

Chloroperoxidase

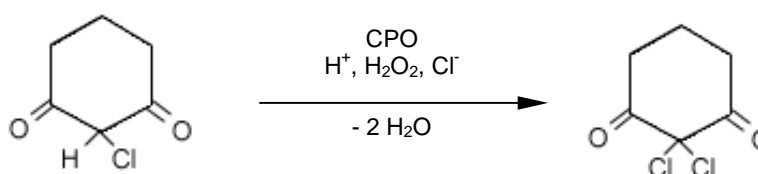
Chloridperoxidase
EC 1.11.1.10

Description:

Enzyme which catalyzes halogenation, oxidation and epoxidation reactions by using hydrogen peroxide as substrate.

Furthermore the enzyme is able to oxidize halogenide ions giving halogenated compounds at the presence of organic co-substrates.

Starting from these compounds in a concluding step polyhalomethane, ethane and ethene can be generated..



Scheme 1: halogenation of the Monochlordimedon-Assay

Origin:

Leptoxyphium fumago (fungus)

Application:

organical synthesis

Reactions:

- a) Reactions under presence of halogenide ions
- are relatively nonselective
 - particularly pronounced activity of catalase (strong formation of oxygen during reactions)
 - halogenide ions are oxidized to hypohalogenide ions, which react as nonselective oxidants with different substates
 - example reactions:
simple or double halogenation of activated methylene components or aromatic C-atoms (chlorination or bromination of pyrazol-, pyridine- oder quinoline derivates)

- b) Reactions without halogenide ions
- regioselektive or enantioselektive running reactions
 - examples
 - 1) oxidation of indole into oxindol
 - 2) enantioselektive sulfoxidation
 - 3) enantioselektive epoxidierung of olefins
 - 4) enantioselektive hydroxylation of activated methyle groups

