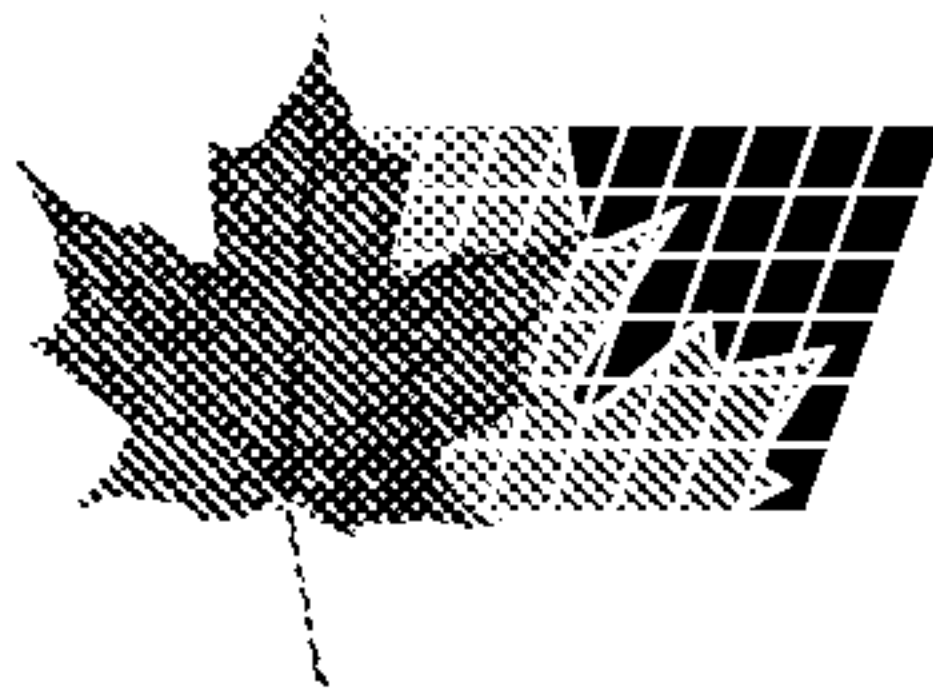




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(54) **METHODE POUR LAVER ET DESINFECTER LES LENTILLES
CORNEENNES**

(54) **PROCEDURE FOR DISINFECTING AND CLEANING CONTACT
LENSES**

(57) The present invention relates to a procedure for cleaning and disinfecting contact lenses. This procedure is essentially characterized by the fact that it consists in submerging said lenses in a container together with a hydrogen peroxide and a tablet or other galenical form, producing from the beginning peroxide controlled unstabilization, in order to obtain its activation due to oxygen lability increase in the whole solution mass, with consequent increase of its germicide and cleaning effects, producing hydrogen peroxide degradation down to a level allowing the solution to be compatible with the eye.

ABSTRACT OF THE DISCLOSURE:

The present invention relates to a procedure for cleaning and disinfecting contact lenses. This procedure is essentially characterized by the fact that it consists in submerging said lenses in a container together with a hydrogen peroxide and a tablet or **other galenical** form, producing from the beginning peroxide controlled unstabilization, in order to obtain its activation due to oxygen lability increase in the whole solution mass, with consequent increase of its germicide and cleaning effects, producing hydrogen peroxide degradation down to a level allowing the solution to be compatible with the eye.

