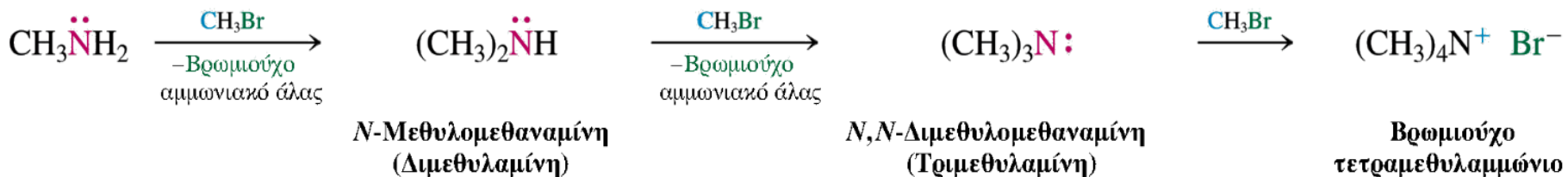
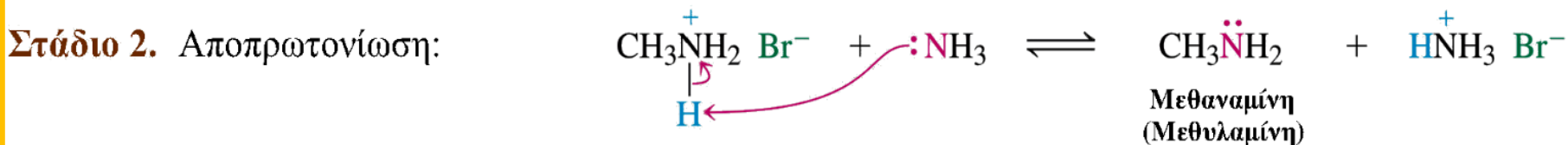
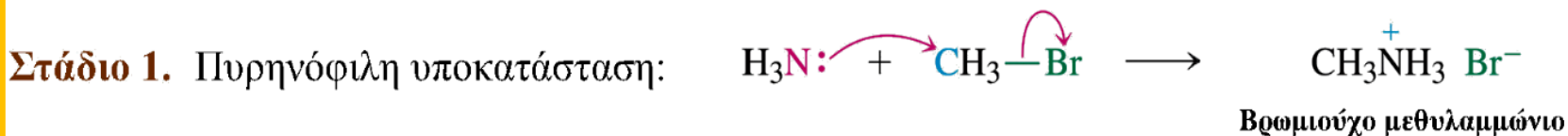


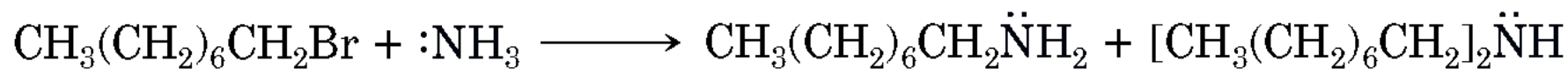
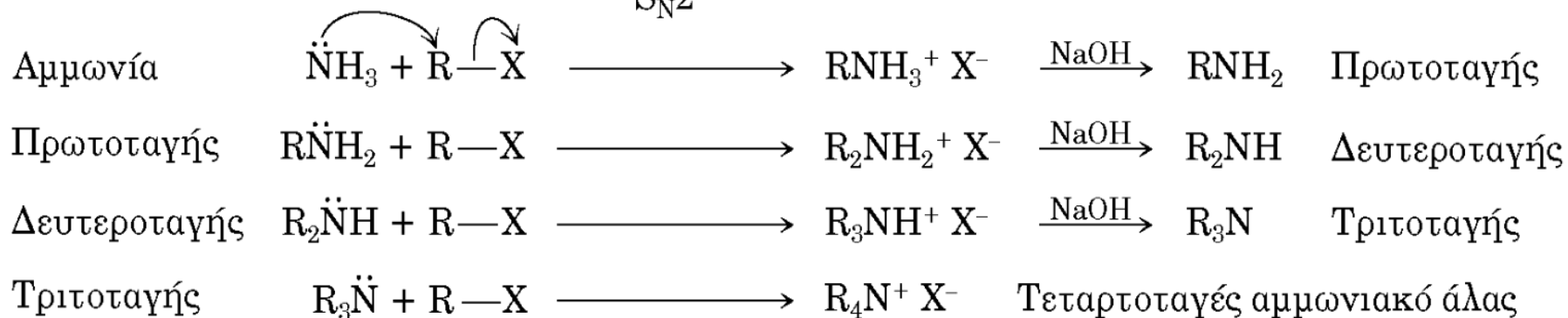
# Παρασκευές αμινών

## Μεθυλίωση της αμμωνίας

**Πρώτη αλκυλίωση.** Δύο στάδια δίνουν πρωτοταγή αμίνη



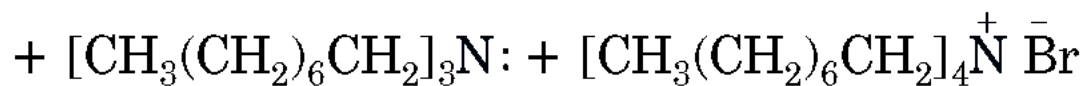
Αντίδραση  
S<sub>N</sub>2



**1-Βρωμοοκτάνιο**

**Οκτυλαμίνη (45%)**

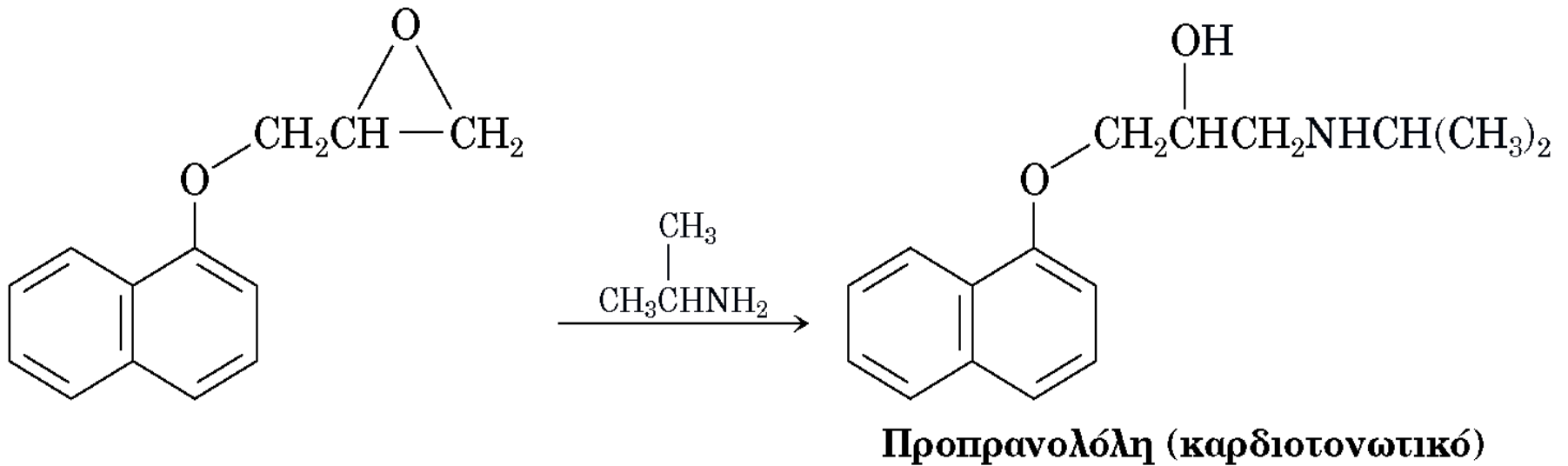
**Διοκτυλαμίνη (43%)**



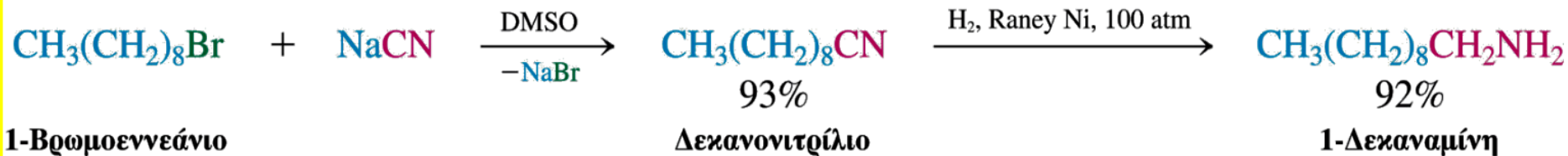
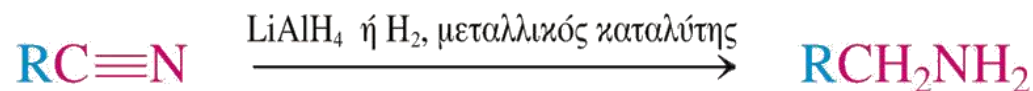
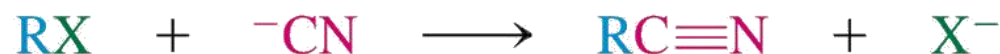
Ίχνη