Molecular weight: 42 000 D

Activity: inquire please

Purity: partly purified

Optimum of temperature: 40°C

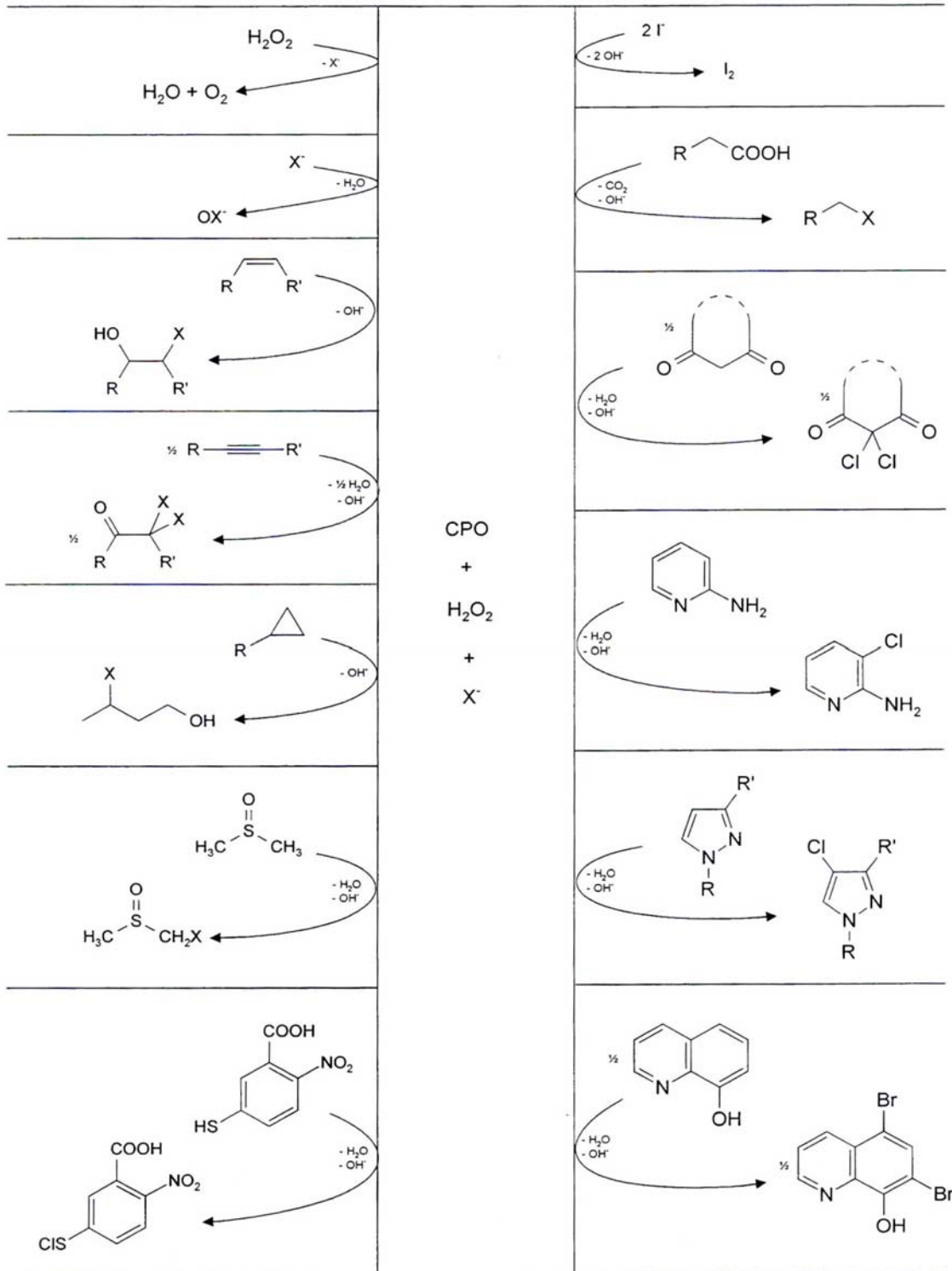
Order-No.: 2525

Form of delivery: lyophilisate

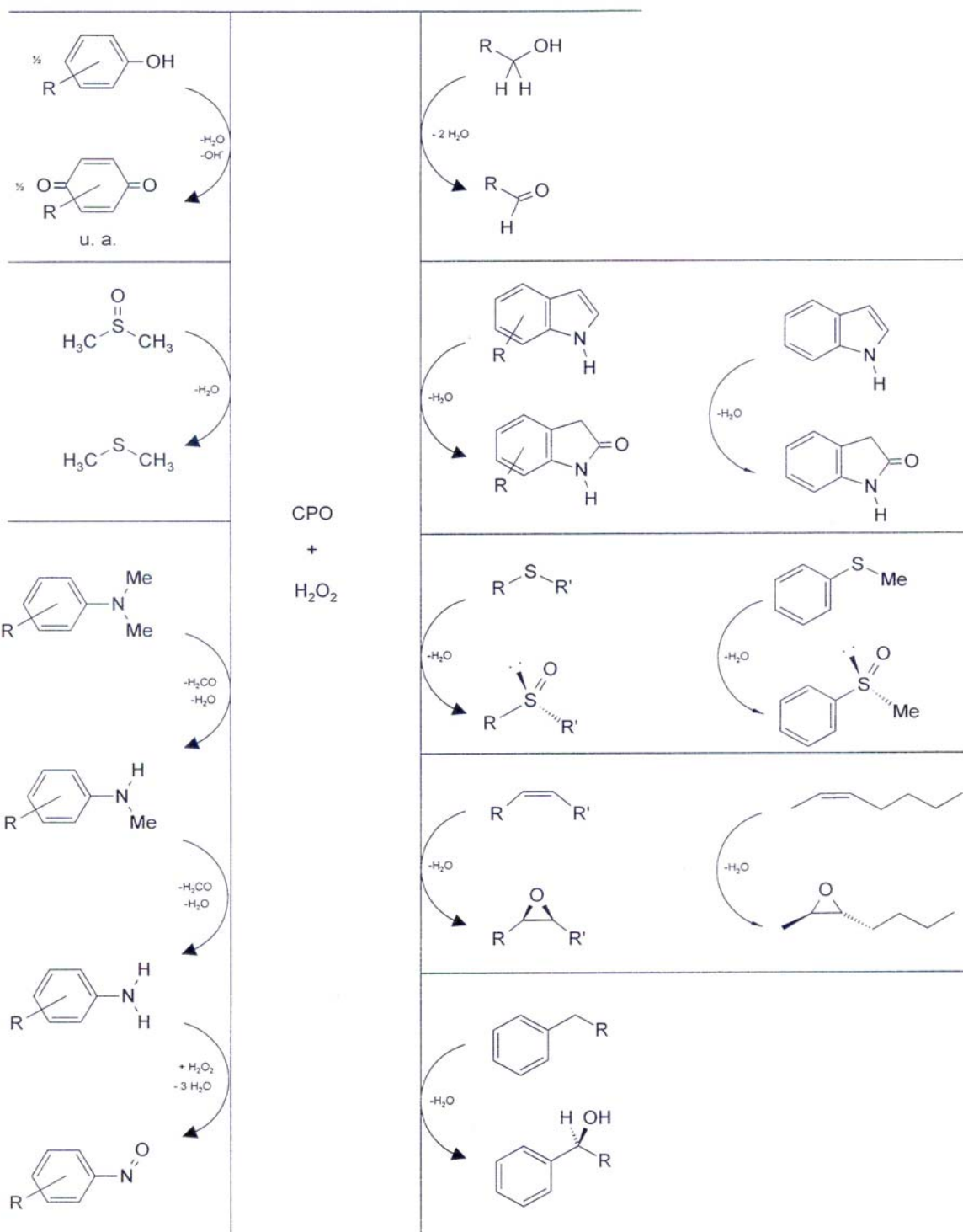
Storage: -20°C

PH-stability: within the range 3 – 5 after 100 ours 50% residual activity

Literature: Karsten Seelbach: *Chloroperoxidase - Ein industrieller Katalysator?*
Dissertation zur Erlangung des Doktorgrades der Mathematisch-Naturwissenschaftlichen Fakultät der Rheinischen Friedrich-Wilhelms-Universität Bonn, 1997



Scheme 2: schematic demonstration of the catalyzed reactions under presence of halogenid ions



Scheme 3: schematic demonstration of the catalyzed reactions without halogenide ions