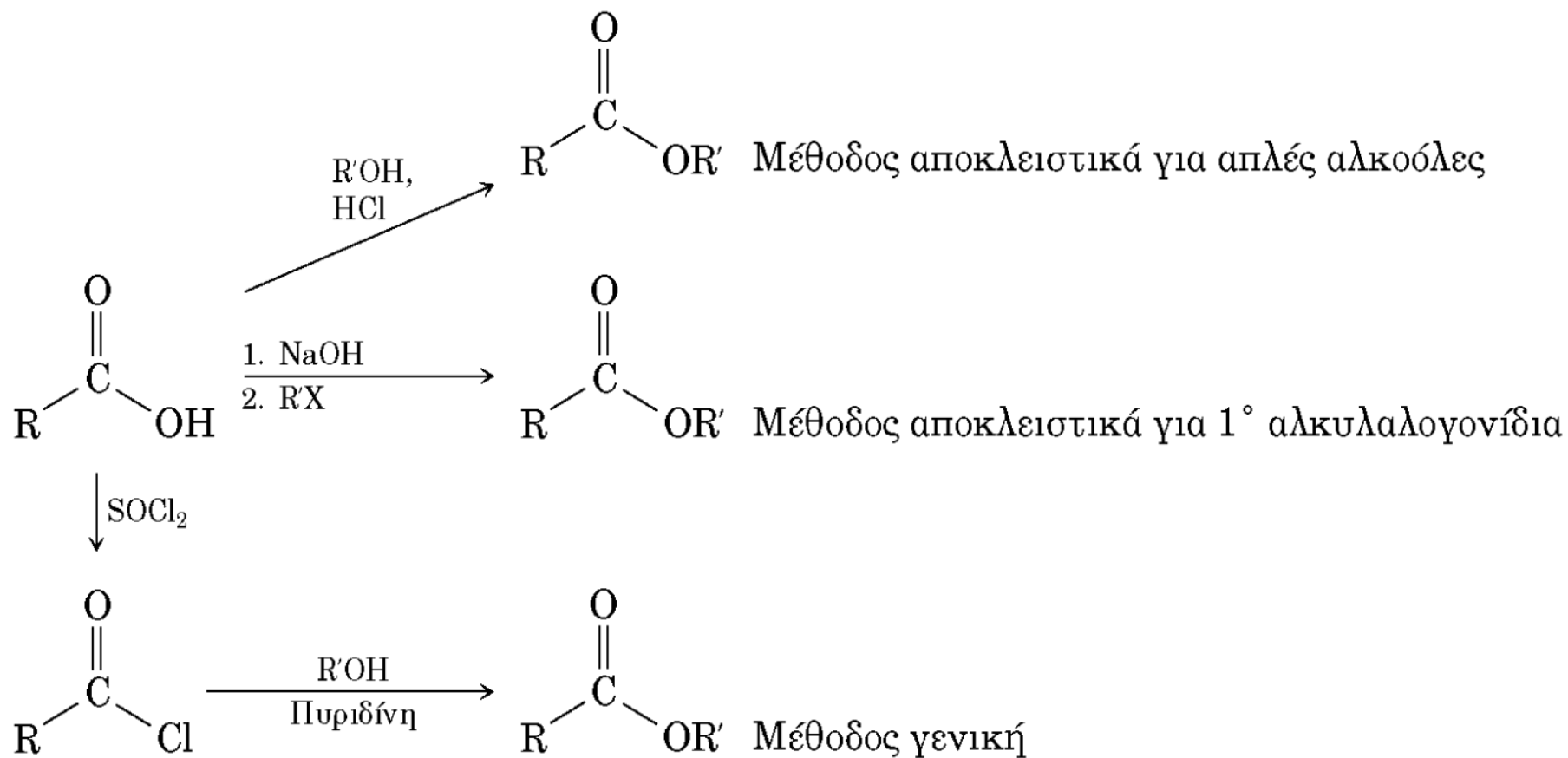


γ -Βουτυρολακτόνη

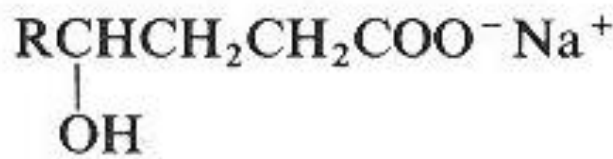
(Συστηματικό: οξα-2-κυκλοπεντανόνη)



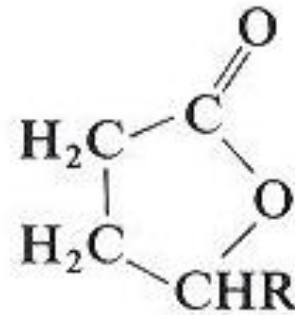
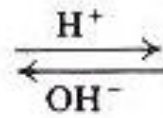
Παρασκευές Εστέρων



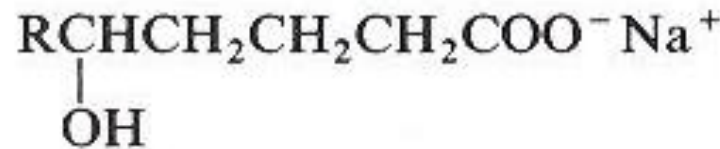
Λακτόνες



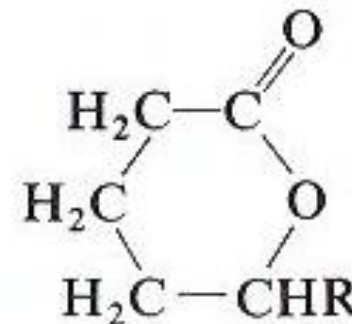
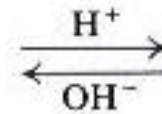
Salt of a
 γ -hydroxy acid



A cyclic ester: five-membered ring

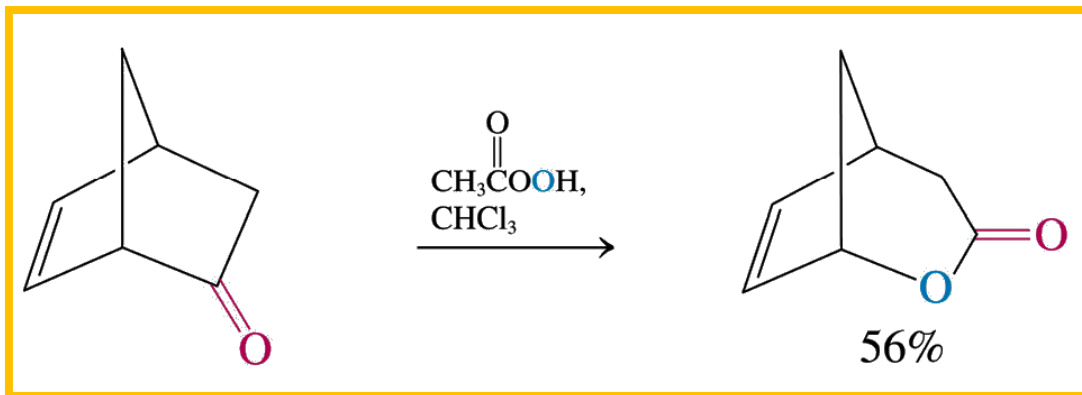
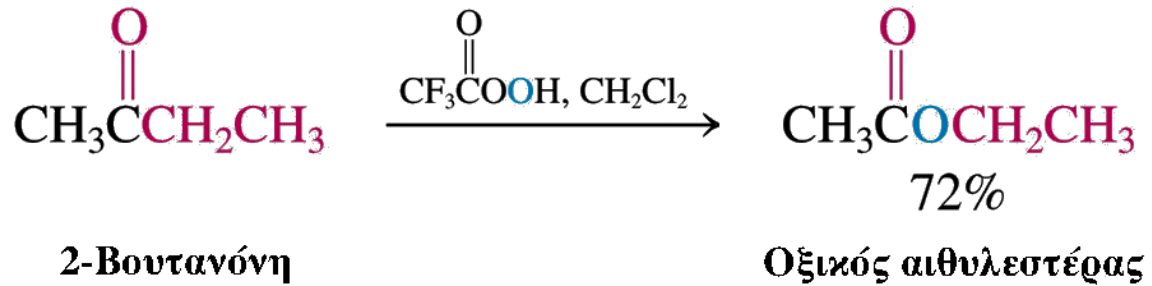