Ίχνη

## Παρασκευές Αμινών



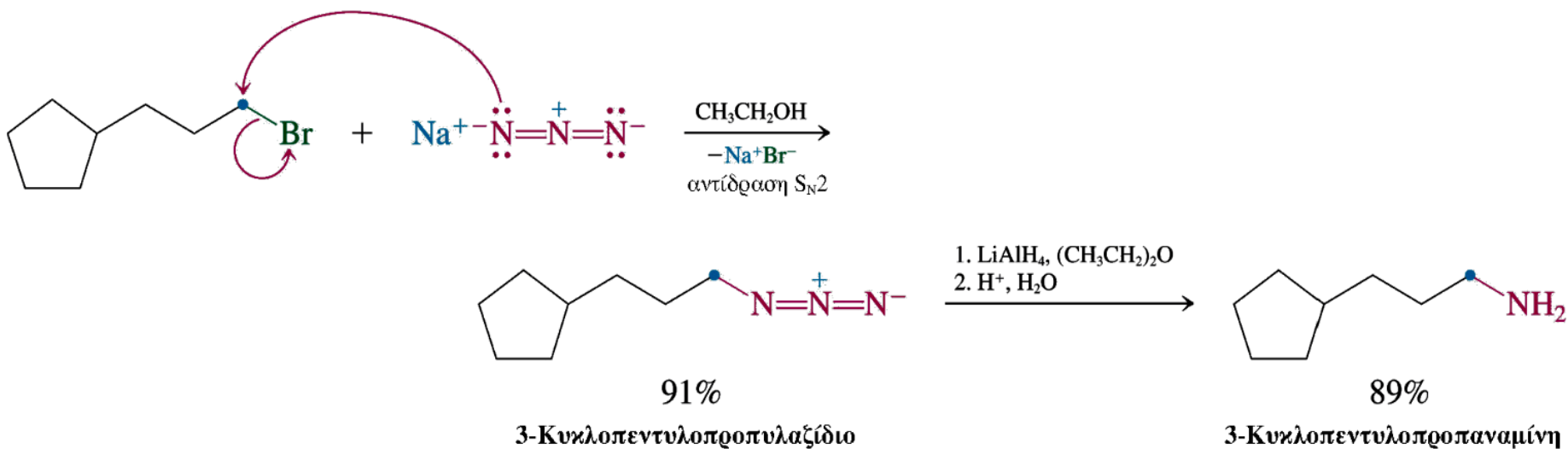
Μετατροπή αλογονοαλκανίου στην ομόλογη αμίνη μέσω υποκατάστασης με κυανιούχα ιόντα και αναγωγής



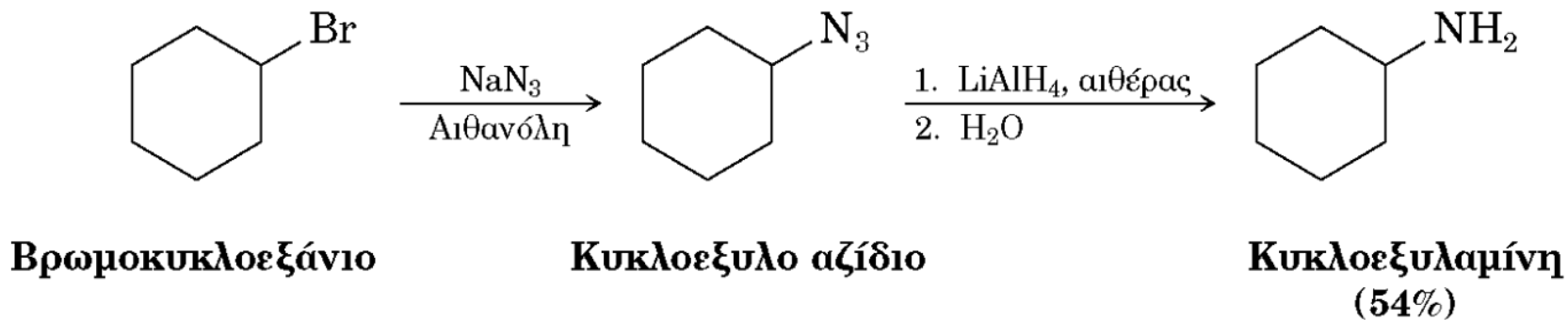
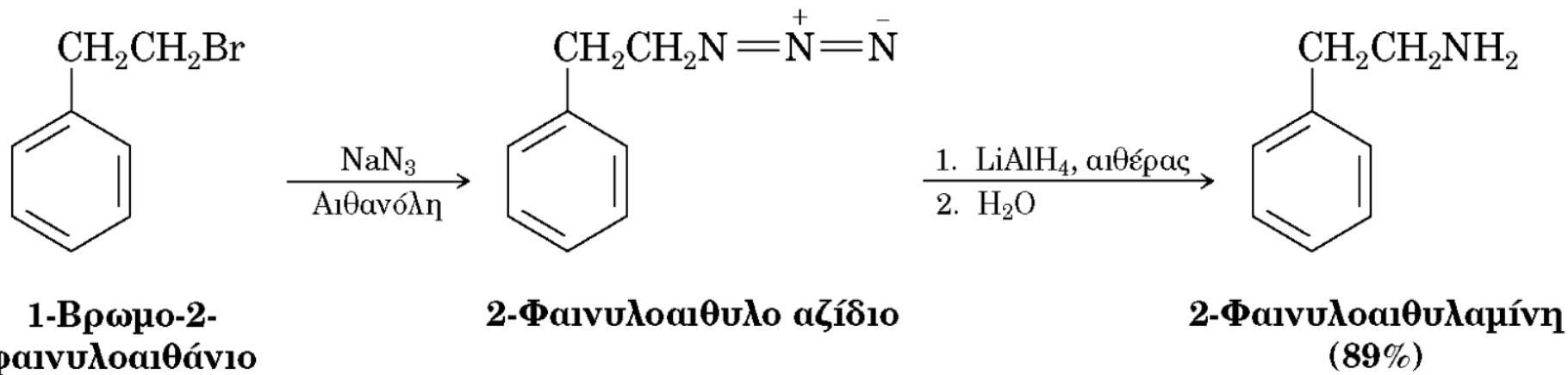
**ΑΥΞΗΣΗ ΑΛΥΣΙΔΑΣ ΚΑΤΑ 1 ΑΤΟΜΟ C**

