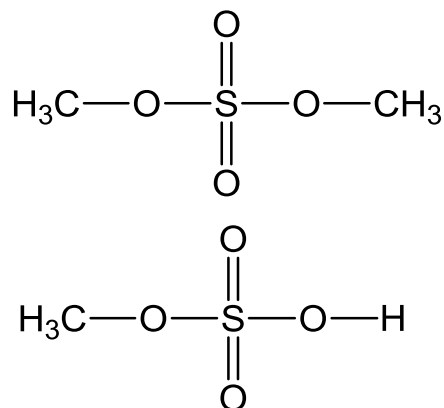


Mineral acids esters



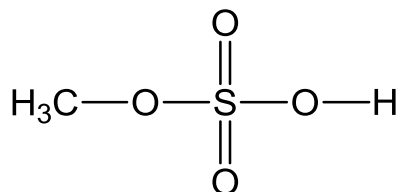
sulfates

!! compare : sulfonates

dimethylsulfate

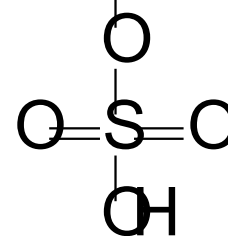
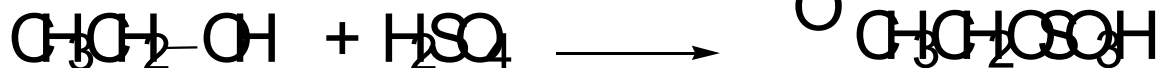
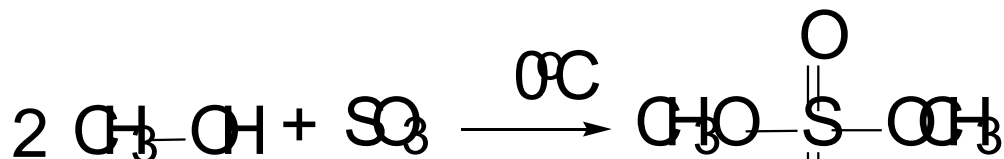
two types of sulfates exist:

neutral and acidic



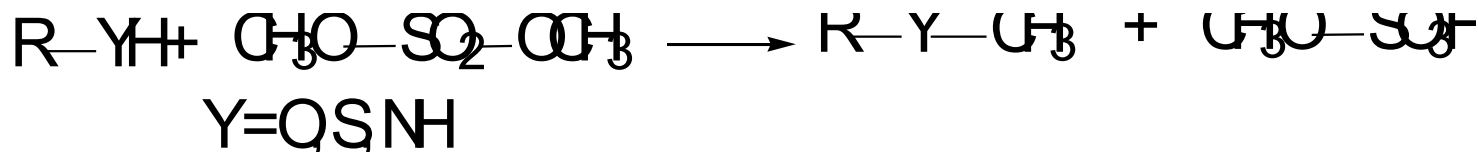
methylsulfuric acid

Preparation

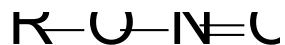


Application

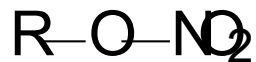
during alkylation reaction only one of the alkyl groups is used



Mineral acids esters



nitrites

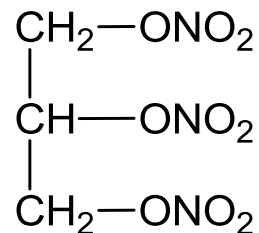
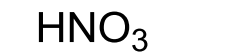
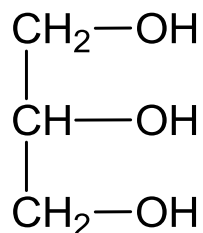


nitrates

Preparation

esterification by reaction of acid and alcohol

!! Nitrates are gently smelling, **when heated explode !!**



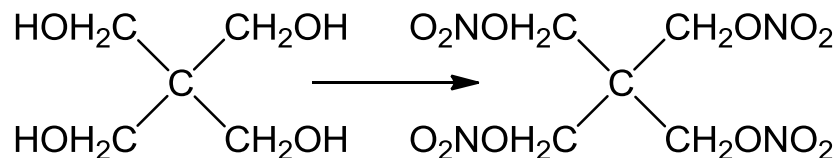
"nitroglycerol"
glycerol trinitrate

explosive

dynamit

drug

bombs, mines



pentaerythritol

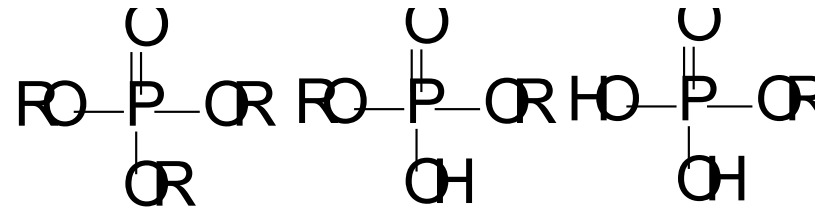
pentaerythritol
tetranitrate

nitrocellulose

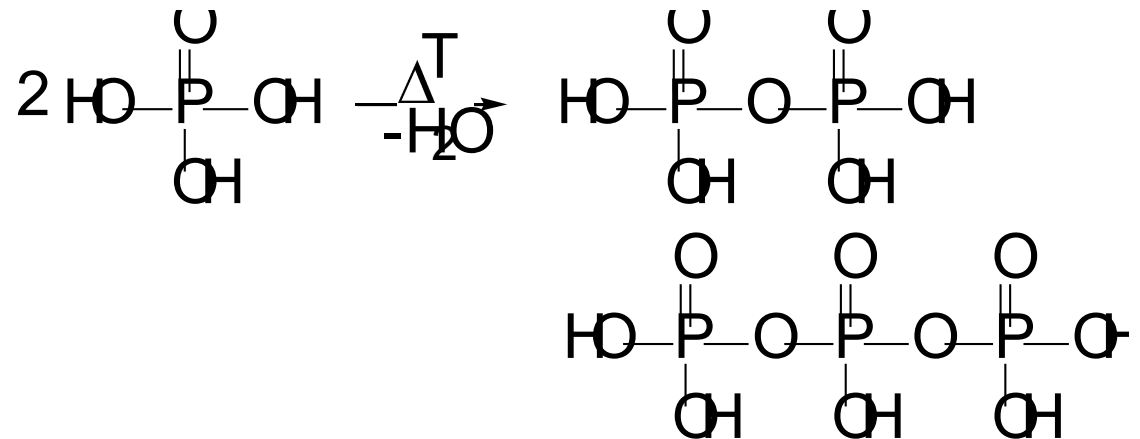
Mineral acids esters



three types of phosphates: trialkylphosphates
 dialkylhydrogenphosphates
 alkyldihydrogenphosphates



formation of diphosphates and triphosphates from pyrolytically formed di and triphosphoric acids



in biological systems as a source of energy

Mineral acids esters

Phosphates and mainly triphosphates are very important components in biological systems, where they act role in transfer of energy. From ATP is formed ADP and a good leaving group leave - (salt of very strong mineral acid = weak nucleophile)