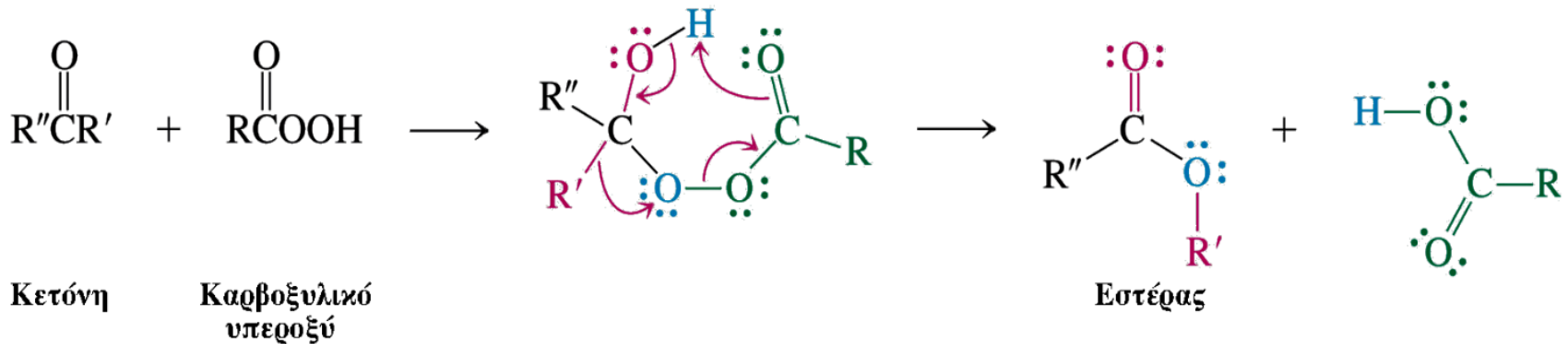
Salt of a
 δ -hydroxy acid



A cyclic ester: six-membered ring

Οξείδωση Baeyer-Villiger



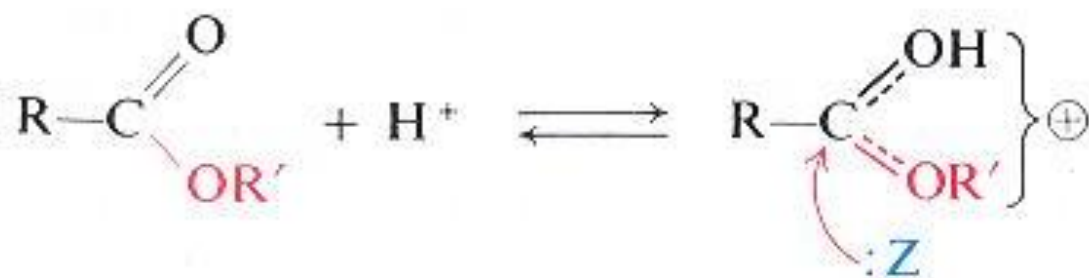
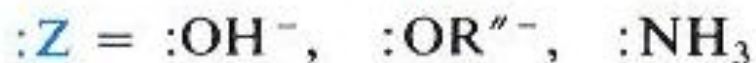
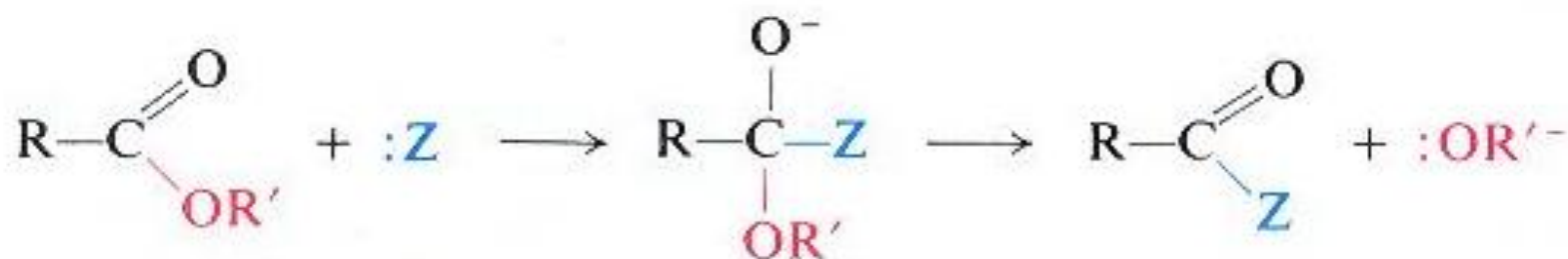


Δυνατότητα μετάθεσης στην αντίδραση Baeyer-Villiger:
 μεθύλιο < RCH_2 < φαινύλιο $\sim \text{R}_2\text{CH}$ < R_3C

Αντιδράσεις Εστέρων

- Μετατροπή σε άλλα παράγωγα οξέων
(Υδρόλυση, Μετεστεροποίηση, Αμινόλυση)
- Αντίδραση με οργανομεταλλικά
- Αναγωγή

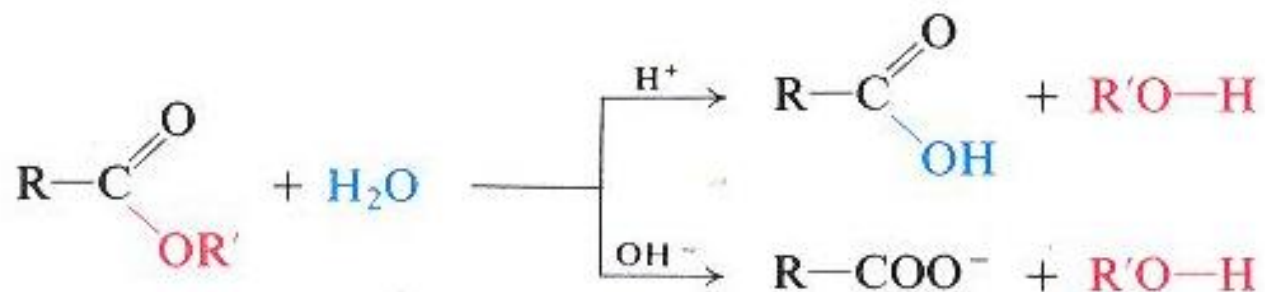
Reactions of esters



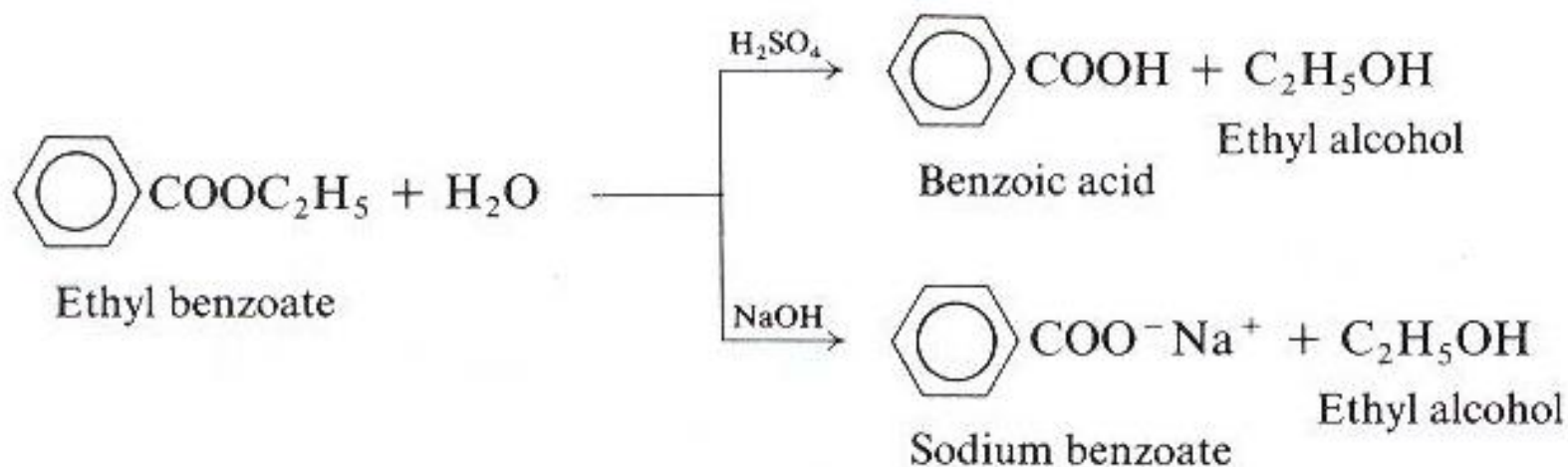
Acid catalysis:

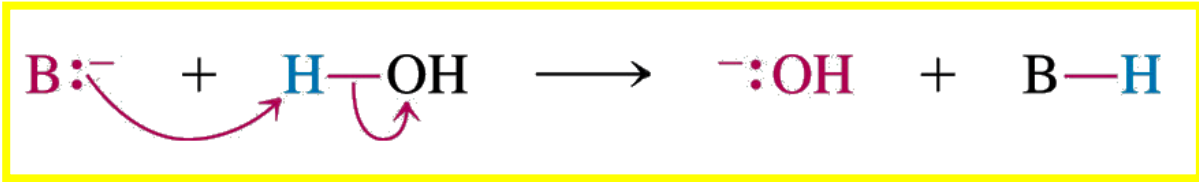
makes carbon more susceptible to nucleophilic attack

Conversion into acids. Hydrolysis.