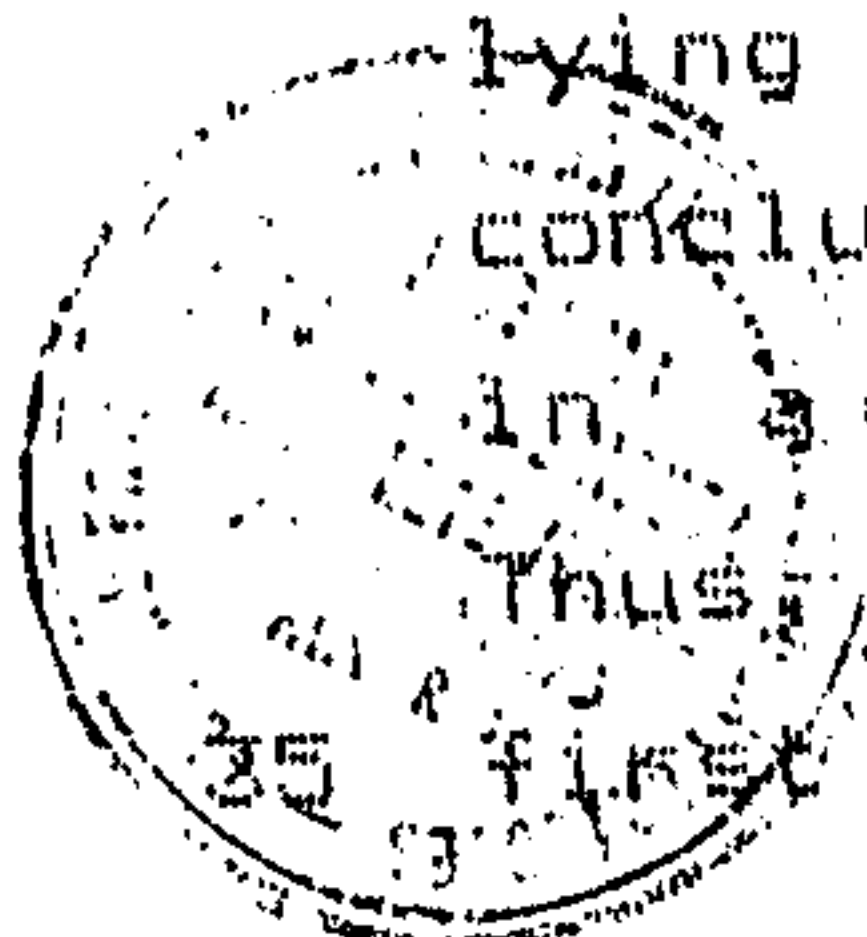
PROCEDURE FOR DISINFECTING AND CLEANINGCONTACT LENSESSPECIFICATION5 SUBJECT OF INVENTION

This present invention refers to a procedure for disinfecting and cleaning contact lenses, consisting in introducing them in a container together with an aqueous hydrogen peroxide solution and a destabilizer
10 medium therefor made ready in such way that enables it to cause controlled peroxide destabilization from the first instance and to potentiate its oxidating action in order to gain a more efficient lens disinfection and cleaning. And that, as a final process outcome, it
15 reaches a hydrogen peroxide degradation down to levels allowing that the transformed solution be compatible with the eye and maintain the contact lens parameters.

BACKGROUND OF INVENTION

Contact lenses in continuous use build up a series of
20 fatty, proteinic or other kinds of deposits which act as substrates allowing environmental microorganisms being dangerous for the lens itself, and which may even be dangerous for the eye, deposit on them. Due to this, several means for disinfecting them have been
25 devised, the most outstanding among them being those based on using oxygenated water which shows a high disinfecting power without damaging the lens morphology and leaving no noxious traces once it has been eliminated.

30 Using oxygenated water, however, poses a problem just lying on its necessary elimination once it has concluded its task, since any trace of this substance in a lens may cause serious irritations on the eye. Thus, the most conventional procedure consists in
35 first disinfecting the lens with the oxygenated water



contained in an adequate container and, once it has been disinfected, to obtain in a second operation the oxygenated water neutralization by any known means (chemical compositions, catalytics, rinsing with saline water, etc.) in such a way that peroxide concentration in the solution may be reduced down to level not being damaging for eye.

Obviously, this two-phase method has the drawback of being slow and it even implies running the risk on the user's part that he/she oversees adequately completing the
10 process.