$R-N_3$   
**Αλκυλαζίδιο**

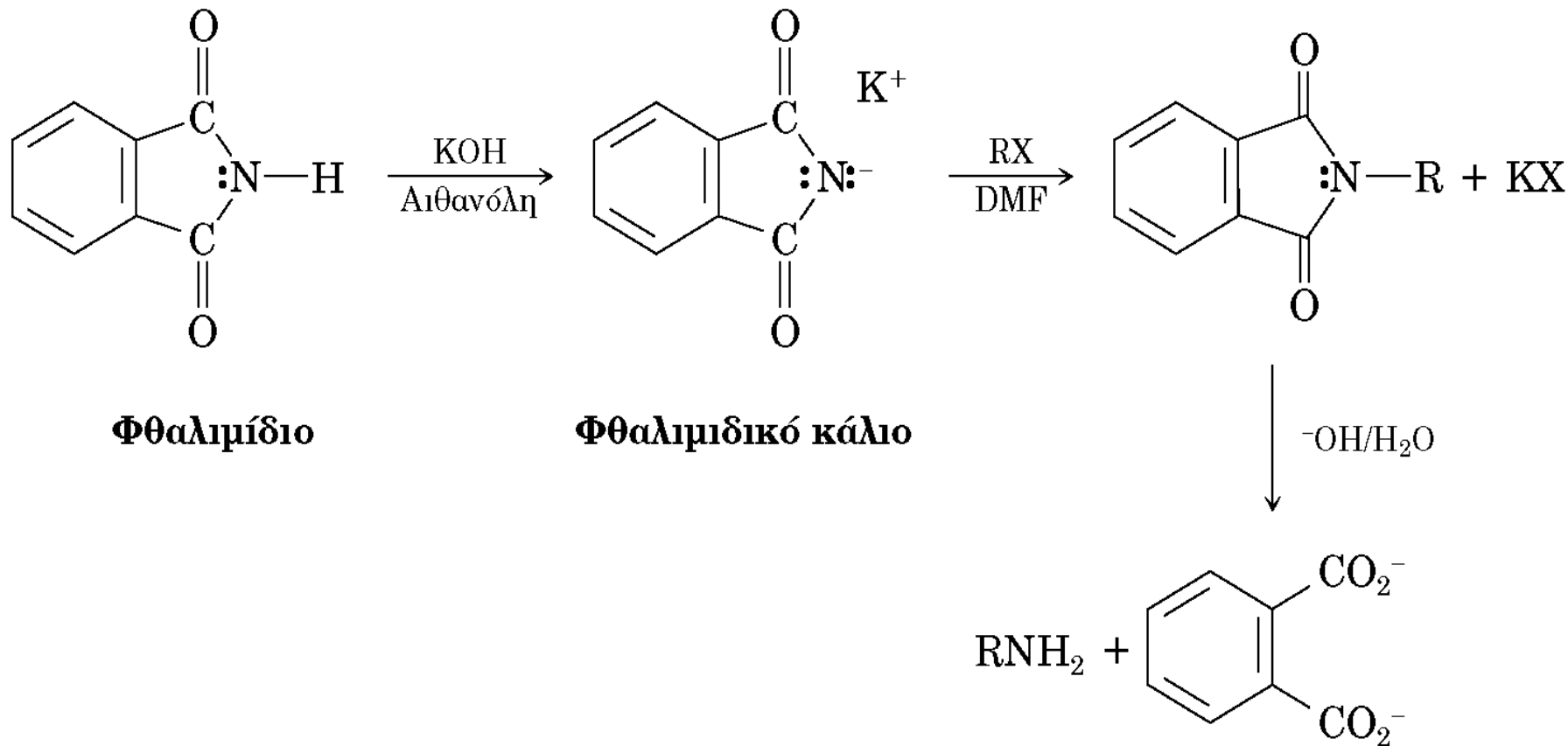
**Υποκατάσταση με αζίδιο-Αναγωγή**



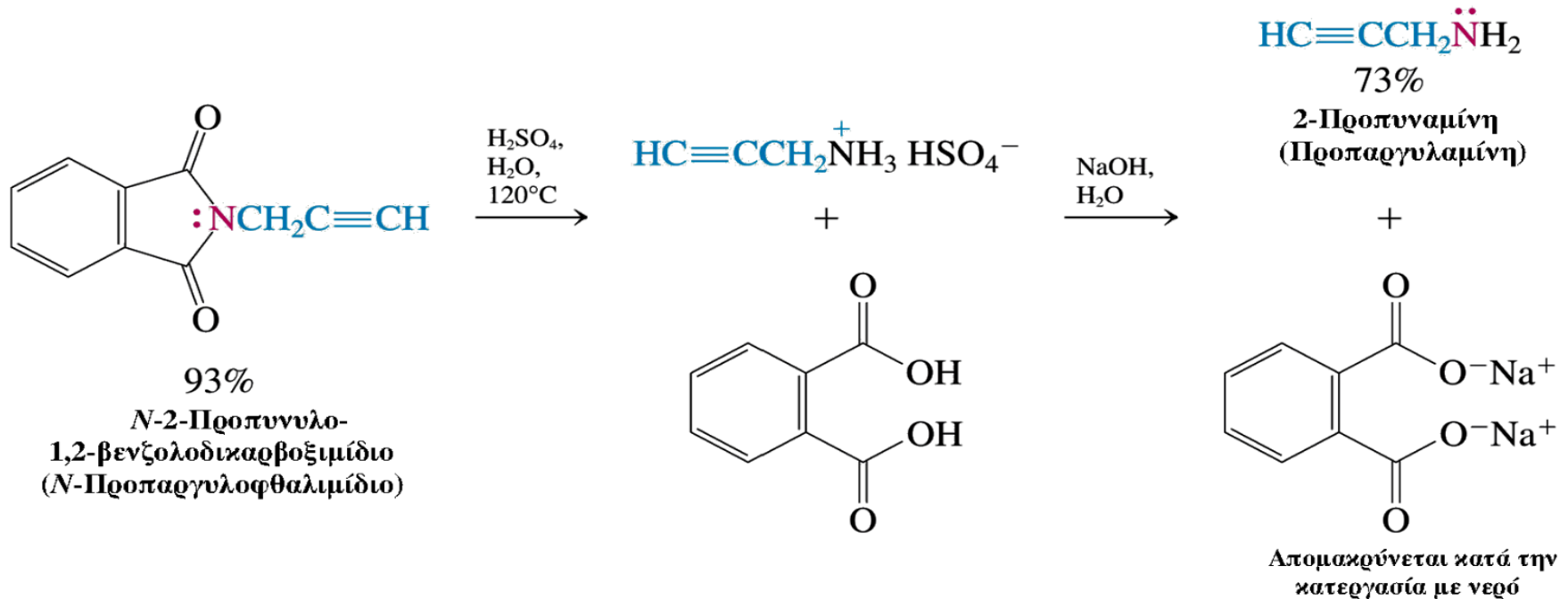
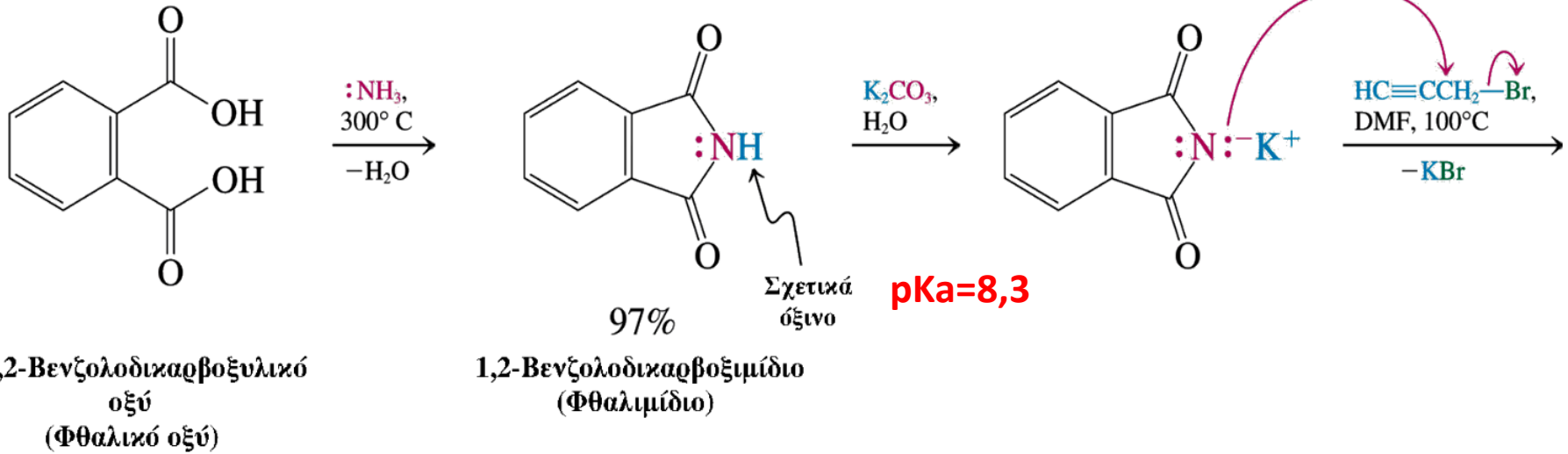
**ΑΜΕΤΑΒΛΗΤΗ ΑΛΥΣΙΔΑ ΑΤΟΜΩΝ C**