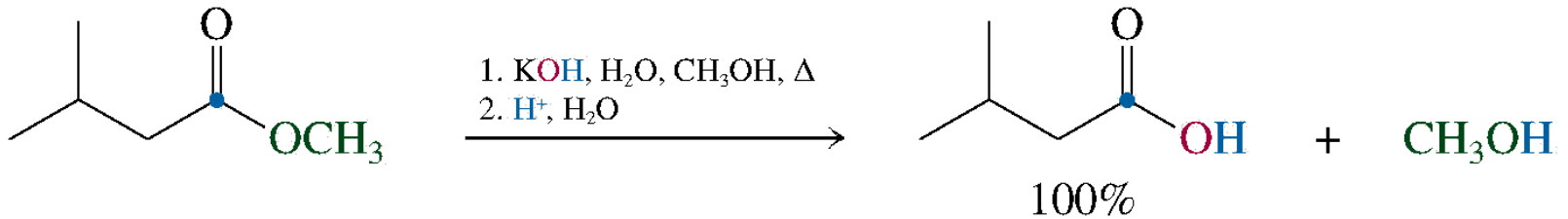


Example:





Παράδειγμα υδρόλυσης εστέρα με υδατικό διάλυμα βάσης



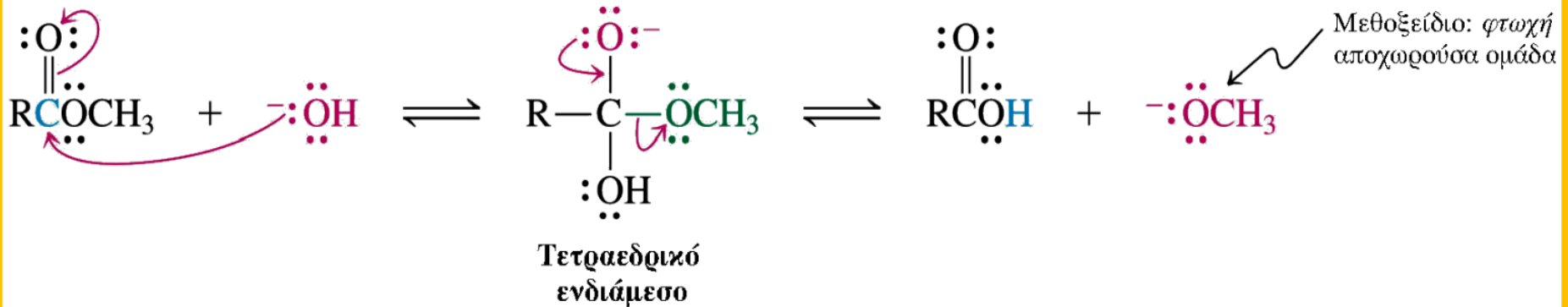
3-Μεθυλοβουτανοϊκός μεθυλεστέρας

3-Μεθυλοβουτανοϊκό οξύ

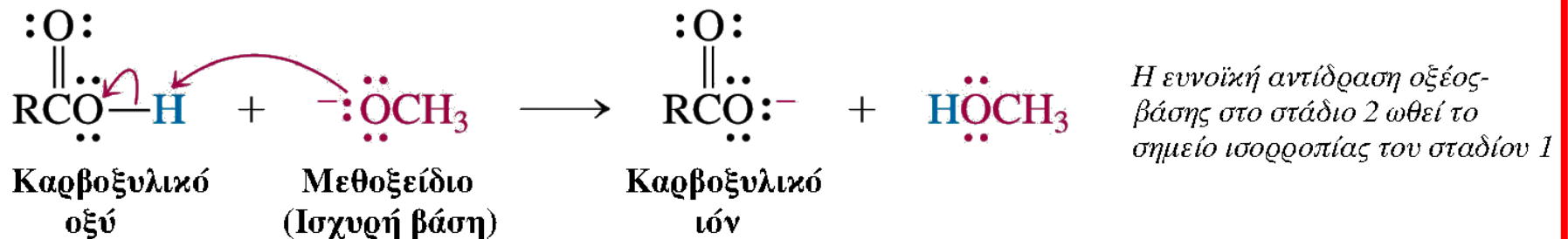
Μηχανισμοί υδρόλυσης - εστεροποίησης

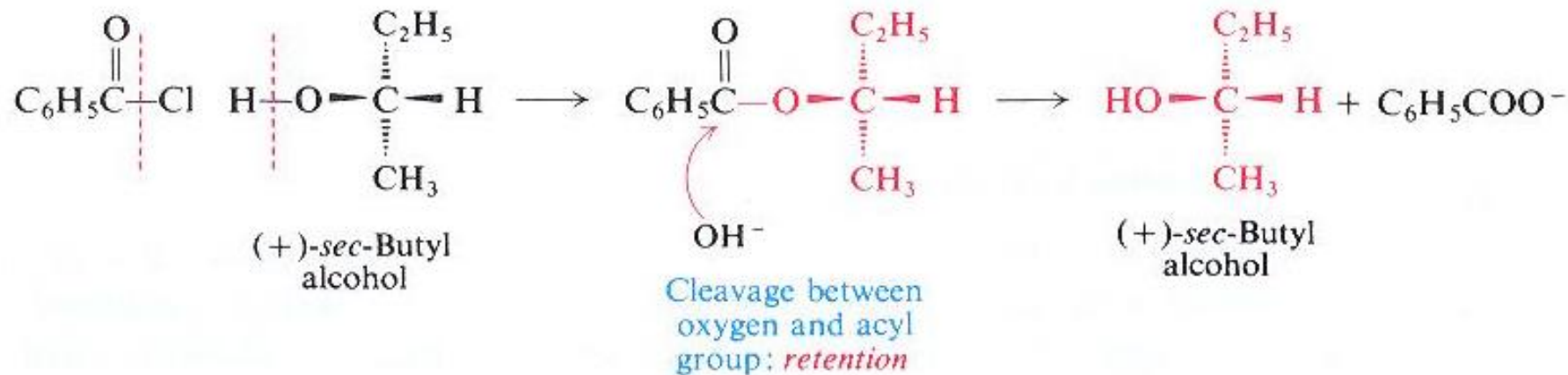
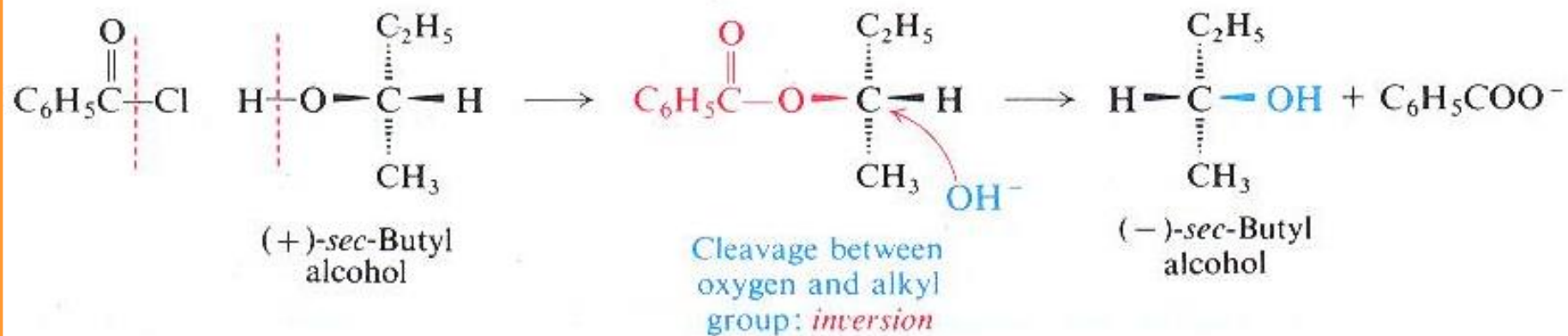
Μηχανισμός βασικής υδρόλυσης εστέρα

