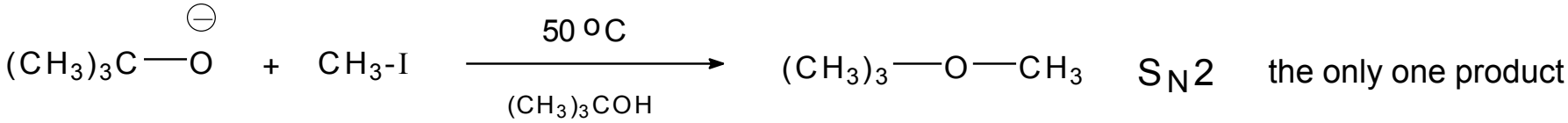
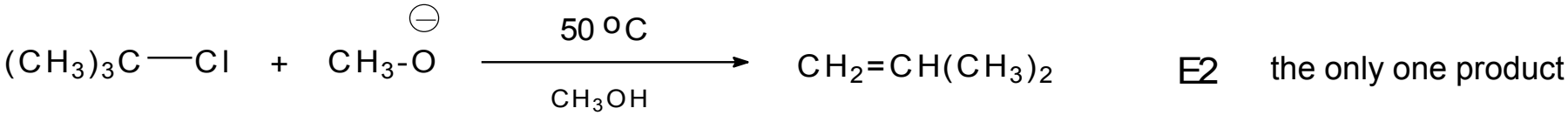
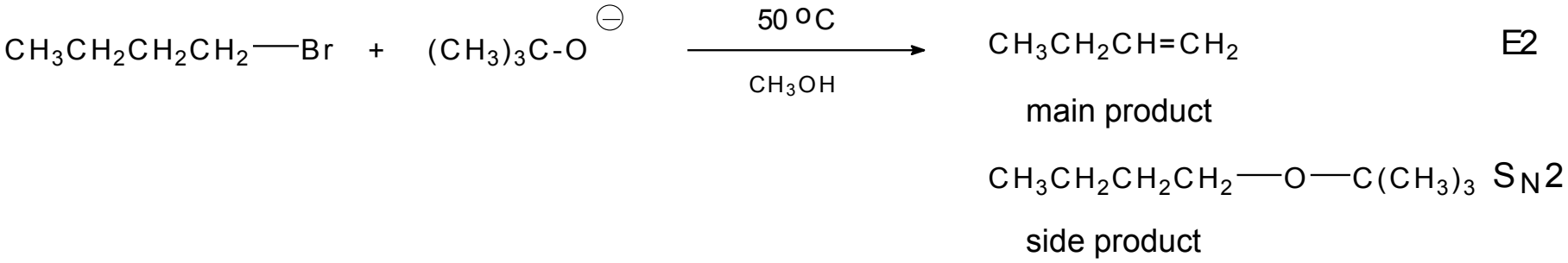
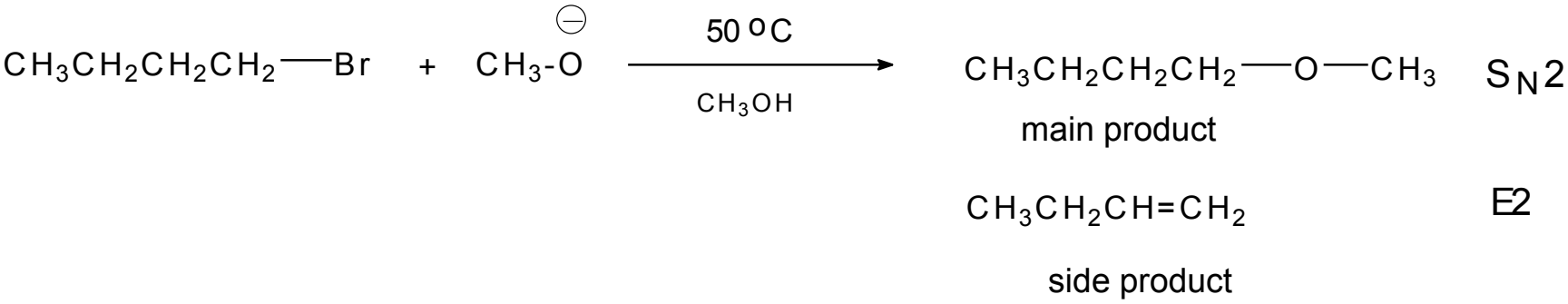
Examples for solution