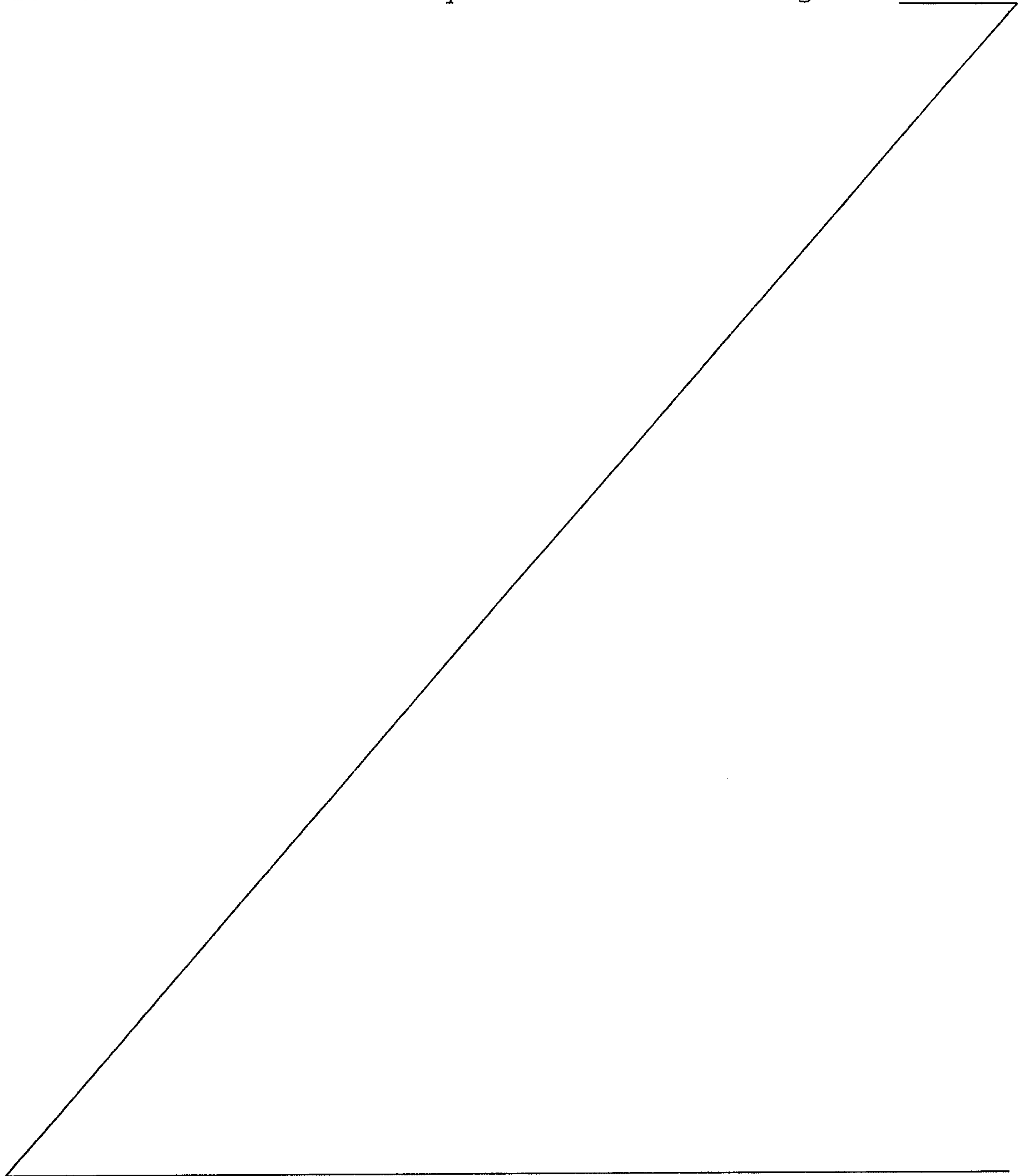
In order to solve this inconvenience, other methods have been further proposed. For example disinfection and neutralization process are performed in one only phase. That is by introducing the lens in a container simultaneously holding oxygenated water and all products required to neutralize it. This will form at the same time an appropriate lens maintenance solution. Also used are methods to delay the neutralizing action by placing layers on the lens which are appropriate substances which will
20 eventually dissolve after some time delay, or other galenical preparation forms as described under Ciba-Geigy AG's U.S. patent no. 5,011,661. Some of these prior art form are very difficult to prepare.

This prior art method, contrary to the present invention, does not seek to increase the hydrogen peroxide oxidative effect, but that by delaying for some previously set time the starting of the neutralizer action, allows lenses to get in contact with peroxide at its maximum although stabilized concentration. It is after the above mentioned

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previously set time when the total neutralizer is released in a fast manner thus destroying hydrogen peroxide in order that lens causes no troubles to eye.

It is obvious that the only reason for including a



neutralizer herein is to destroy hydrogen peroxide, seeking for no other effect.

