

FRO-II 2021, Problems of the Week, N° 5

1. A unknown reaction of a benzylic chloride proceeds by the S_N1 -type mechanism.

a) What sign do you expect for the reaction parameter ρ in the Hammett equation?

b) Order the following substrates by their expected reaction rates for this reaction (1=most rapid.... 5=slowest):

A (*p*-nitrobenzyl chloride)

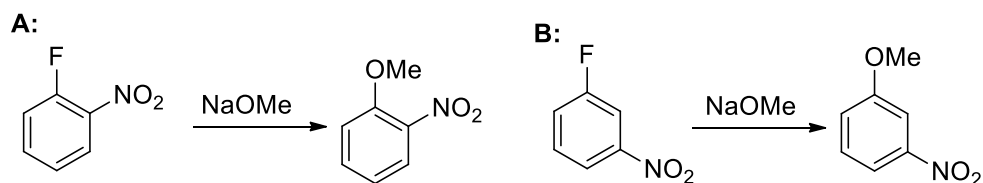
B (*p*-methylbenzyl chloride)

C (benzyl chloride)

D (*p*-fluorobenzyl chloride)

E (*p*-methoxybenzyl chloride).

2. a) Does reaction **A** or reaction **B** proceed more likely? Justify your answer by drawing the relevant reaction intermediate.



b) What is this reaction type and how is the intermediate called?