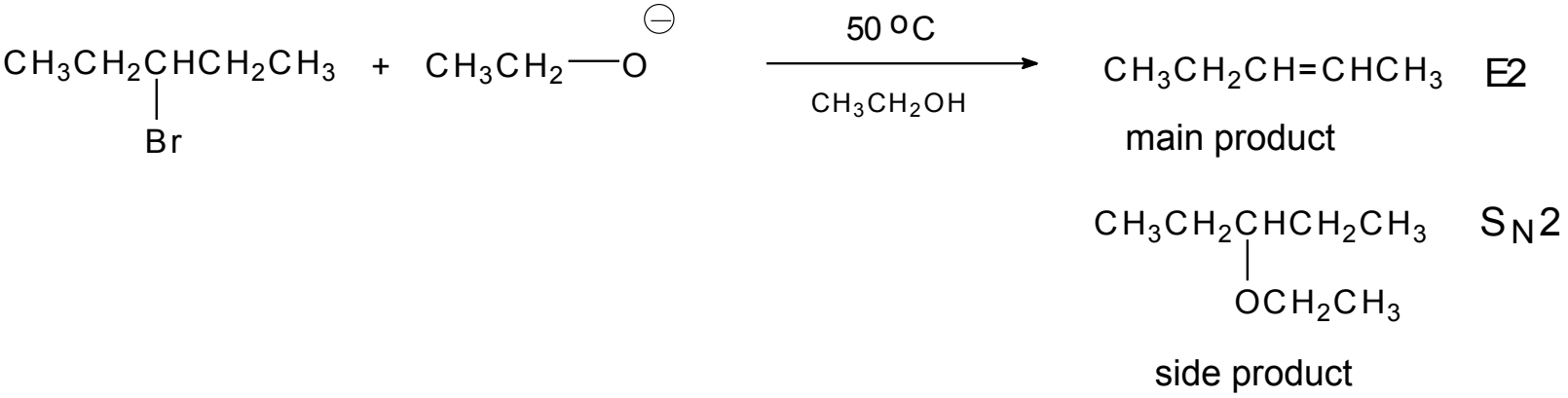


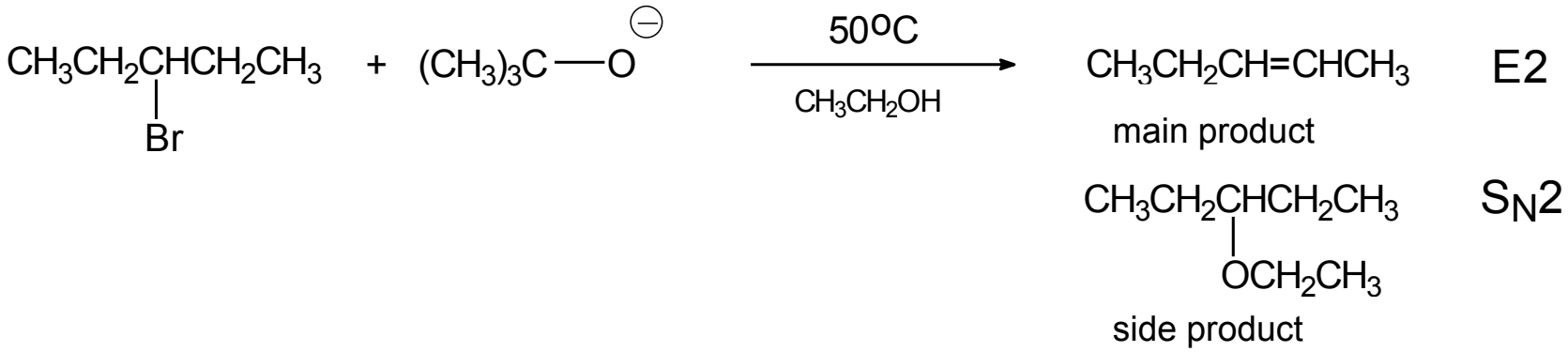
Examples for solution



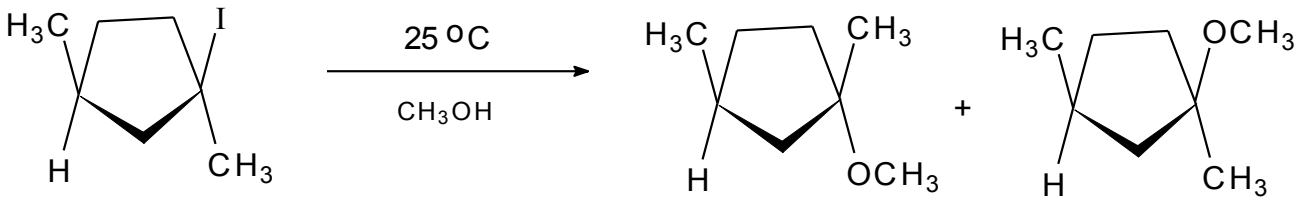


Examples for solution



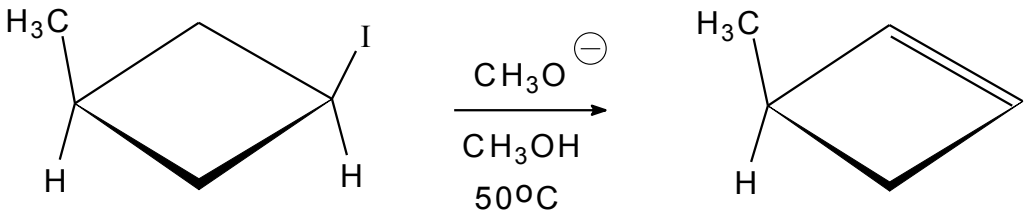


Examples for solution



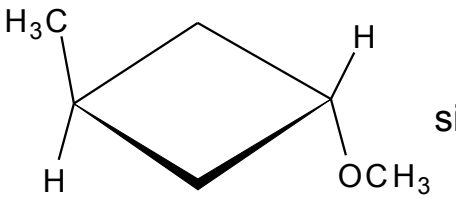
S_N1

mixture of two components



E2

main product

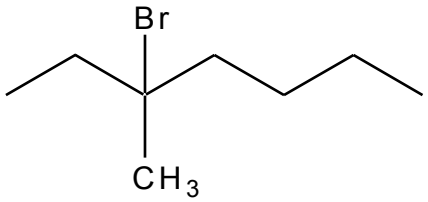


S_N2

side product

Examples for solution

(*S*)-3-bromo-3-methylhexane —(25°C, MeOH)→ (*S*)-3-methoxy-3-methylhexane + (*R*)-3-methoxy-3-methylhexane — mixture — S_N1