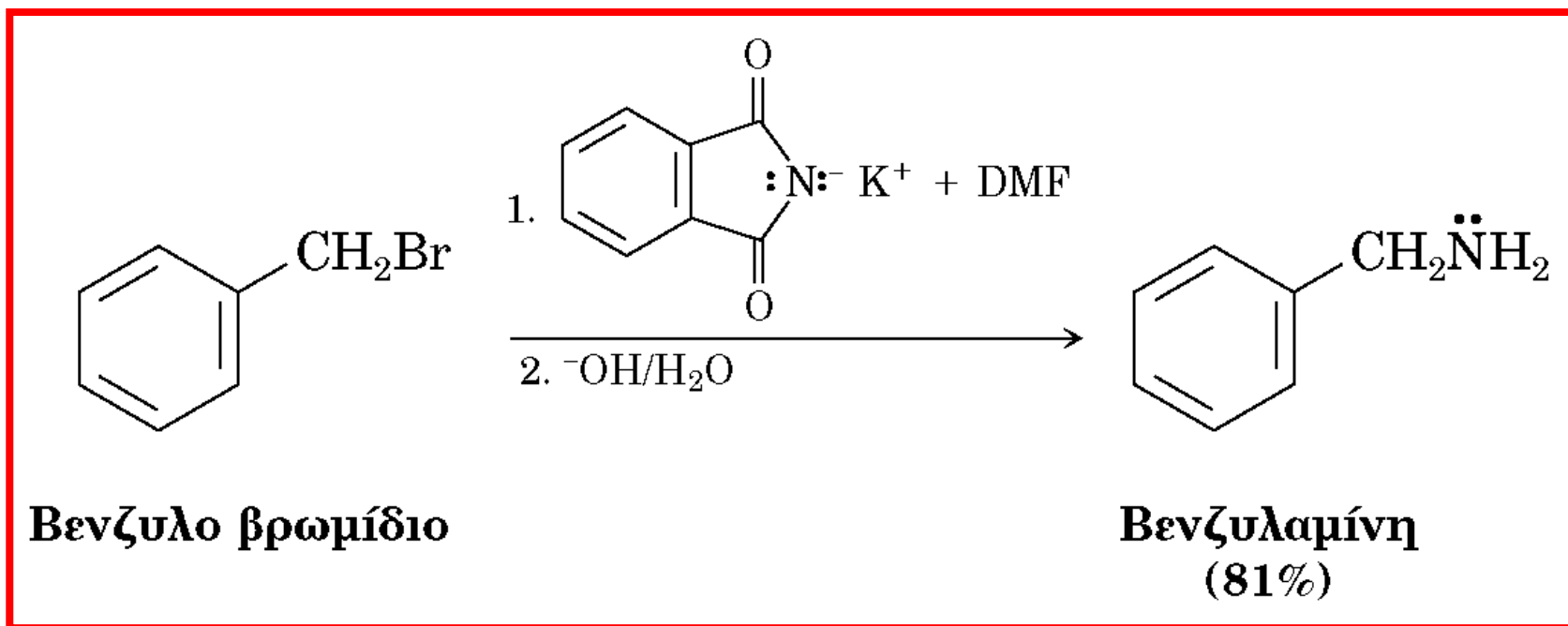
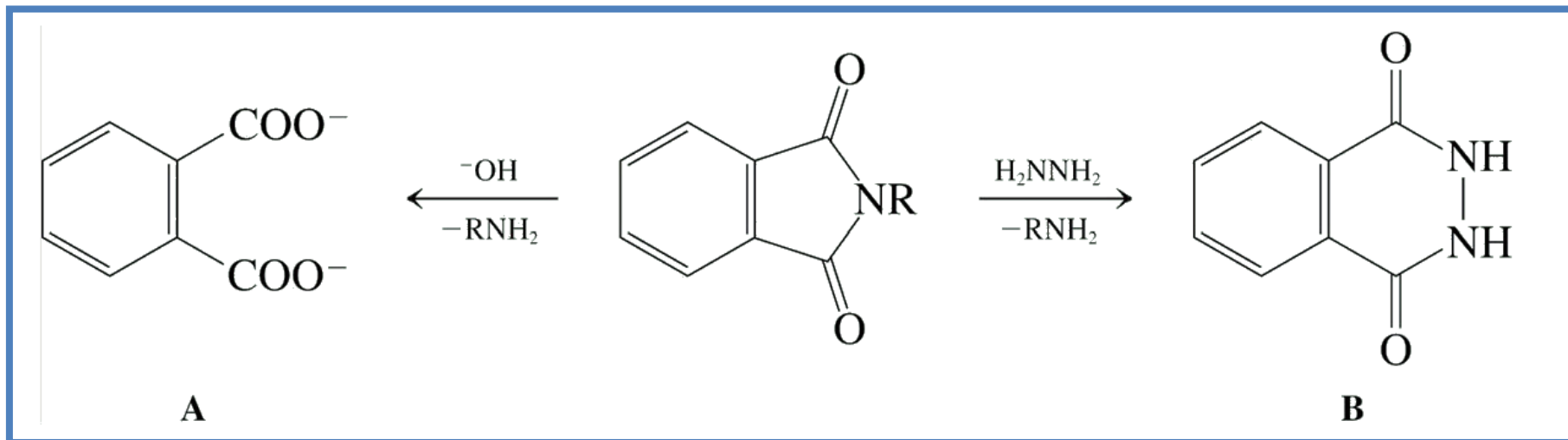
## ΣΥΝΘΕΣΗ GABRIEL ΠΡΩΤΟΤΑΓΟΥΣ ΑΜΙΝΗΣ



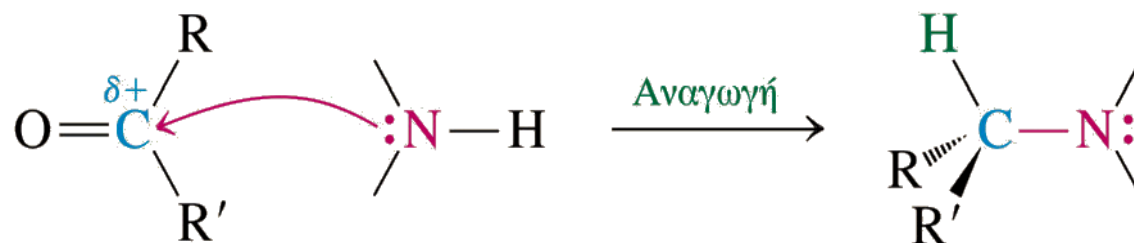
## Σύνθεση Gabriel μιας πρωτοταγούς αμίνης



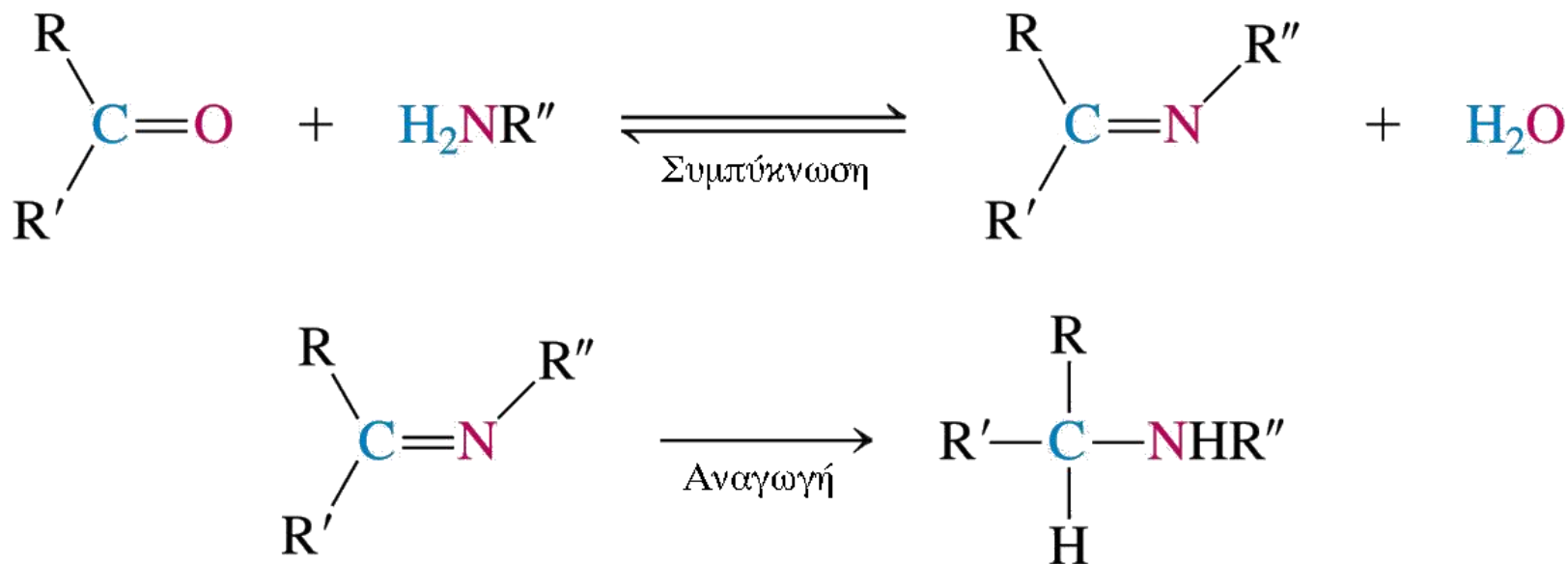


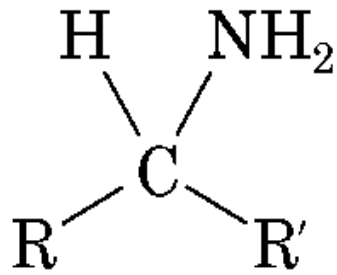
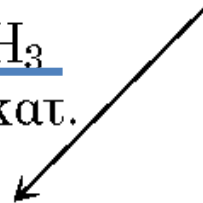
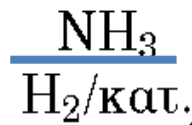
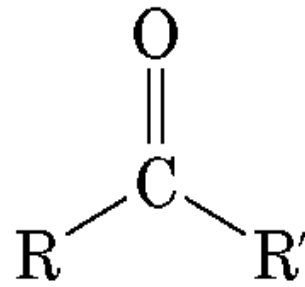