Στάδιο 1. Προσθήκη-απόσπαση

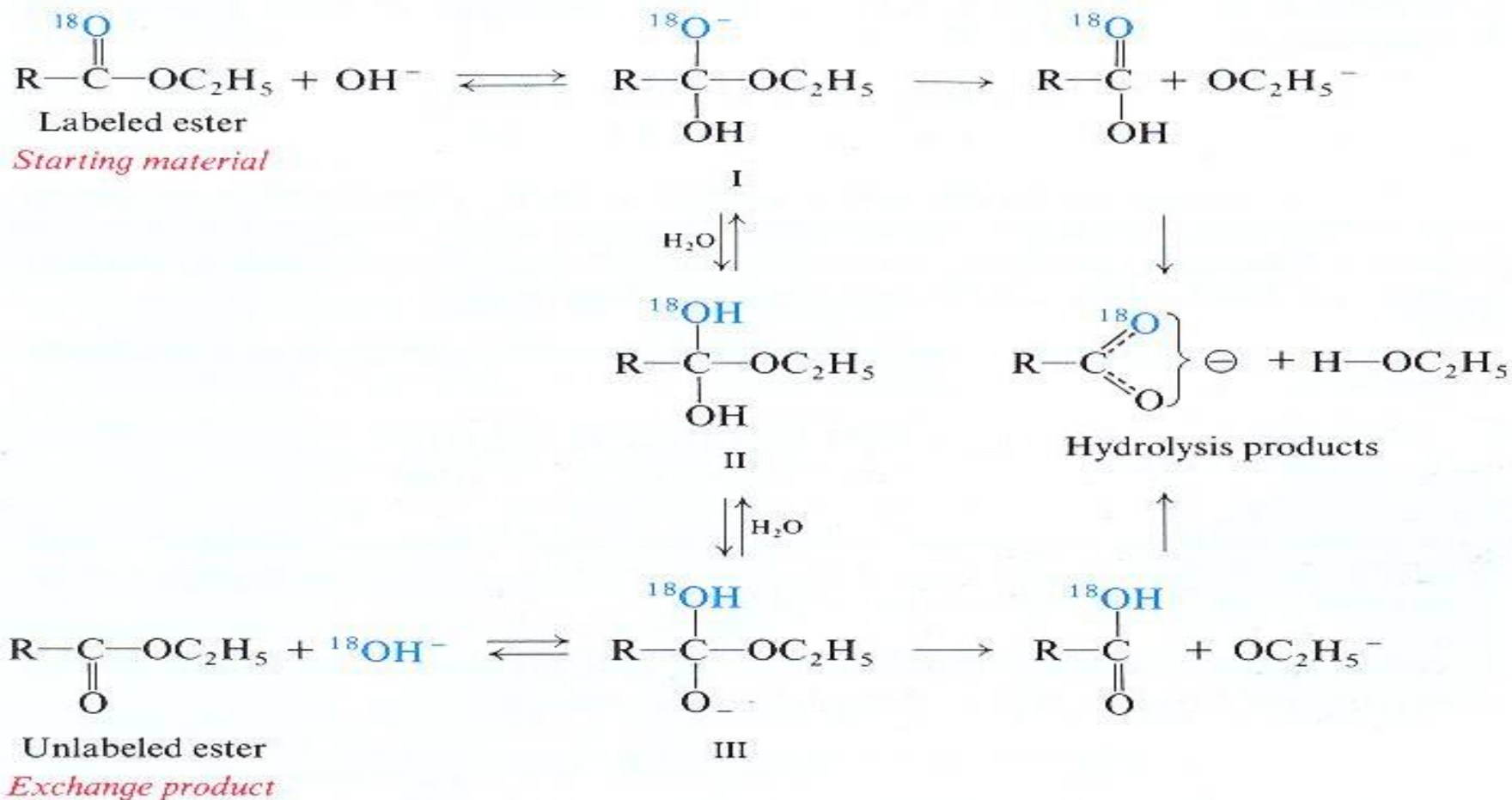
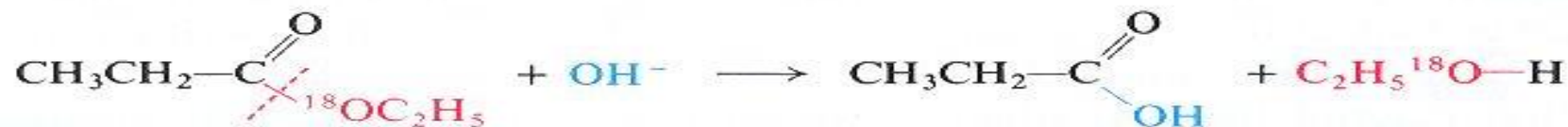


Στάδιο 2. Αποπρωτονίωση

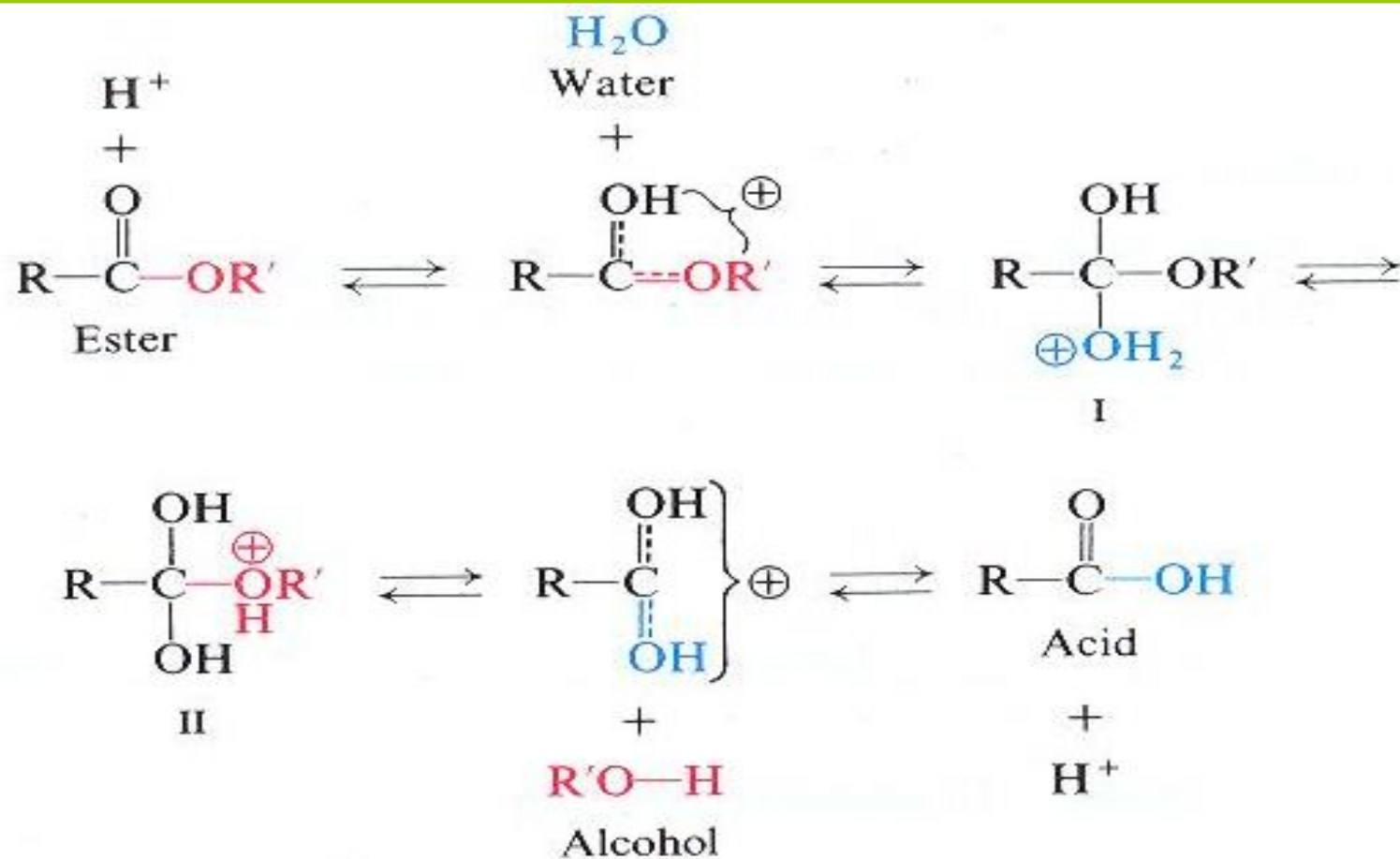
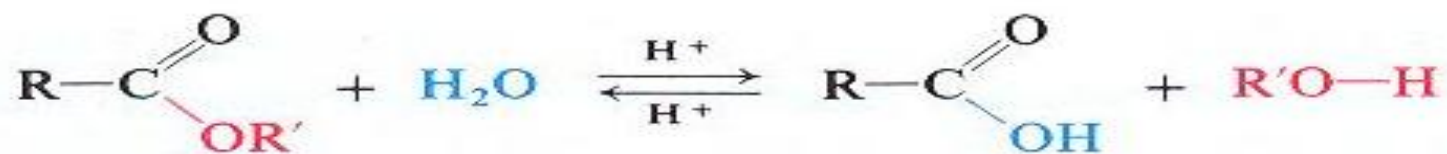