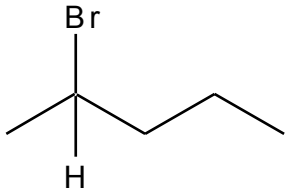


(*R*)-2-bromobutane + $\ominus$OH —(25° C)→

$CH_3-C(H)=CH-CH_3$ — main product — E2

$H_2C=CH-CH_2CH_3$ — side product — S_N2

(*S*)-2-butanol

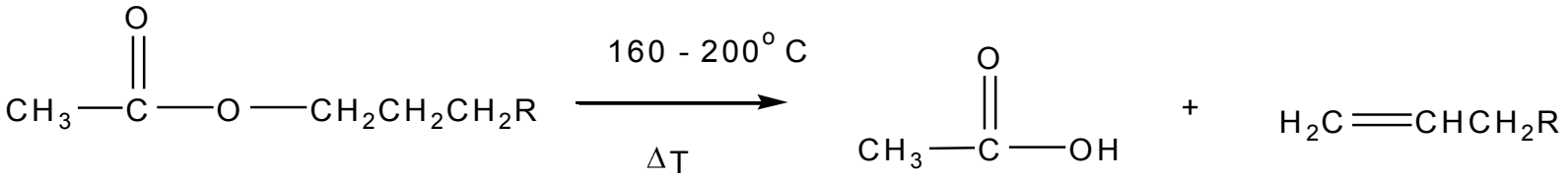


Pyrolytic elimination

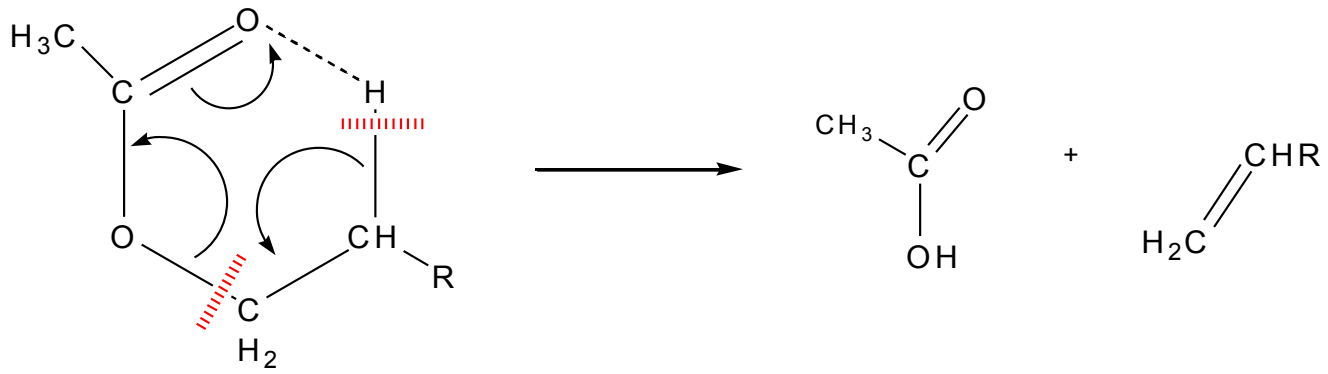
Reactions are characteristic for acetates or xanthates –Chugaev reaction and *t*-aminoxides – Cope elimination

Acetates pyrolysis

Reactions are *cis*- stereospecific and regiospecific

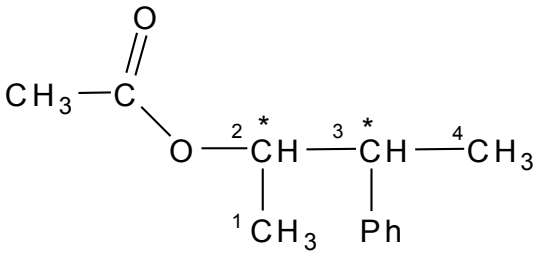


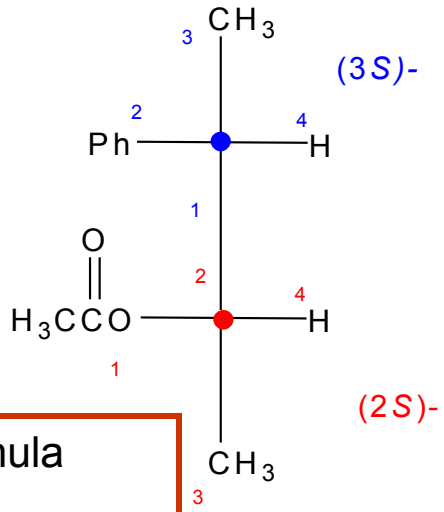
Reaction proceeds via cyclic intermediate