## Γενική μέθοδος αναγωγικής αμίνωσης

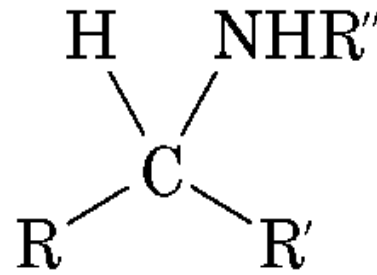
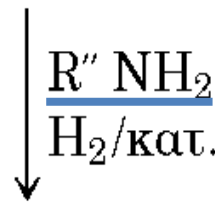


## Αναγωγική αμίνωση σε κετόνη με πρωτοταγή αμίνη

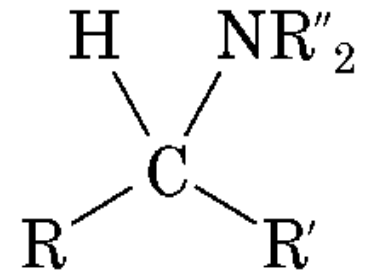
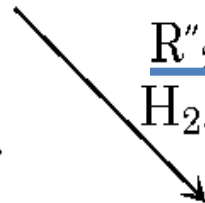
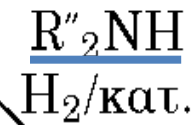




Πρωτοταγής αμίνη

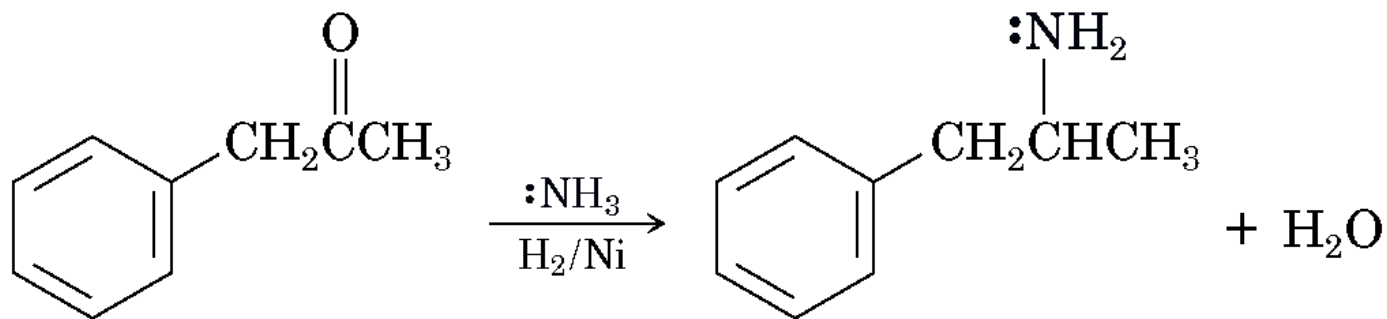
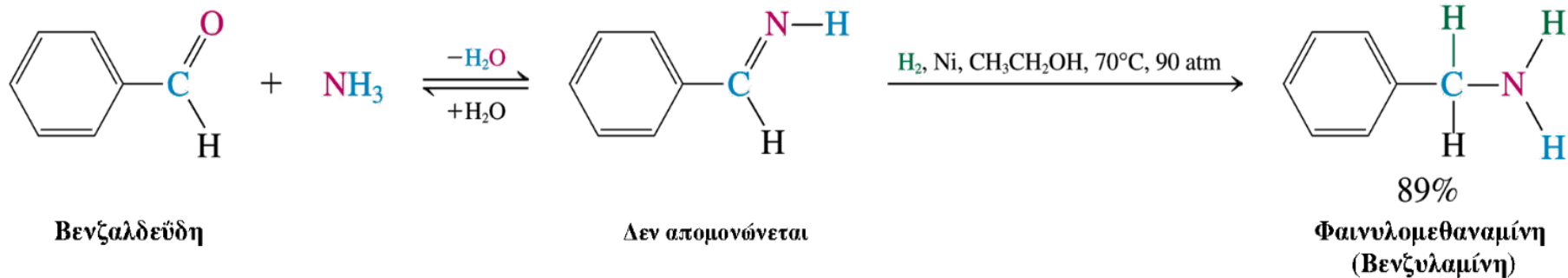


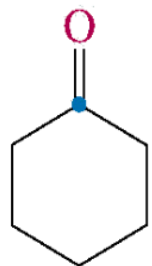
Δευτεροταγής αμίνη



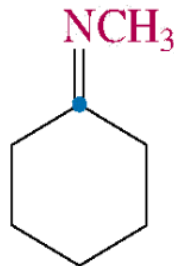
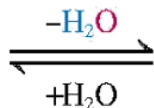
Τριτοταγής αμίνη

## Σύνθεση αμίνης με αναγωγική αμίνωση

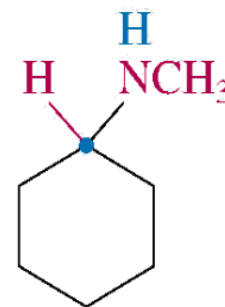
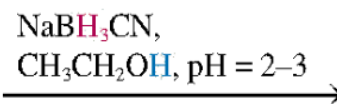




Κυκλοεξανόνη

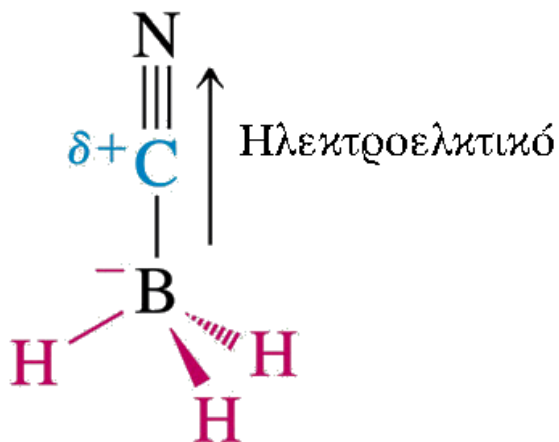


Δεν απομονώνεται

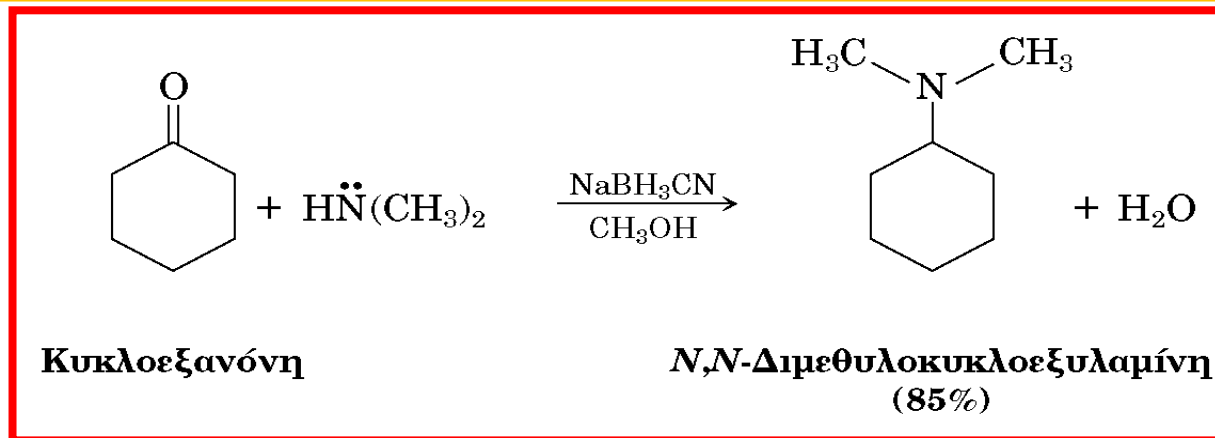
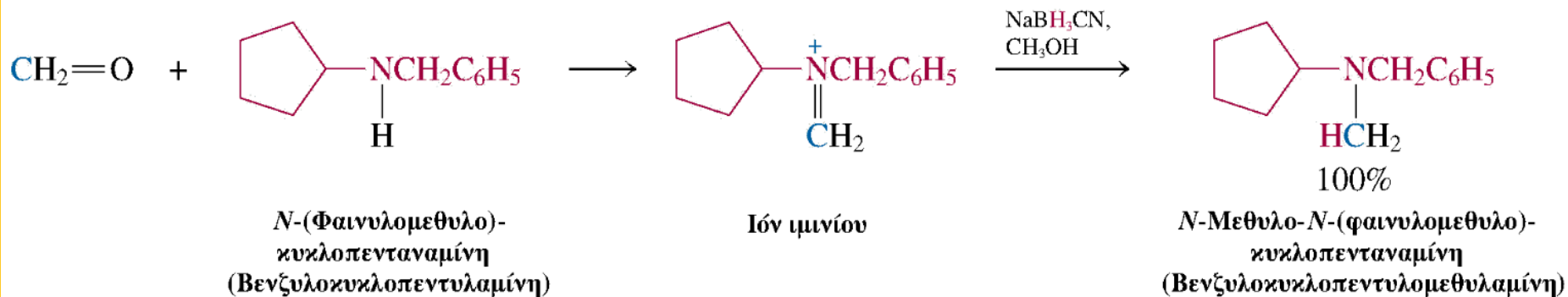
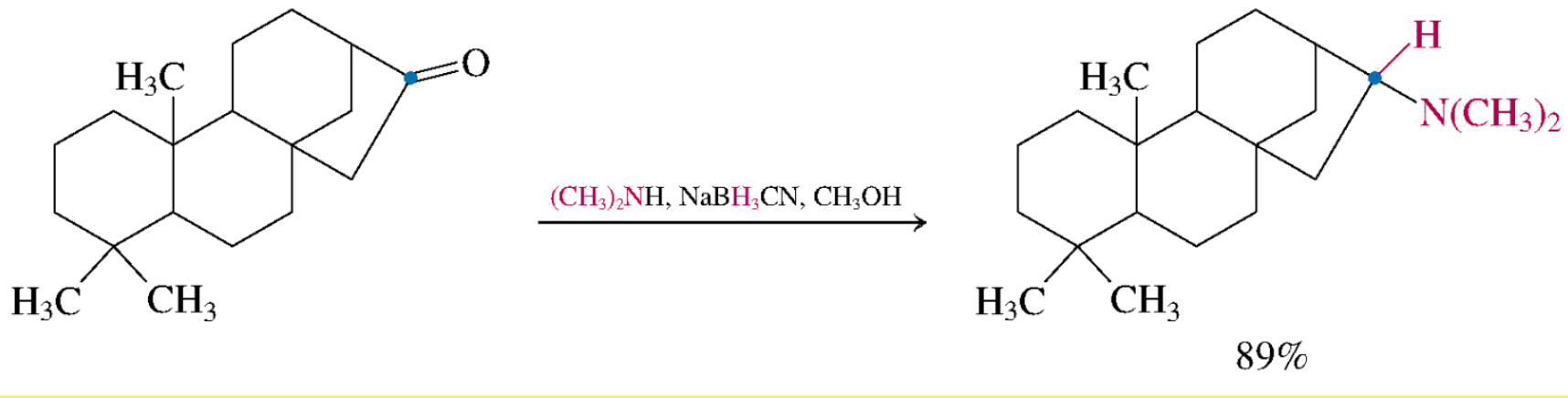