Other methods for one-phase performance resource as well to neutralize oxygenated water by means of heavy metals catalysts, such as platinum which performs a slow neutralization and, besides, it becomes lower the lesser is peroxide concentration.

To this system belongs the method protected by Gaglia's U.S.A. patent 3912451 of 10-14-75.

10 This method clearly differs from the one being preconized herein and seeks for different effects. According with it, contact lenses are submerged in normally stabilized oxygenated water in order to have them desinfected through its standard action.

15 Simultaneously, or some time thereafter, a support holding a metal type catalyst is submerged in the solution in order that it starts destroying oxygenated water by releasing oxygen, thus obtaining peroxide concentrations in the solution which are unable to affect the eye comfort once contact lens has been inserted in it.

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25 There is no oxygenated water activation in this system. On the contrary, oxygen is only released at the metal catalyst surface, forming no complex at all, and this growing oxygen is recombined to form an O molecule whose oxidative power is very low. Therefore, peroxide solution is not being selectively activated (as it happens in the patent being presented herein) in this method, but it is being disactivated. We may see, then, that no other effect is sought for than eliminating oxygenated water from contact lens after disinfecting it, and that this elimination is obtained by means of a metal catalyst.

35 Other single phase methods might exist which by using physical hindrances for releasing the neutralizer

would delay oxygen water degradation, but up to this time it has always been thought of obtaining that peroxide concentration, stabilized always, be enough during the time lapse required for it to perform its disinfectation action.

Method being shown here aims for a different purpose. It is tried to improve hydrogen peroxide qualities in order that, when activating it, its action be faster and more efficient.

SUMMARY OF THE INVENTION

10 The present invention provides a process for cleaning and disinfecting a contact lens, comprising:

- submerging a contact lens in a container containing an aqueous solution of hydrogen peroxide and a tablet;
- producing from the beginning a controlled destabilizing of the hydrogen peroxide using a destabilizer contained in the tablet in order to obtain an activation of the hydrogen peroxide due to increase oxygen lability and mobility throughout the whole solution, with consequent increase of its germicide and cleaning effects, said destabilizer

20 comprising an enzyme catalyst and a buffer; and

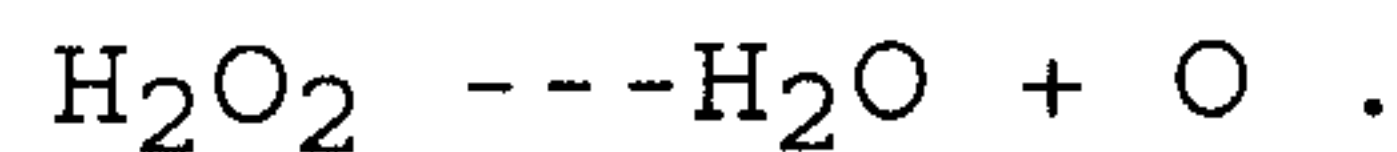
- reducing by degradation of the hydrogen peroxide a concentration of hydrogen peroxide down to a level allowing the solution to be compatible with the eye.

The similar pharmaceutical form is selected from the group consisting of a pill, a capsule and other galenical form.

The present invention also provides a process for cleaning and disinfecting a contact lens comprising:

- submerging the lens in a container containing a hydrogen peroxide solution and a tablet containing an alkalising agents, acidic agent and an enzyme catalyst;
 - increasing from the beginning, the pH of the peroxide solution to highly alkaline values through the initial dissolution of a portion of the tablet which contains the alkalising agents; and
 - through the tablet dissolution process continuing with a release of the acidic agents and the enzyme catalyst,
- 10 progressively neutralising the solution and decomposing the hydrogen peroxide down to a level allowing the final solution to be compatible with the eye.

