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Disinfectant presentation

STERUSIL®

Summary

1 Introduction:

STERUSIL® product is a disinfecting with a broad spectrum and bi-active (its composition associating two disinfecting agents). These agents act according to different and complementary modes, namely oxidation and inhibition of the protein synthesis. This product presents a disinfecting capacity whose parameters, expressed in reductions logarithmic, are in all cases above the referential values. STERUSIL® is perfectly studied to be the ideal complement of the dry mist generator: STERINIS®. The couple thus formed has a formidable effectiveness as bactericide, fungicide and virucide. In addition, STERUSIL® has the advantage of being non toxic, non corrosive and biodegradable (with more than 99.99%).
Used in strong concentration, STERUSIL® has a non unpleasant and hardly perceptible odour.

2 STERUSIL® physicochemical data:

Substance:
- Hydrogen peroxide: 5%
- Silver cations: < 50 ppm

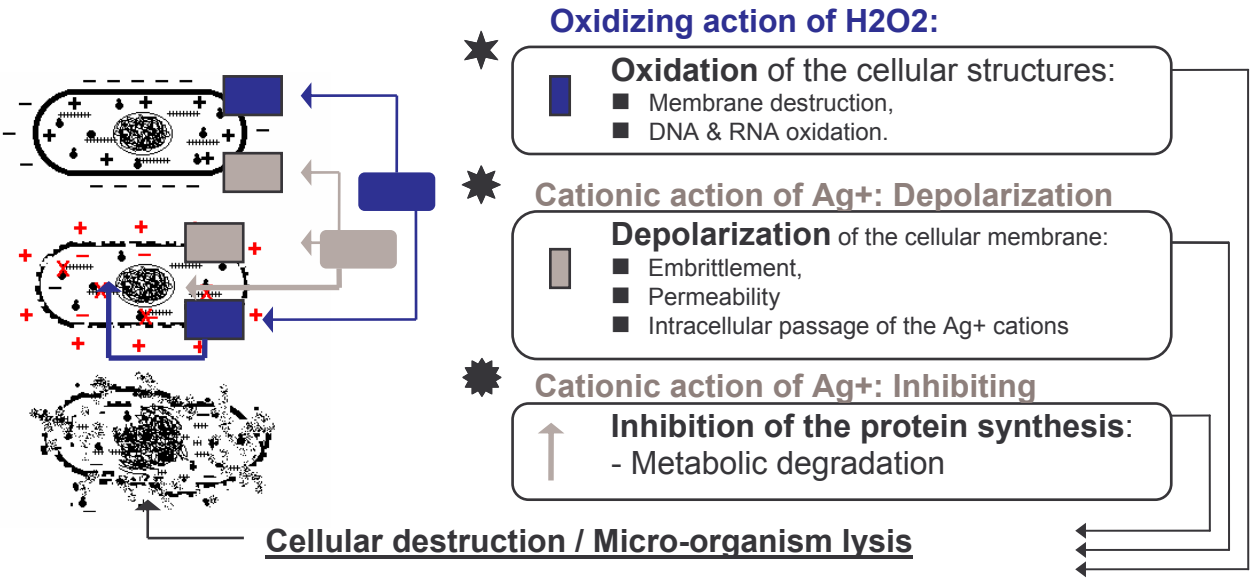
Excipient:
- Sterile water: 95%

Stabilizer:
- Ortho-phosphoric acid: < 50 ppm

3 Action modes:

Thanks to the presence of two disinfecting agents within the product, hydrogen peroxide and silver cations, STERUSIL® has a bi-disinfecting action synthesized in the principle diagram here below:

Schéma de principe de l'action désinfectante de STERUSIL®



The actions mechanisms of STERINIS are:

1) ***Oxidizing*** *action of hydrogen peroxide, involving:*

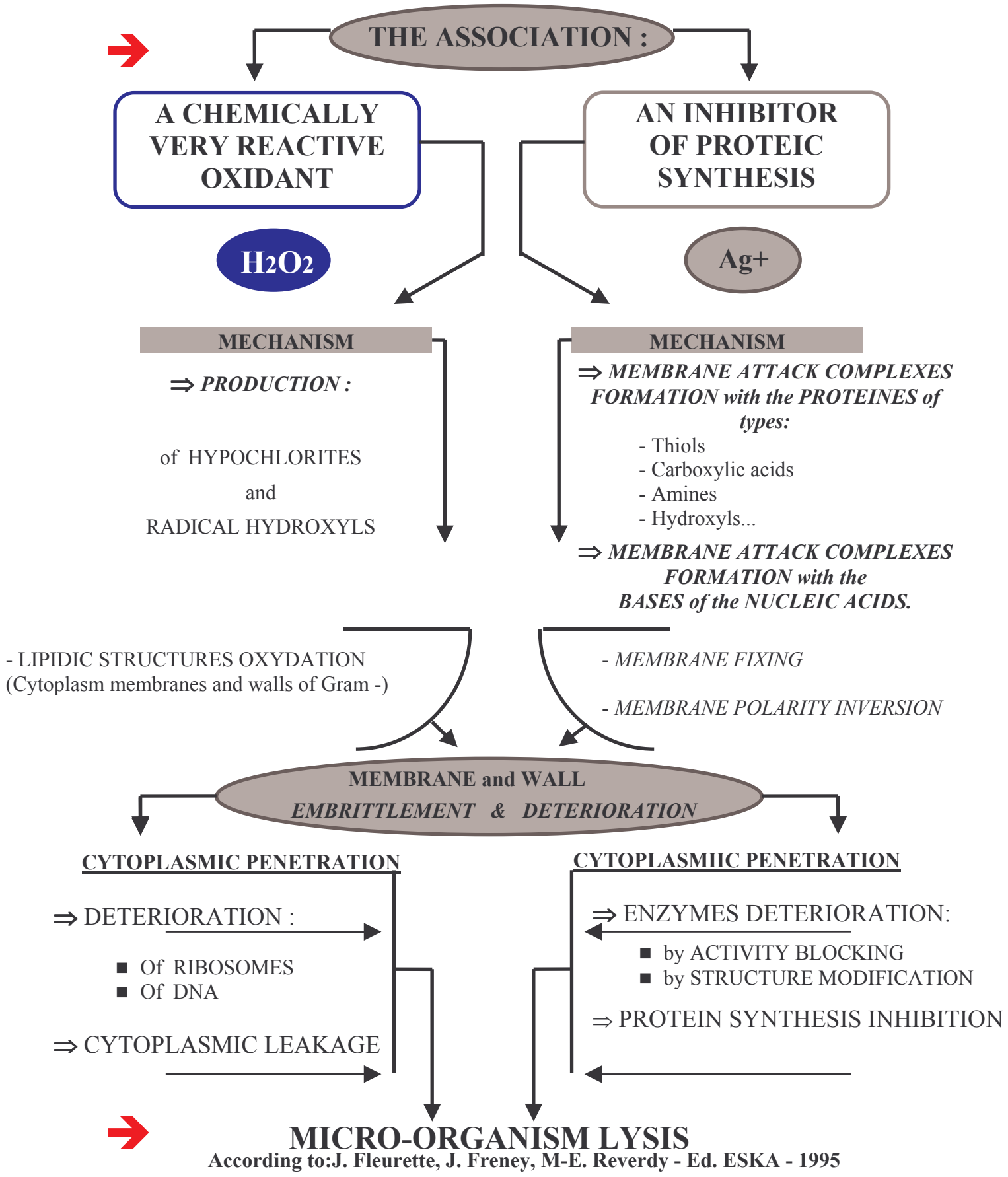
- An oxidation of the lipidic structures of the membrane.
- A production of hypochlorites and radical hydroxyls.
- A deterioration of ribosomes and DNA per cytoplasmic penetration.

2) ***Cationic*** *action of* Ag+, involving:

- A membrane polarity inversion with embrittlement.
- A formation of membrane attack complexes with the membrane proteins.
- A deterioration of the cytoplasmic protein enzymes.

These two combined and synergistic actions lead to the micro-organism lysis.

The action mechanisms are detailed in the following schematic:



According to:J. Fleurette, J. Freney, M-E. Reverdy - Ed. ESKA - 1995

4 Toxicity:

No toxic vapour according to results' of the studies as described below:

- Results of the study on the acute toxicity of the product by inhalation (4 hours) on rats / R.C.C – Research & Consulting Company Ltd – Carouge –Switzerland – 1987 – Dr D.M. Nerstein & Dr O. Vogel: “No death of rats during direct exposure by steam inhalator of 59 mg/l-vapour”. **(STERUSIL® contains only 0.006 mg/l of hydrogen peroxide)**.

- Results of the studies run by ATOFINA, hydrogen peroxide manufacturer: “No mortality in rats after exposure for 4 hours in a room to 170 mg/m^3 of hydrogen peroxide (maximum concentration technically possible in a steamed room)”. **(STERUSIL® contains only 6 mg/ m^3 of hydrogen peroxide)**

- This product is not classified as carcinogenic by the International Agency for Research on Cancer (I.A.R.C).

- According to the Ames test, Yamaguchi and Yamashita studies in 1980, this product is not mutagenic.

Refer to the safety data sheet for emergency actions.

- **Do not ingest or inject: Danger**
- **Irritation to the eyes, skin and respiratory tracts with prolonged exposure.**
- **STERUSIL® is a bio-degradable product**

5 Compatibility / Corrosion:

At ambient temperature, when following the operating instructions, STERUSIL® is compatible with the following materials:

Elastomers:

- Natural rubber
- Chloroprene rubber (neoprene)
- Chlorosulphonated polyethylene (hypalon®)
- Ethylene-propylene rubber
- Endoscope tubes
- Viton type rubber
- Butyl rubber
- Nitrile rubber
- Silicone

Plastics:

- ABS
- Nylon
- PVC
- P.E.H.D – P.E.L.D
- P.V.D.F
- P.M.M.A
- P.T.F.E – TEFLON
- Polysulphone
- Polystyrene crystal
- Polypropylene
- Polyurethane
- Polycarbonate
- Polybutylene-1
- Acetal

Metals:

- Stainless steel 316
- Stainless steel 304
- Steel Ni-Cr, 1.43301, 1.4401, 1.4571
- Anodized aluminium
- Aluminium 6262
- Aluminium 2011

Non metal:

- Carbon
- Glass
- Leather
- Wood
- Cardboard
- Paper
- Fitted carpet
- Painting: Glycerophthalic lacquer (vanilla & blue-marine)
  Painting acrylic (blue-cobalt)
  Lacquer (Madras & wallflower-colour)
  Painting alkydeuréthane (blue of Brittany)

6 STERUSIL® storage:

- STERUSIL® products must be stored in their original containers and packaging.
- Do not open the cartridges and do not tamper with or alter the solution.
- Store STERUSIL® products vertically and at a temperature ranging between 5°C and 40°C.
- In accidental flow case of STERUSIL® product, handle the product while wearing rubber gloves and safety goggles.

Under normal storage conditions (recommended above by Gloster Sante Europe®) STERUSIL® is stable with a shelflife of 1 year according to standard NF T 20 555 (Determined by the rate of decomposition after 16 hours at 96°C).