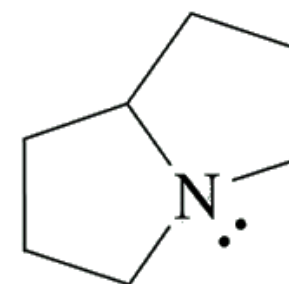
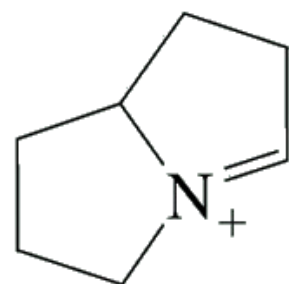
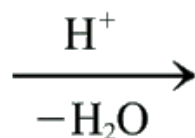
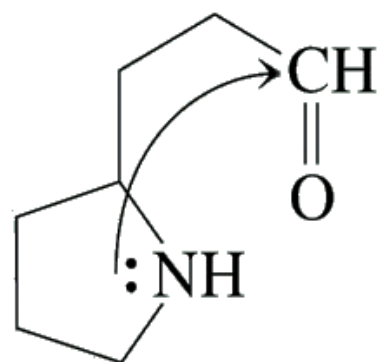
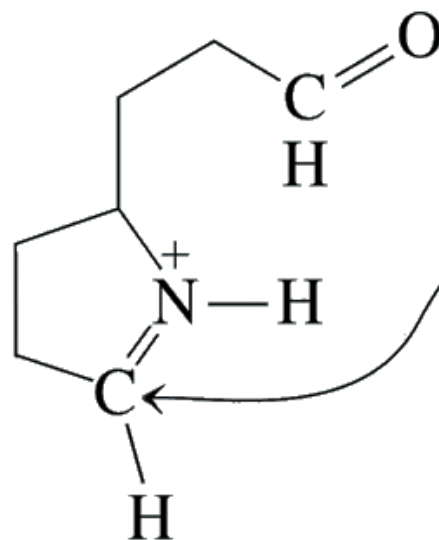
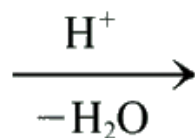
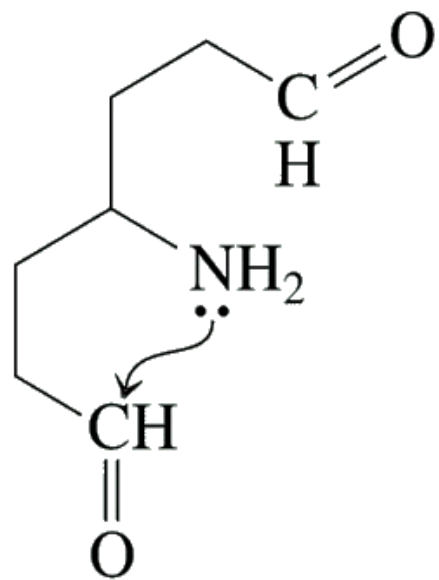
78%

*N*-Μεθυλοκυκλοεξαναμίνη

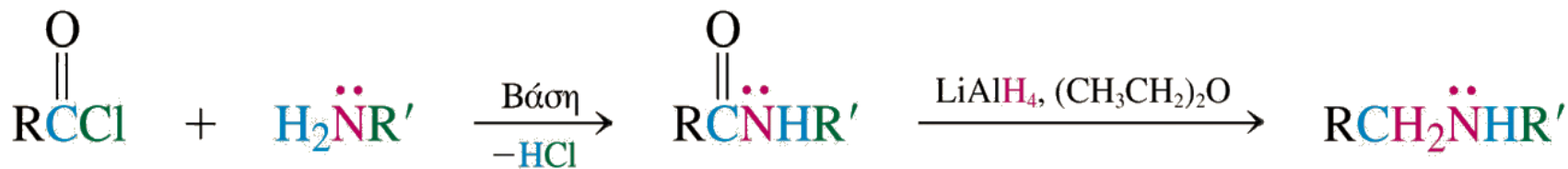


Ελαττωμένη ικανότητα του H να αποχωρήσει ως  $:\text{H}^-$ , ως εκ τούτου το αντιδραστήριο είναι λιγότερο ευαίσθητο στα  $\text{H}^+$

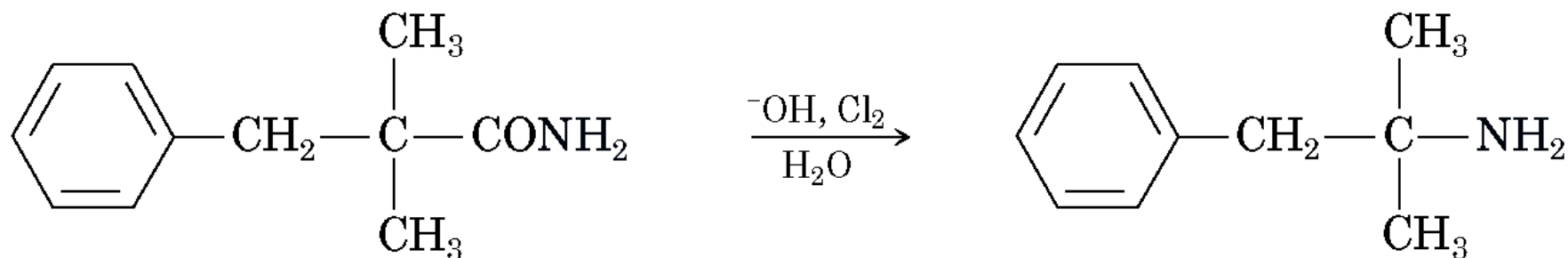
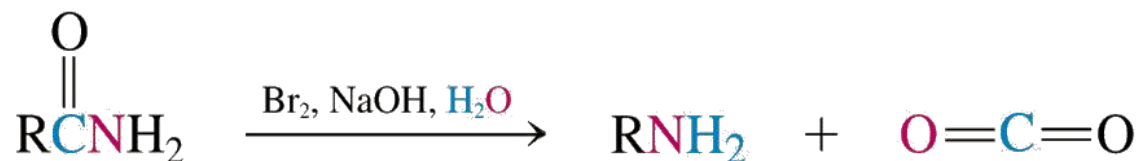