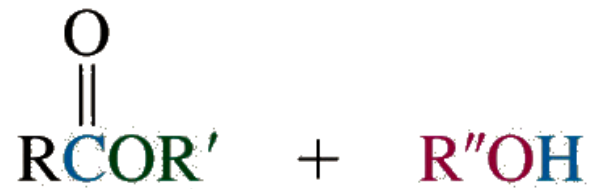
Tracer studies



Acidic hydrolysis of esters

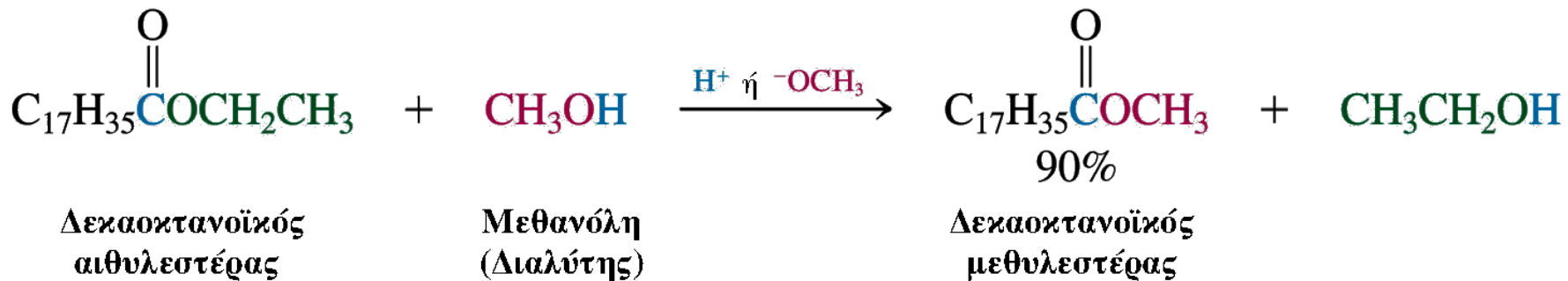


Μετεστεροποίηση

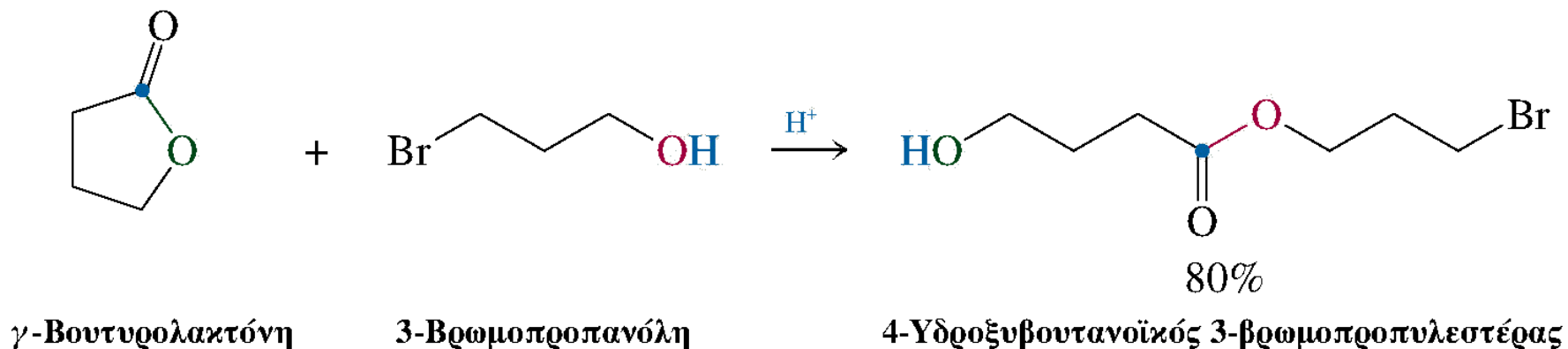


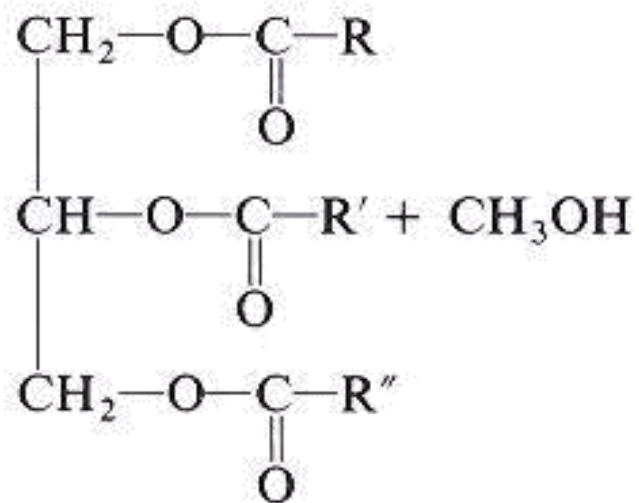
Οι αλκοξυ-ομάδες
ανταλλάσσουν θέσεις

Μετατροπή ενός αιθυλεστέρα σε έναν μεθυλεστέρα

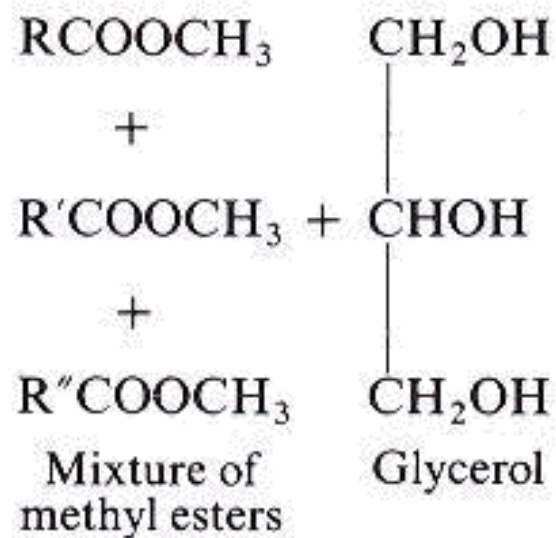
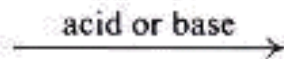


Μετατροπή μιας λακτόνης σε έναν εστέρα ανοικτής αλυσίδας

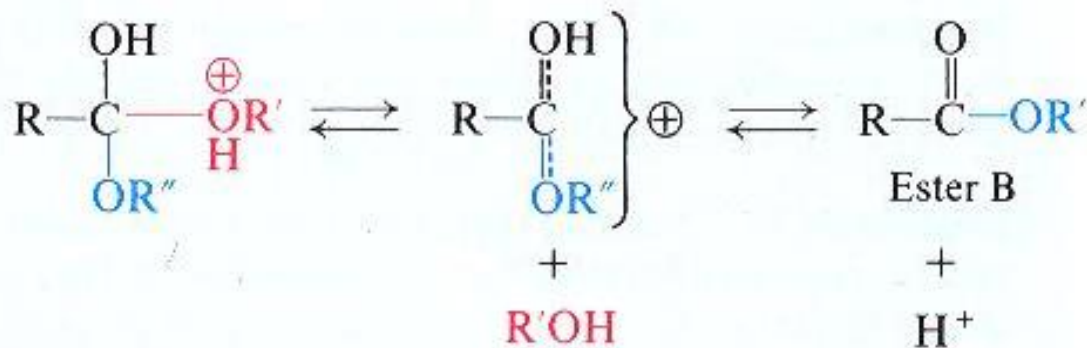
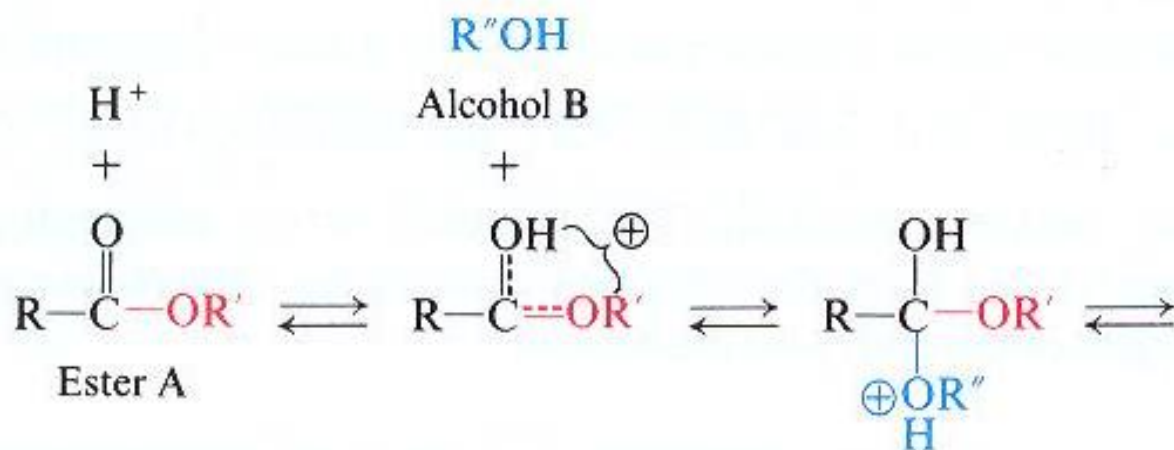
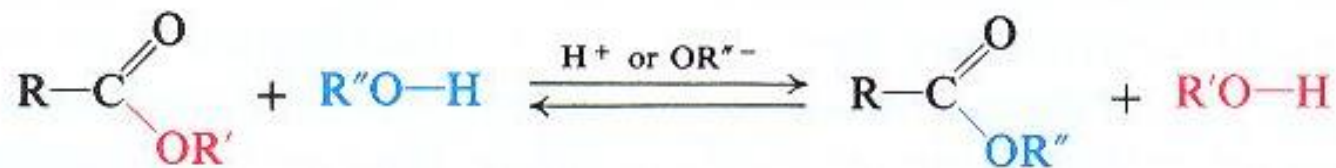