Hydrogen peroxide disinfecting action is based on oxidation taking place on the microorganism membranes until it destroys them. This oxidation is performed by generating oxygen as a result of peroxide decomposition:

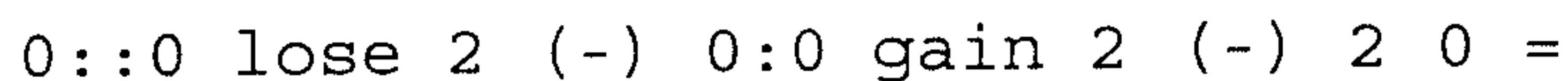


Hydrogen peroxide is formed of two hydrogen atoms and two oxygen atoms. These atoms are linked through covalent bonds sharing one pair of electrons between hydrogen oxygen atoms and, due to the water molecule configuration and the closer electrons proximity to the oxygen nucleus, hydrogen becomes oxidated in a way and partially loses its electron, which is gained by oxygen. We may consider, therefore, that H_2O_2 molecule is ionized, constituted by an O_2 anion and two H^+ cations. Metal peroxides reactions, such as Na_2O_2 and BaO_2 , with strong acids such as hydrochloric and sulphuric,

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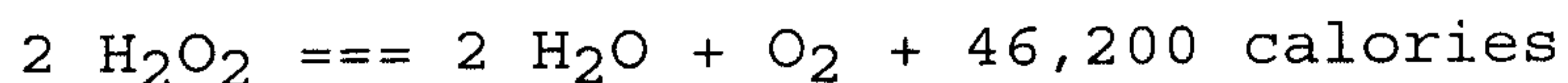
demonstrate that the O_2 group (peroxide ion) may actually exist under ion quality.

Hydrogen peroxide may act as oxidant or reducer due to the fact that peroxide ion holds an intermediate place, so to say, among free molecular oxygen and oxide oxygen. The said ion may lose two electrons and become oxidated under free oxygen, or either gain them and become reduced to two oxide oxygens.



10	oxygen molecule (AS REDUCER)	peroxide ion (AS OXIDANT)	oxide ion
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Due to this double oxide-reducer character it happens that an H_2O_2 molecule may act as oxidant on other similar molecule which would act as reducer, thus producing water and free oxygen.



Since molecules tend to place themselves at the lowest energy levels and this being an exothermal reaction, there is a tendency in this reaction to move right-hand wise and
 20 for water hydrogen peroxide and molecular oxygen to decompose.

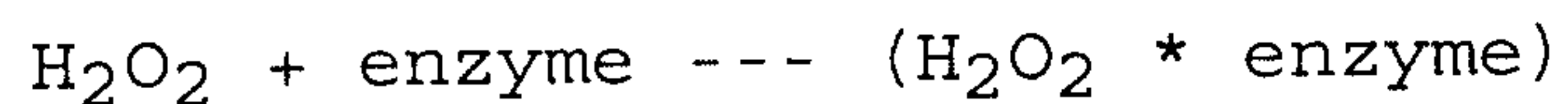
While this reaction takes place spontaneously in a slow manner, since it is affected by factors accelerating it such as light action, alkalies, dust particles, etc.,

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marketed hydrogen peroxide solutions are usually stabilized with adequate additives and in an acid medium.

These stabilized solutions are those used for disinfecting. Although they have a remarkable germicide power, their oxidative reaction in an acid medium is very low. Therefore, should we have available a method in which, starting from a stabilized solution, we may obtain a given unstabilized level at time of using it, we should obtain an "activated" peroxide having much higher oxidating power.

- 10 Should we introduce a small catalytic enzyme volume, for instance catalase, a complex is formed between oxygenated water and the enzyme,



In this complex, oxygen lability linked with water is maximum, in such a way that should the solution have come unstabilizing factor: proteins, container physical irregularities, particles, etc., these factors will suffice for the complex to split up and to free "in situ" growing oxygen

- 20 $(\text{H}_2\text{O}_2 * \text{enzyme}) + \text{factor} \text{ --- } \text{H}_2\text{O} + \text{enzyme} + \text{factor} - \text{O}$

It is thus obtained a solution in which the complex, which may act at any point, is dissolved throughout its full mass.

It may happen, as well, the following reaction:

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$(\text{H}_2\text{O}_2 * \text{enzyme}) + (\text{H}_2\text{O}_2 * \text{enzyme}) \text{ --- } 2 \text{ H}_2\text{O} + \text{O}_2 + 2$
enzyme

and all of it where activations factors lie. This will help us to visually check that it is on those points where oxygen is released that the highest oxidating action is taking place.

This may be physically seen in a clearly demonstrative manner, by comparison, preparing two oxygenated water solutions. First one (A) is an oxygenated water solution,
10 3% for instance, stabilized with 0,1% disodium EDTA, for example. The second (B) is the same (A) solution to which it has been added enough enzyme volume, for instance 400 U.K. catalase, to obtain the necessary unstabilizing and relevant complex forming.