## Η χρησιμότητα των αμιδίων στη σύνθεση αμινών



## Αμίνες μέσω της μετάθεσης Hofmann



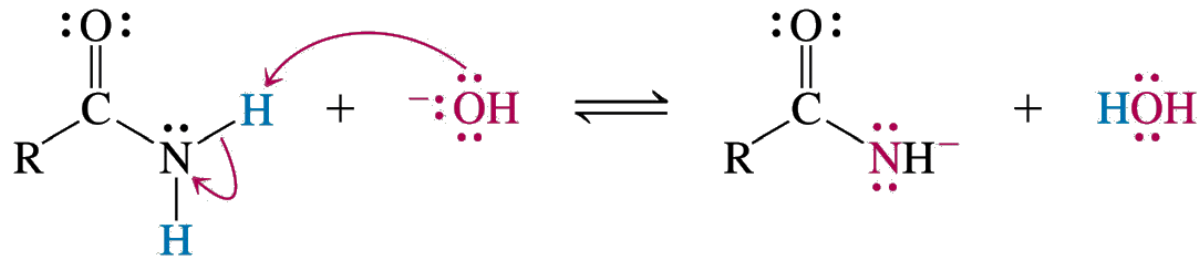
2,2-Διμεθυλο-3-φαινυλοπροπαναμίδιο

Φαιντερμίνη

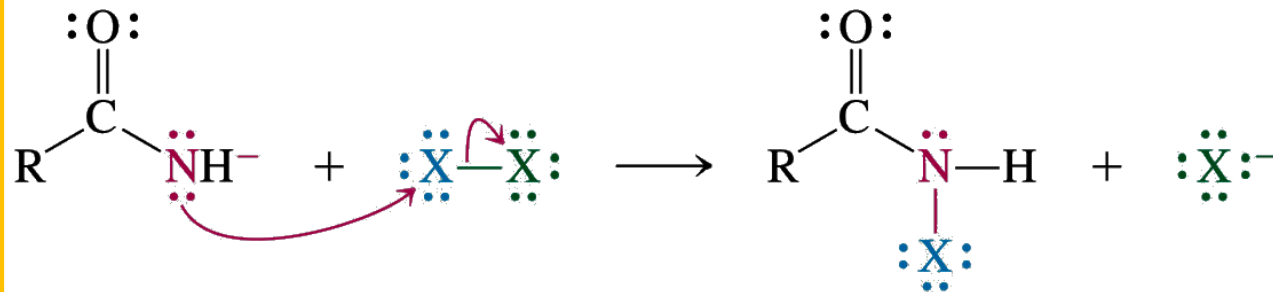


# Μηχανισμός της μετάθεσης Hofmann

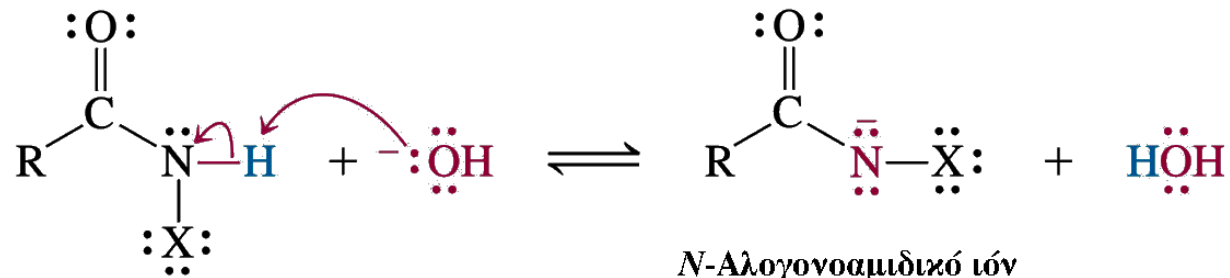
**Στάδιο 1.** Σχηματισμός αμιδικού ιόντος



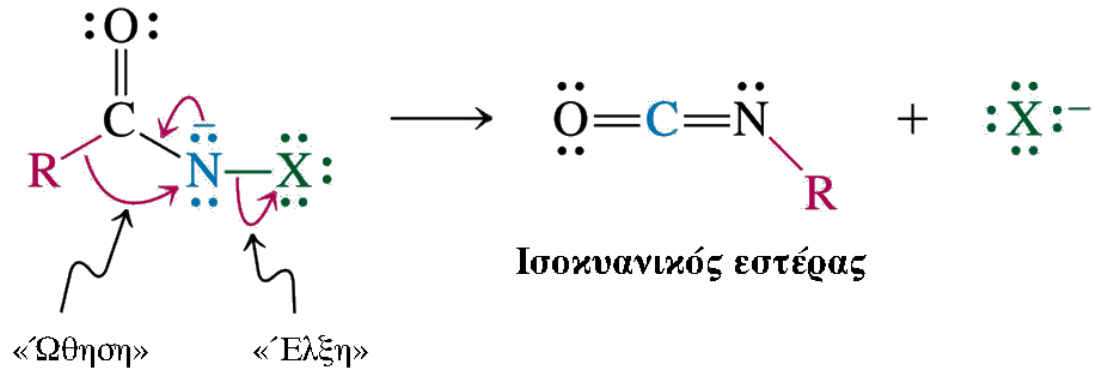
**Στάδιο 2.** Αλογόνωση



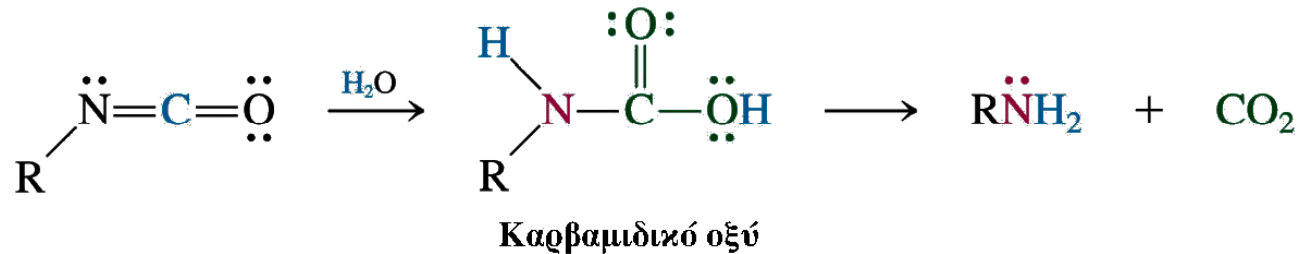
**Στάδιο 3.** Σχηματισμός *N*-αλογοαμιδικού ιόντος



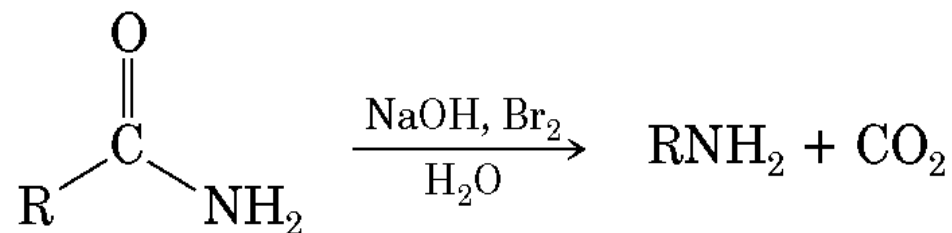
**Στάδιο 4.** Αναδιάταξη με απόσπαση αλογονούχου ιόντος



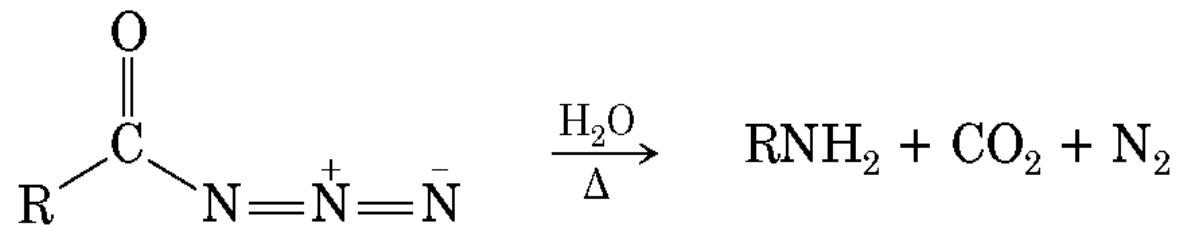
**Στάδιο 5.** Ενυδάτωση προς καρβαμδικό οξύ και διάσπαση