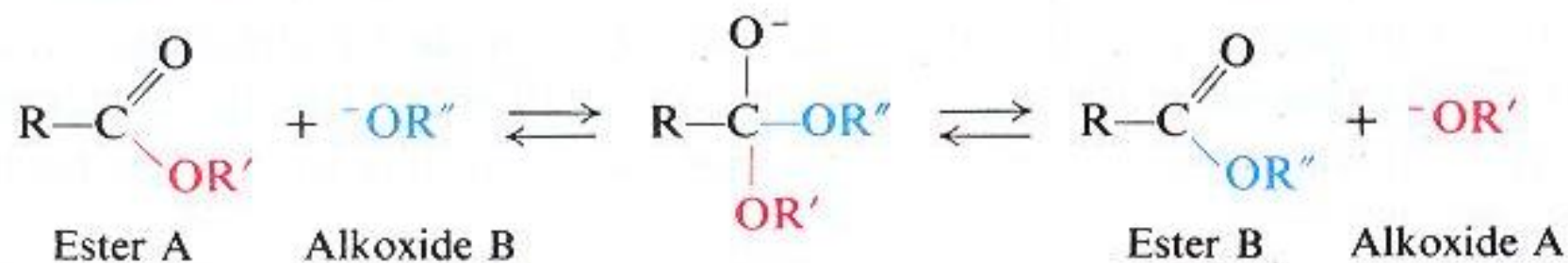
A glyceride
(A fat)



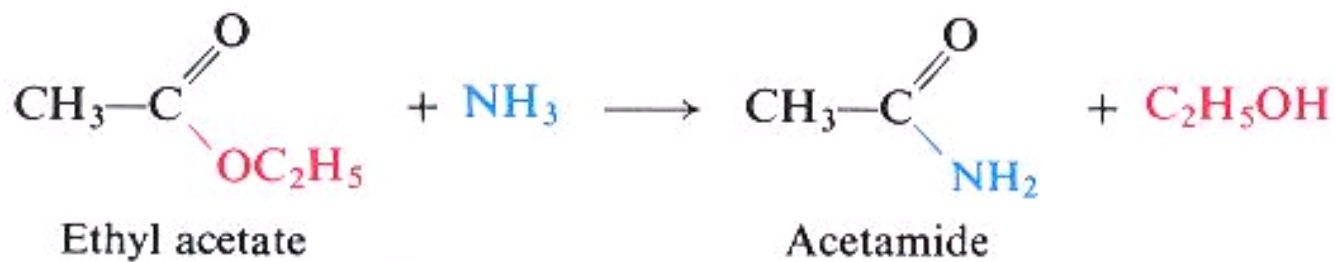
Transesterification



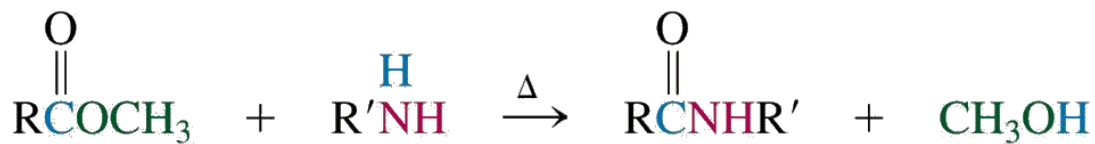
For base-catalyzed transesterification:



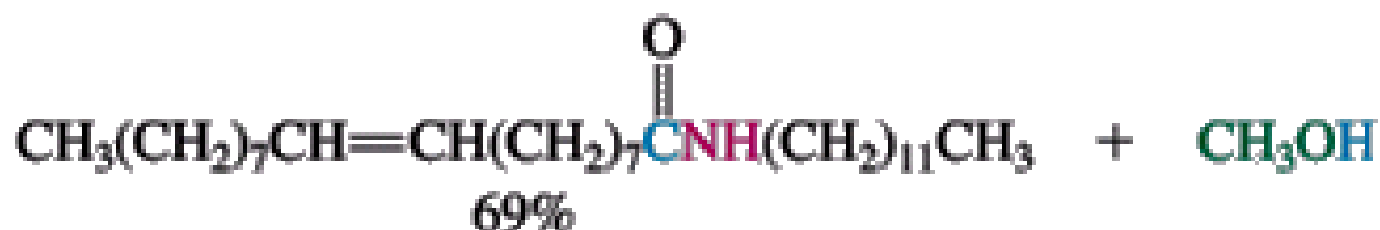
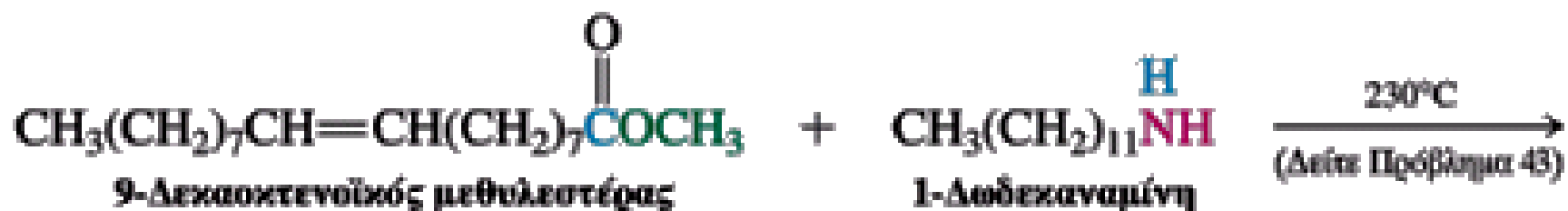
Ammonolysis of esters