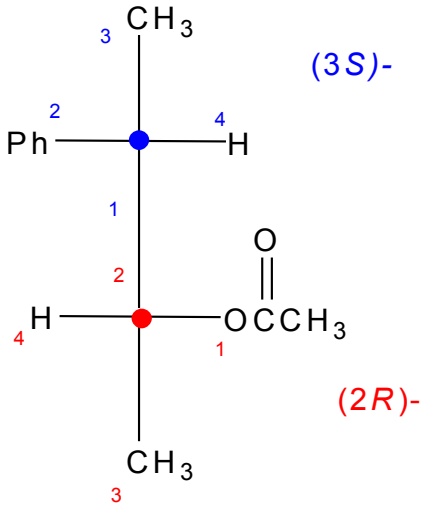


Pyrolytic elimination

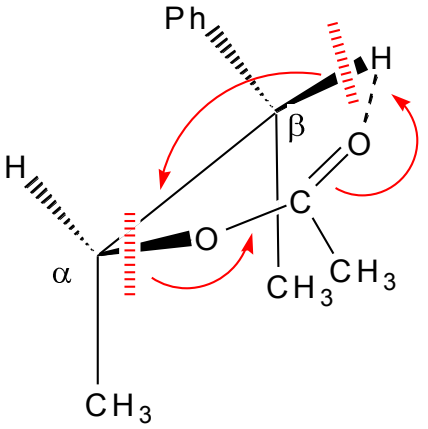
What is the product of (2*R*,3*S*)-2-(3-phenylbutyl)acetate?

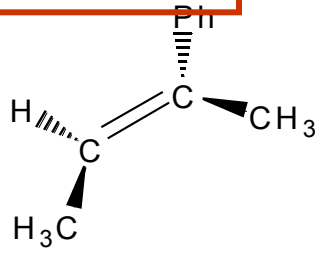






1. Composition of corresponding formula
2. Configuration determination
3. Transformation into perspective formula
4. *Cis*- (*syn*-) elimination
5. Determination of olefine configuration
6. Composition of proper name

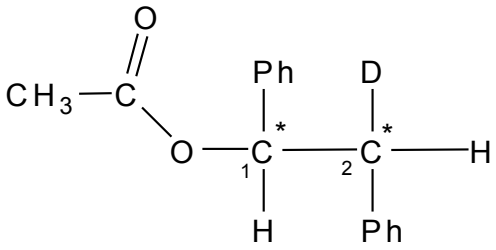


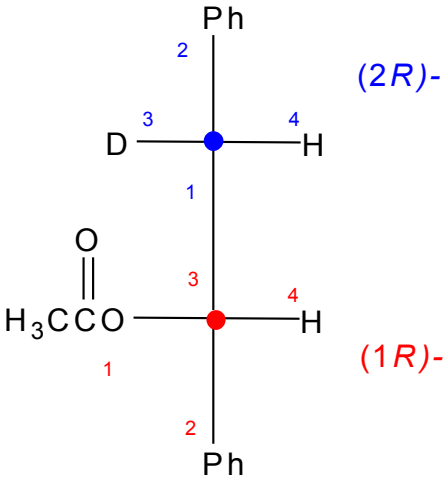


(*E*)-2-phenylbut-2-ene

Pyrolytic elimination

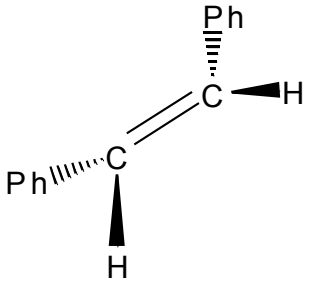
What is the product of pyrolysis of (1*R*,2*R*)-1,2-diphenyl-2-deuterioethylacetate?



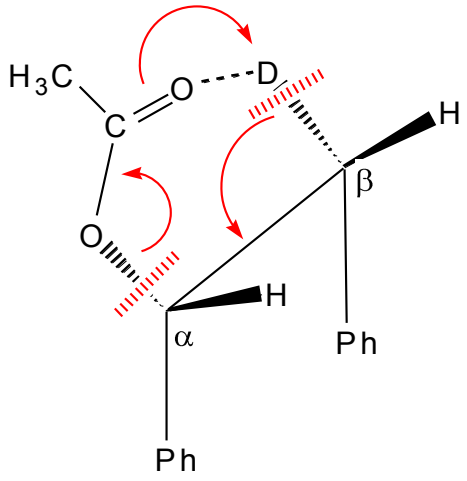


1. Composition of corresponding formula
2. Configuration determination
3. Transformation into perspective formula
4. *Cis*- (*syn*-) elimination
5. Determination of olefine configuration
6. Composition of proper name