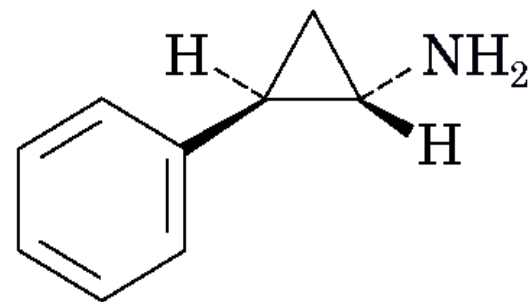
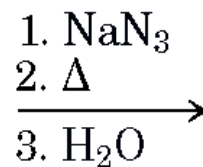
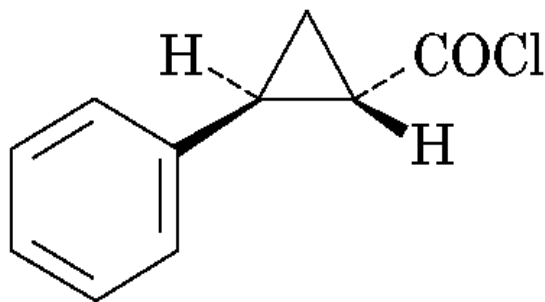
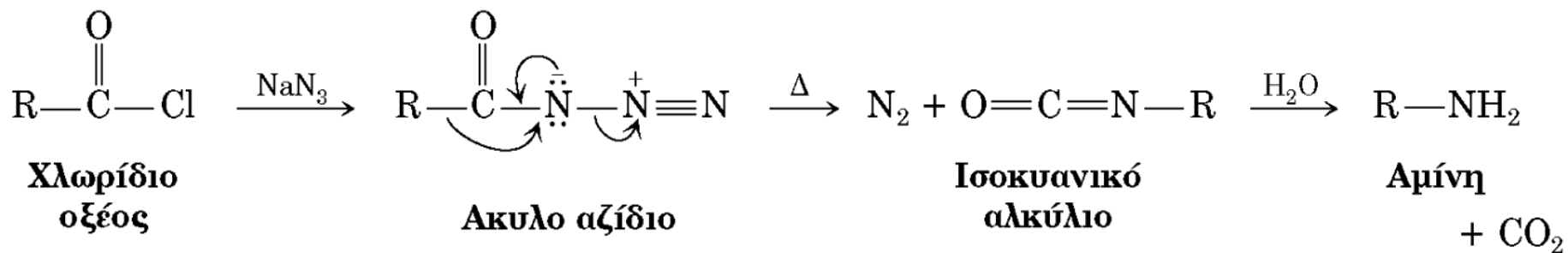


Μετάθεση Hofmann



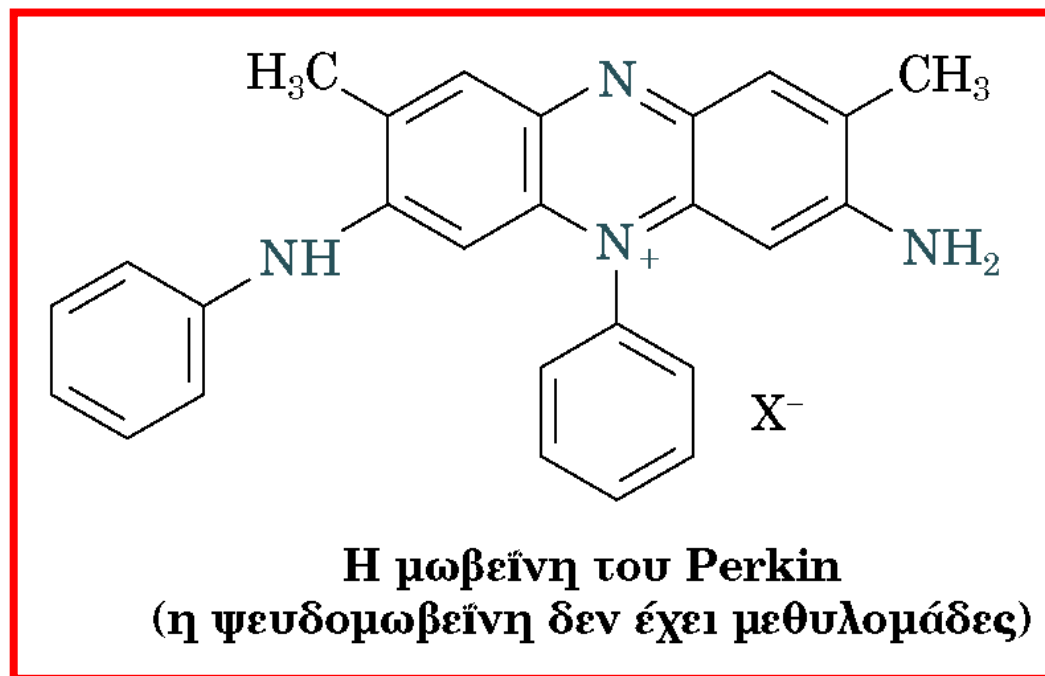
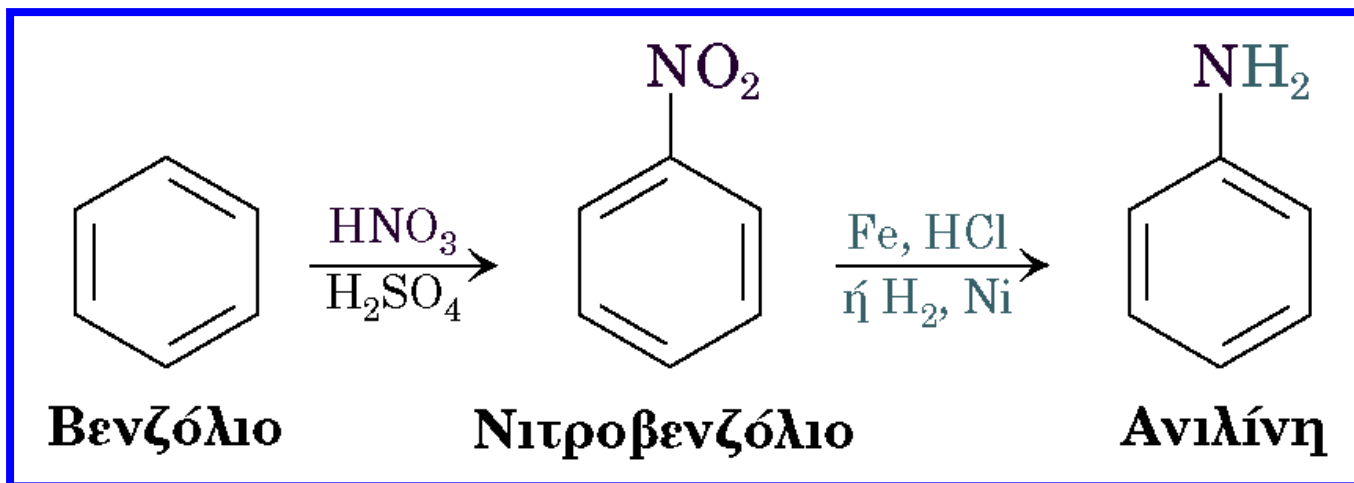
Μετάθεση Curtius

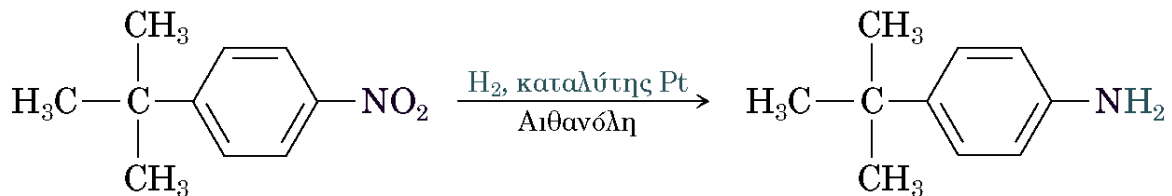




*trans*-2-Φαινυλοκυκλοπροπανοκαρβονυλο  
χλωρίδιο

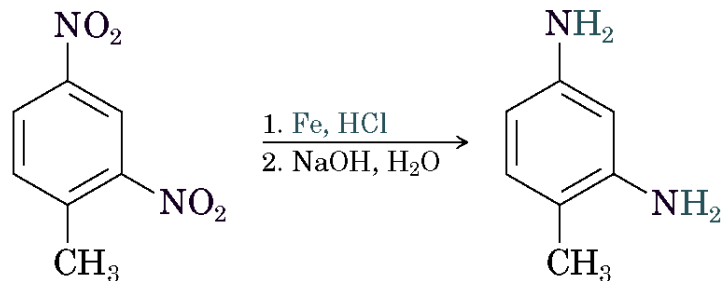
Τρανυλοκυπρομίνη





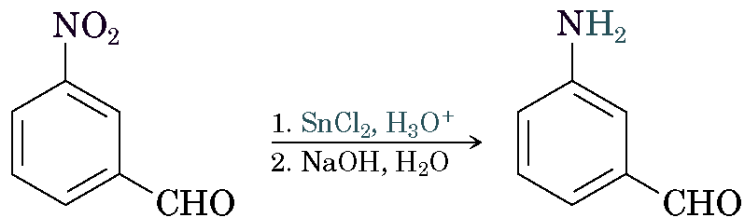
***p*-tert-Βουτυλονιτροβενζόλιο**

***p*-tert-Βουτυλοανιλίνη (100%)**



**2,4-Δινιτροτολουόλιο**

**Τολουόλο-2,4-διαμίνη  
(74%)**



***m*-Νιτροβενζαλδεϋδη**

***m*-Αμινοβενζαλδεϋδη  
(90%)**