Σχηματισμός αμιδίων από μεθυλεστέρες

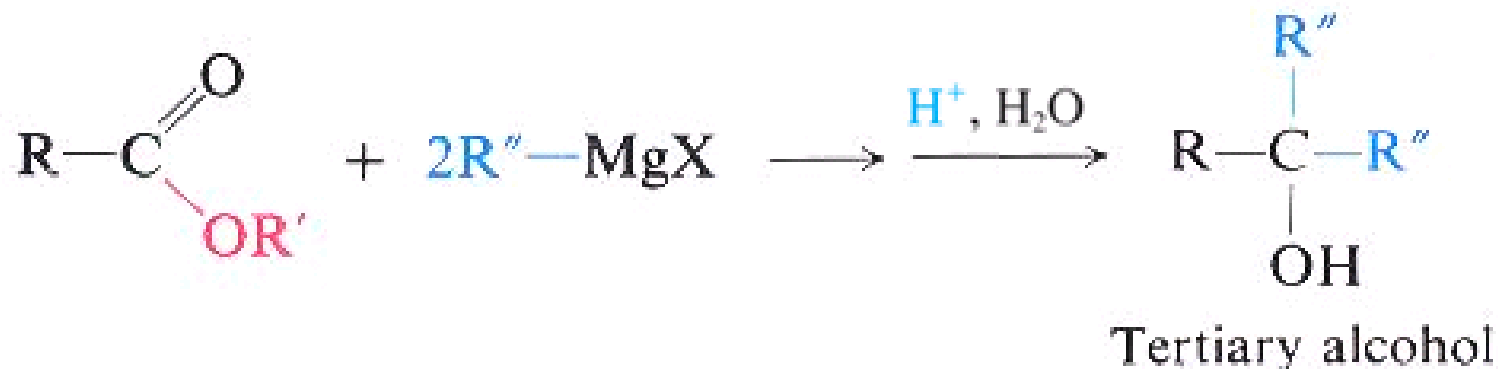


Μετατροπή εστέρα σε αμίδιο χωρίς κατάλυση

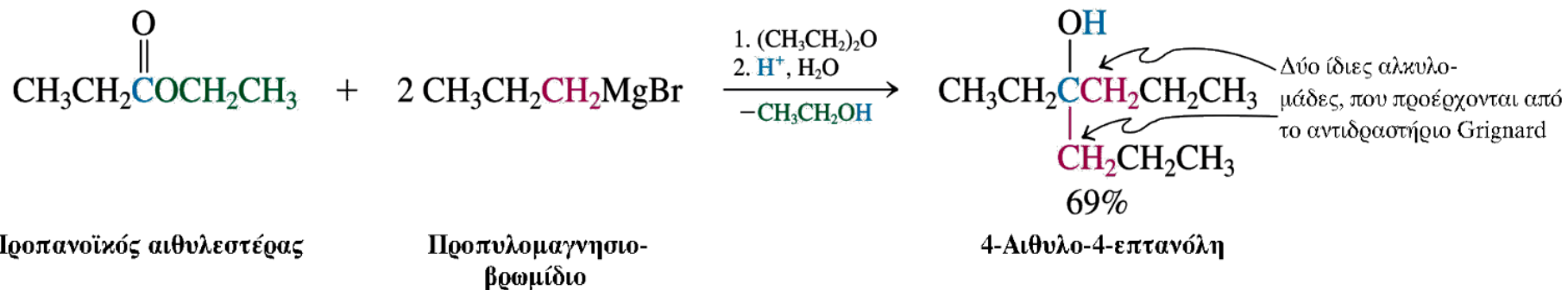


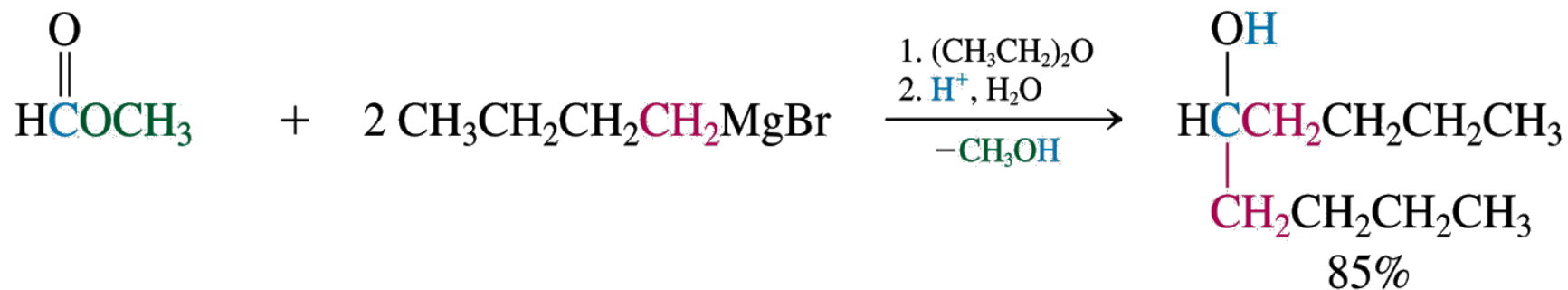
N-Δωδεκυλο-9-δεκαοκτεναμίδιο

Reaction with Grignard reagents



Αλκοόλες από εστέρες και αντιδραστήρια Grignard



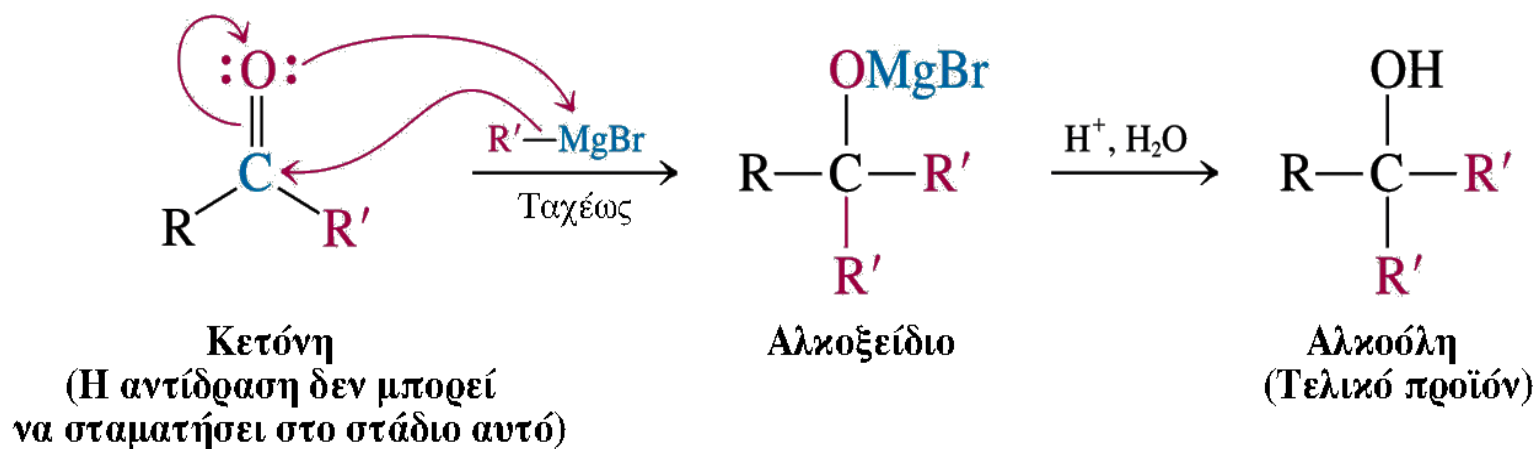
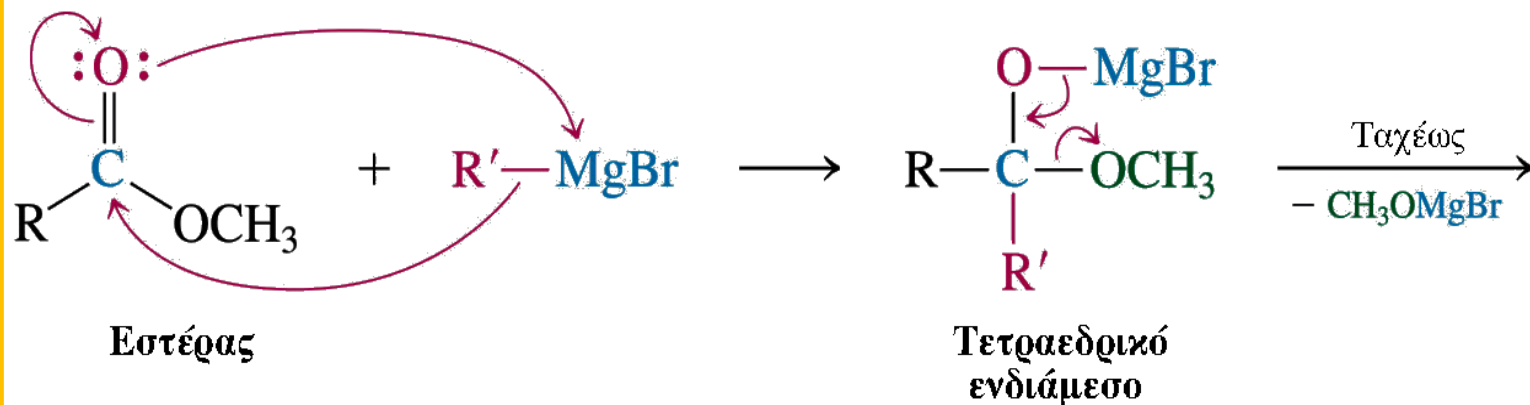


Φορμικός μεθυλεστέρας

Βουτυλομαγνησιο-
βρωμίδιο

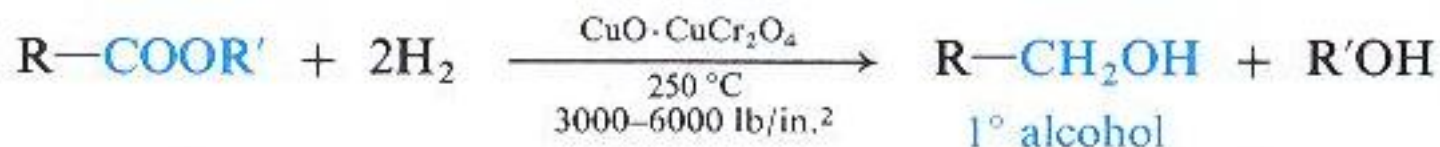
85%
5-Εννεανόλη

Μηχανισμός της σύνθεσης αλκοόλης από εστέρες και αντιδραστήρια Grignard

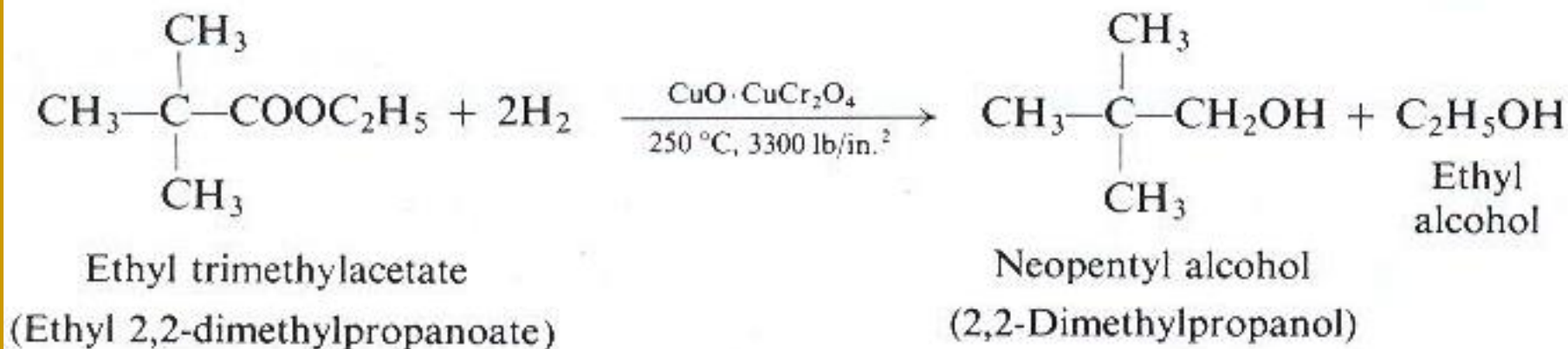


Reduction to alcohols.