(*Z*)-diphenylethene



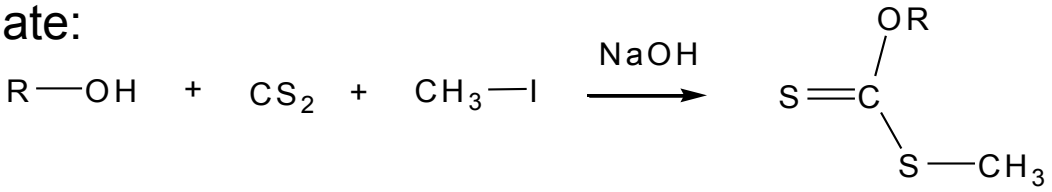
-CH_3COOD

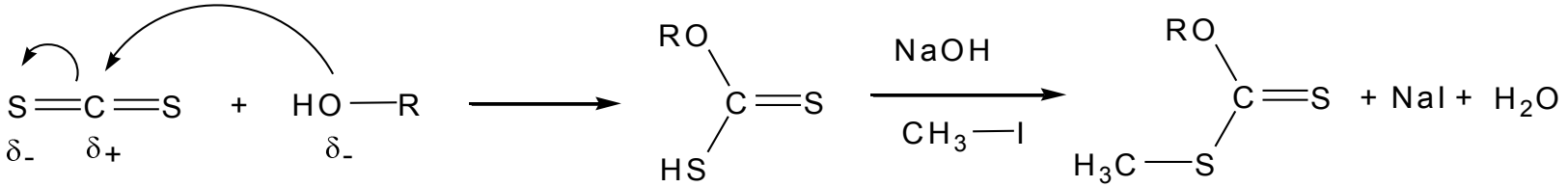


Pyrolytic elimination – Chugayev reaction

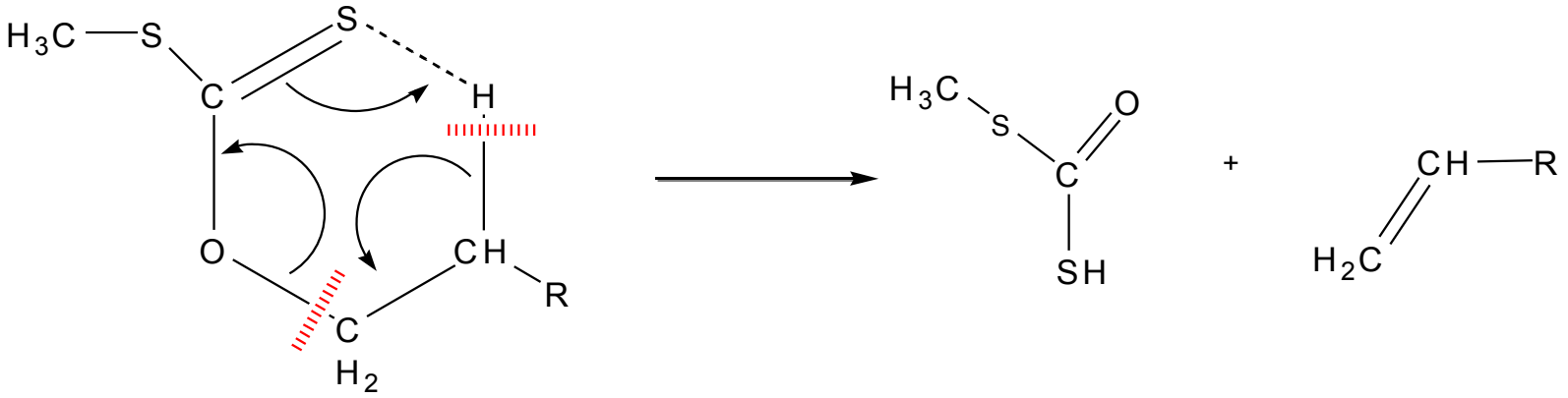
Reactions are *cis*- stereospecific and regiospecific

Preparation of xanthate:



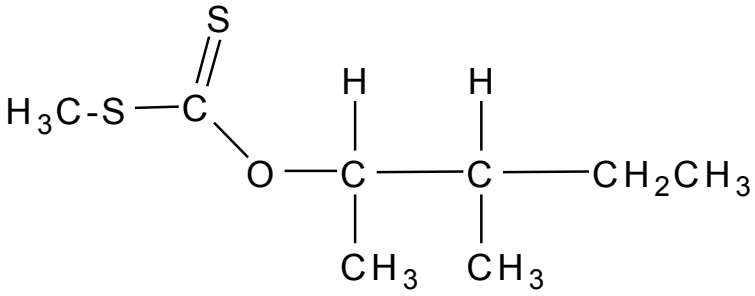


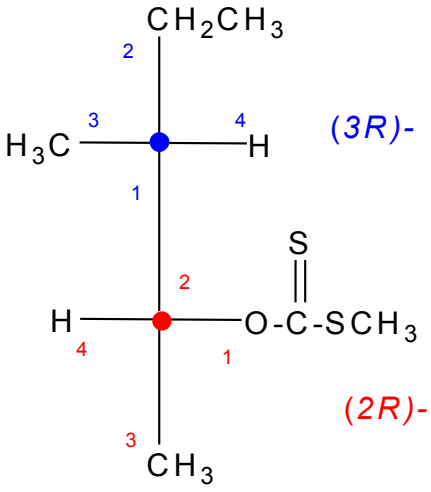
Reactions proceed via cyclic state



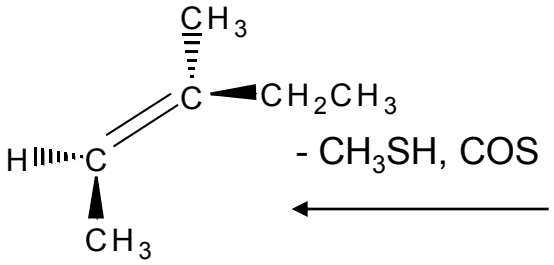
Pyrolytické eliminace

What is the product of (*S*)-methyl-(2*R*,3*R*)-O-(3-methylpent-2-yl) xanthate pyrolysis?