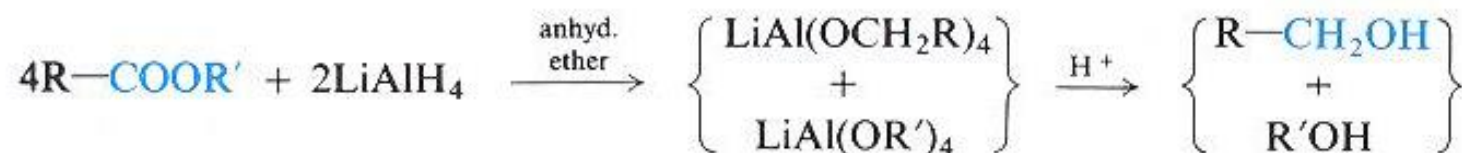
(a) Catalytic hydrogenation. Hydrogenolysis



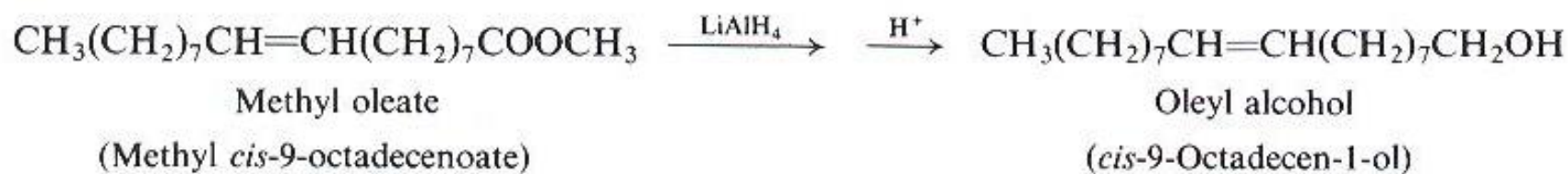
Example:



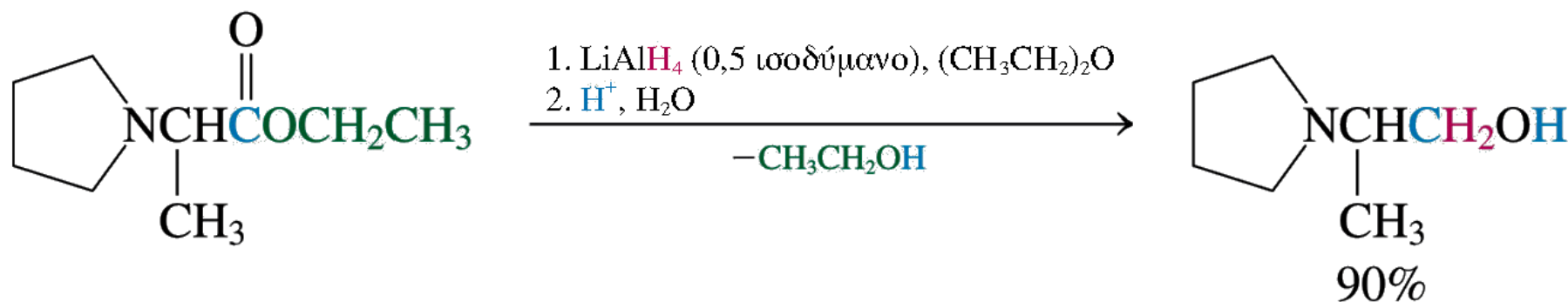
(b) Chemical reduction



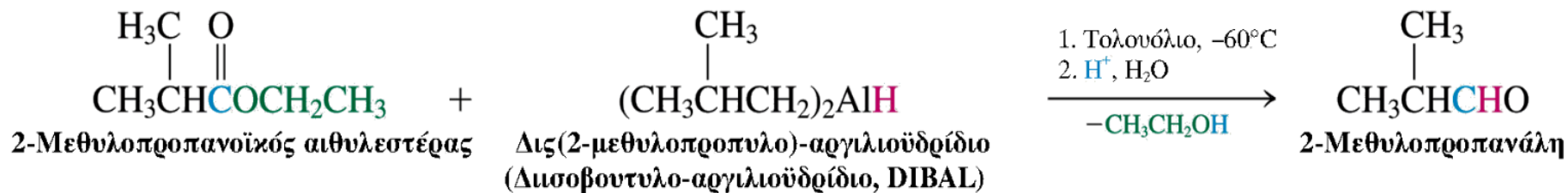
Example:



Αναγωγή εστέρα προς αλκοόλη

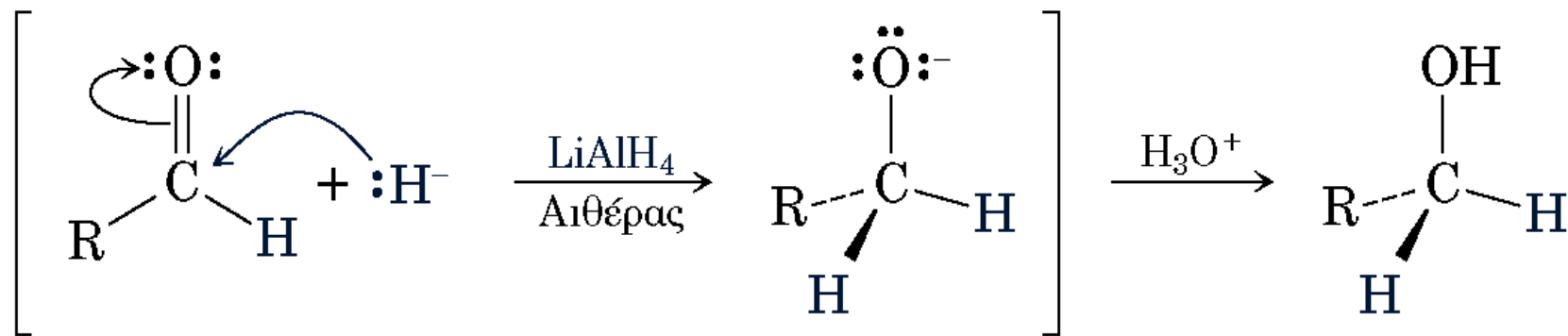
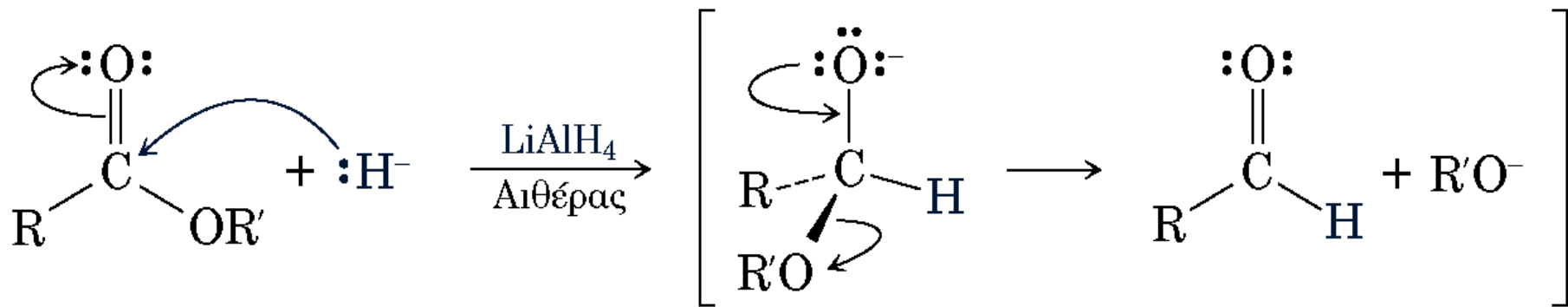


Αναγωγή εστέρα προς αλδεΐδη



DIBAL-H





Αλκυλίωση ενός εστερικού ενολικού ιόντος