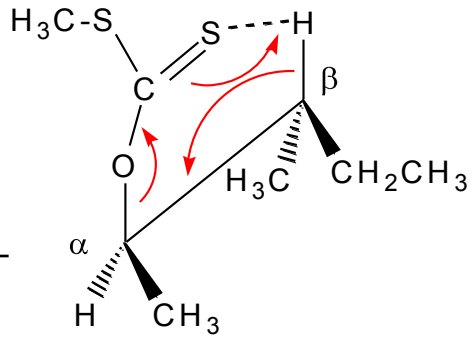




(*Z*)-3-methylpent-2-ene



- CH_3SH, COS



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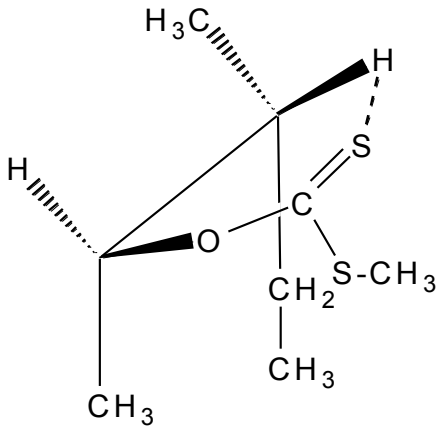
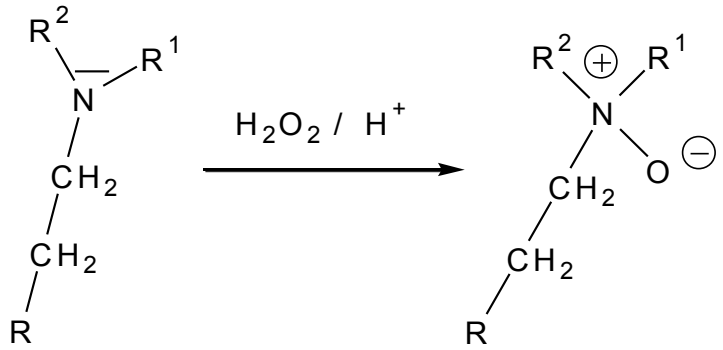


Pyrolytic elimination – Cope reaction

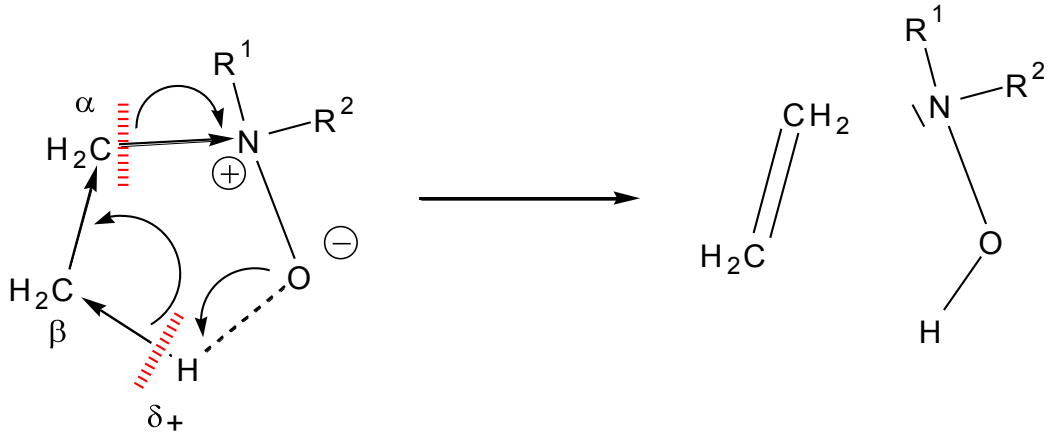
Reactions are *cis*- stereospecific and regiospecific

Preparation of *t*-aminoxide



oxidation of *t*-amines

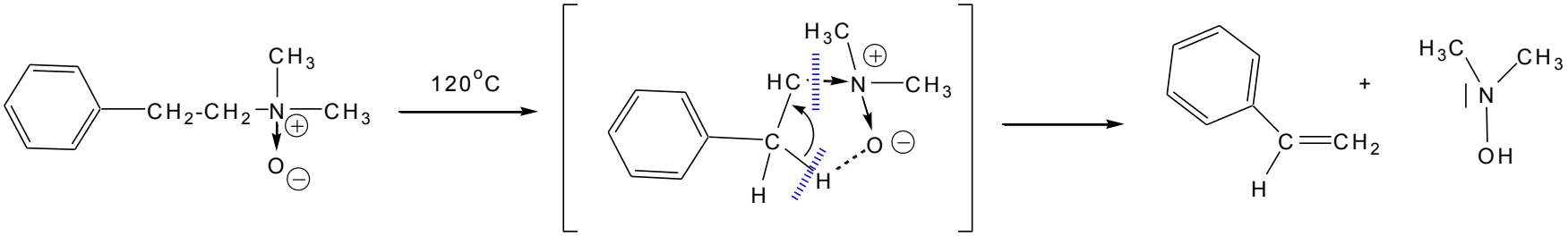
Reactions proceed via cyclic intermediate

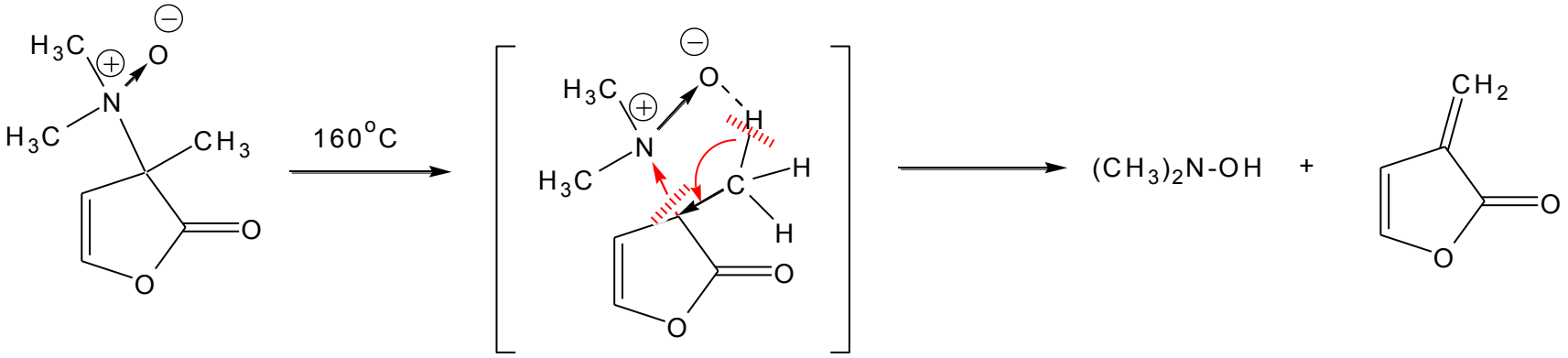


after reaction olefin and substituted hydroxylamin are obtained

Pyrolytic elimination

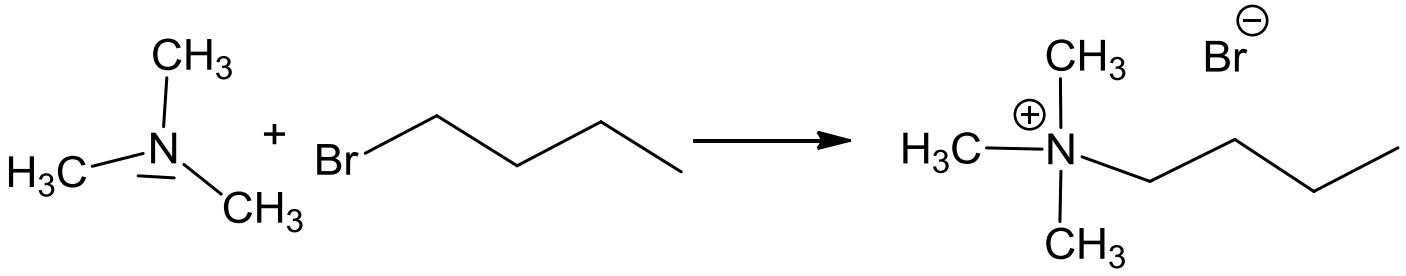
Cope elimination of N-oxides



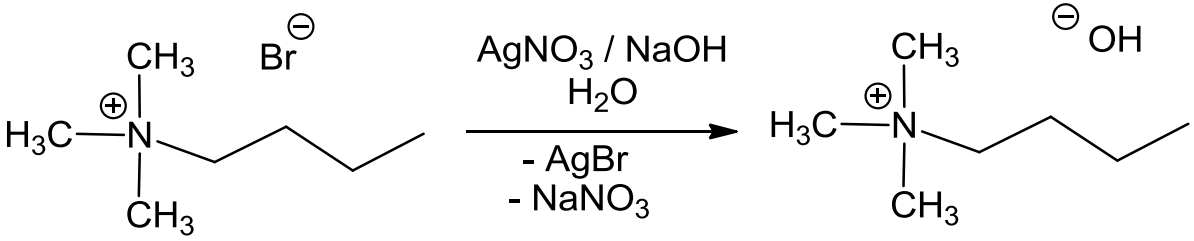


Hofmann elimination of quarternary ammonium hydroxides

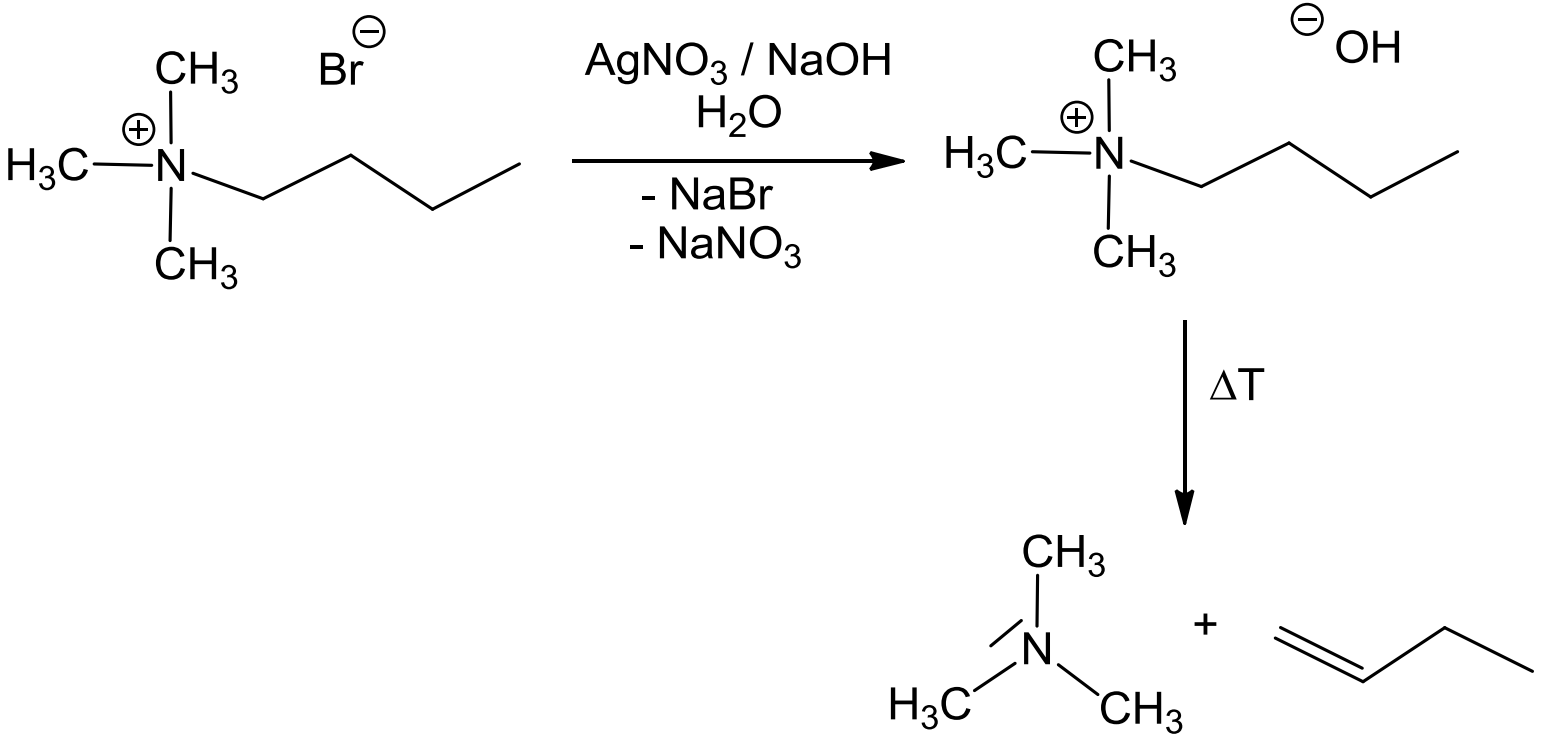
Reaction starts with t-alkylamines, which in the following reaction are alkylated to quaternary ammonium salts



In the further step they are transferred into quaternary ammonium hydroxides



Hofmann elimination of quarternary ammonium hydroxides

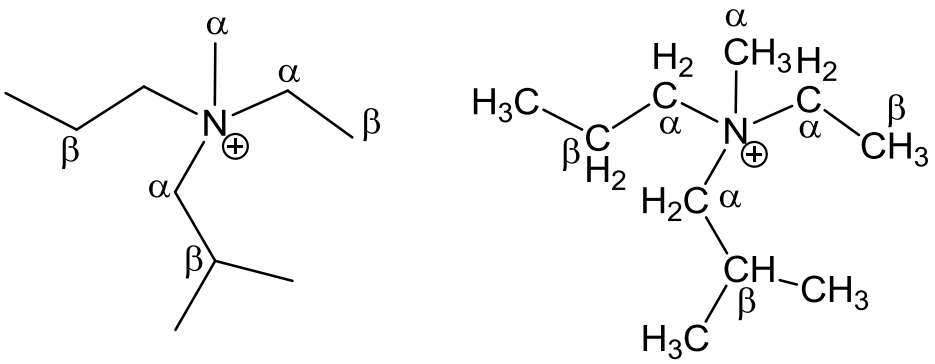


Hofmann elimination of quarternary ammonium hydroxides

Reactions are regiospecific, but not stereospecific

During the reaction the most acidic β-hydrogen atom is split off.

(„antisaytzeff rule“ – that β–hydrogen atom splits off to produce the least branched olefin

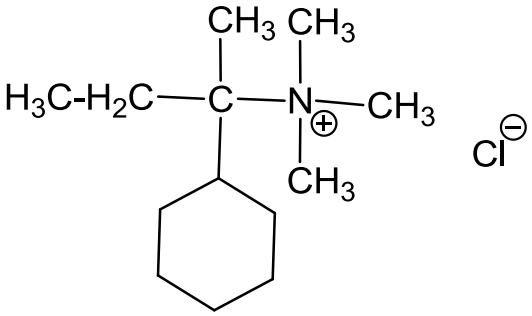


In the molecule there are 3 β-hydrogen atoms, which might be eliminated ----

in the reaction the most acidic proton splits off and the least branched olefin is formed

Hofmann elimination of quarternary ammonium hydroxides

During reaction the most acidic β-hydrogen atom splits off



Name this compound and carry out the Hofmann elimination

in the molecule they are 2 different β- hydrogen atoms, which might be eliminated ----

during the reaction the most acidic hydrogen is eliminated and the least branched olefin is formed