Should we submerge in both solutions a glass strip on which some protein (for instance, egg denaturated albumin set with heat) has been place, we may note that while on that submerged in the A solution container no apparent phenomena take place, in the strip submerged in B solution, oxygen
20 bubbles start forming immediately, above all on the surface wherein protein has been placed.

This is due to the immediate growing oxygen attack as it is being released from the complex $(\text{H}_2\text{O}_2 * \text{enzyme})$ in the presence of protein in B solution. While in A solution, where no complex has been formed, the mere presence of protein is unable, at reasonably long _____

term, to produce oxygen release.

It is known that one of the products helping to decompose oxygenated water is protein, thus the higher easiness with which this time it is attacked by oxygen released by peroxide decomposition and, therefore, since proteins form a part of the microorganisms' walls and other cellular structures thereof, these are destroyed in the presence of oxygenated water.

One more demonstration of the activation taking place in peroxide when it is unstabilized is the fast destruction of bacteria having catalase in this medium. That is due, as we have pointed out above, to the immediate formation of growing oxygen taking place in these bacteria.

We should think that the lethal power of an "activated" hydrogen peroxide upon these microorganisms should be higher than that of a normally stabilized one. To ascertain it, we have chosen as test bench the action of both A and B solutions on a resistant microorganism in order to have a demonstrative test. We chose *Candida utilis* yeast with an implant of 2×10^5 microorganisms per ml of solution. Outcome is widely clarifying:

<u>Viable survivance</u>		
<u>Time</u>	<u>A solution</u>	<u>B solution</u>
0	2×10^5	2×10^5
2 min	9.5×10^4	4×10^4
5 min	3×10^4	7×10^3
15 min	1.8×10^3	4×10^2

D (time required to lower viable concentration in one logarithmic unit) is 4.9 minutes for A solution and 1.8 minutes for B solution.

It is clear that activated hydrogen peroxide has its germicide power increased and, as it may be seen in the table, its power during the acting times is 2.5

through 4.5 times higher.

"Activated" peroxide we are presenting in this invention has its germicide power increased as well; it is, besides, much more efficient for destroying dirt deposits built up on contact lenses surface. This is logical since activated peroxide oxygen solution selectively releases growing oxygen, in an immediate manner, in those dirty places, which is where the complex (H_2O_2 * enzyme) is destroyed. In this way, a high oxidative action takes place exactly on
10 the spot it is required, and it consequently destroys the dirt deposit structure, which is easily dissolved within the surrounding solution, just helped by the drawing circulation taking place at oxygen release.

The following test has been performed:

100 glass strips measuring approximately 60 x 10 mm were submerged in an 0,2% egg white albumin solution bath for 15 minutes. Once this time has elapsed, strips are moved to a dry heat stove at 140°C leaving them there for 30 minutes to set protein through heat. Protein coating formation was
20 evaluated by selecting 24 homogeneous strips.

Four of them were submerged in a saline solution (Fisiozor[†] of Laboratorios Avizor). Ten of them were submerged in a solution A (3% hydrogen peroxide solution stabilized with 0.1% disodium EDTA). The remaining ten strips were submerged in a solution B (solution A with the addition of 400 U.K. catalase as unstabilizer).

† Trademark

Strips were taken off half an hour later, rinsed with saline solution and their cleanliness status was evaluated.

All ten samples treated with A solution showed a cleanliness status higher than that of the four blank samples. Protein coating remained in both cases on 100 % of their surface.

Protein coating had disappeared from samples treated with B solution in a range between 70% and 85%.

10 Having available a hydrogen peroxide activated by oxygen lability implies a long step forward in contact lenses maintenance, since as lense caretaking operations are performed in relatively short periods of time, highly efficient products are required. Although stabilized peroxide has a noteworthy germicide power in short times, its acting on dirt deposits on the lense surface in the time lapses during which these maintenances are performed with present systems is practically nil.

20 On the contrary, with the system we are preconizing, besides increasing germicide power, its action on dirt is enormously potentiated and this time, with activated peroxide, it does clean a lens within the short time span granted for the system.

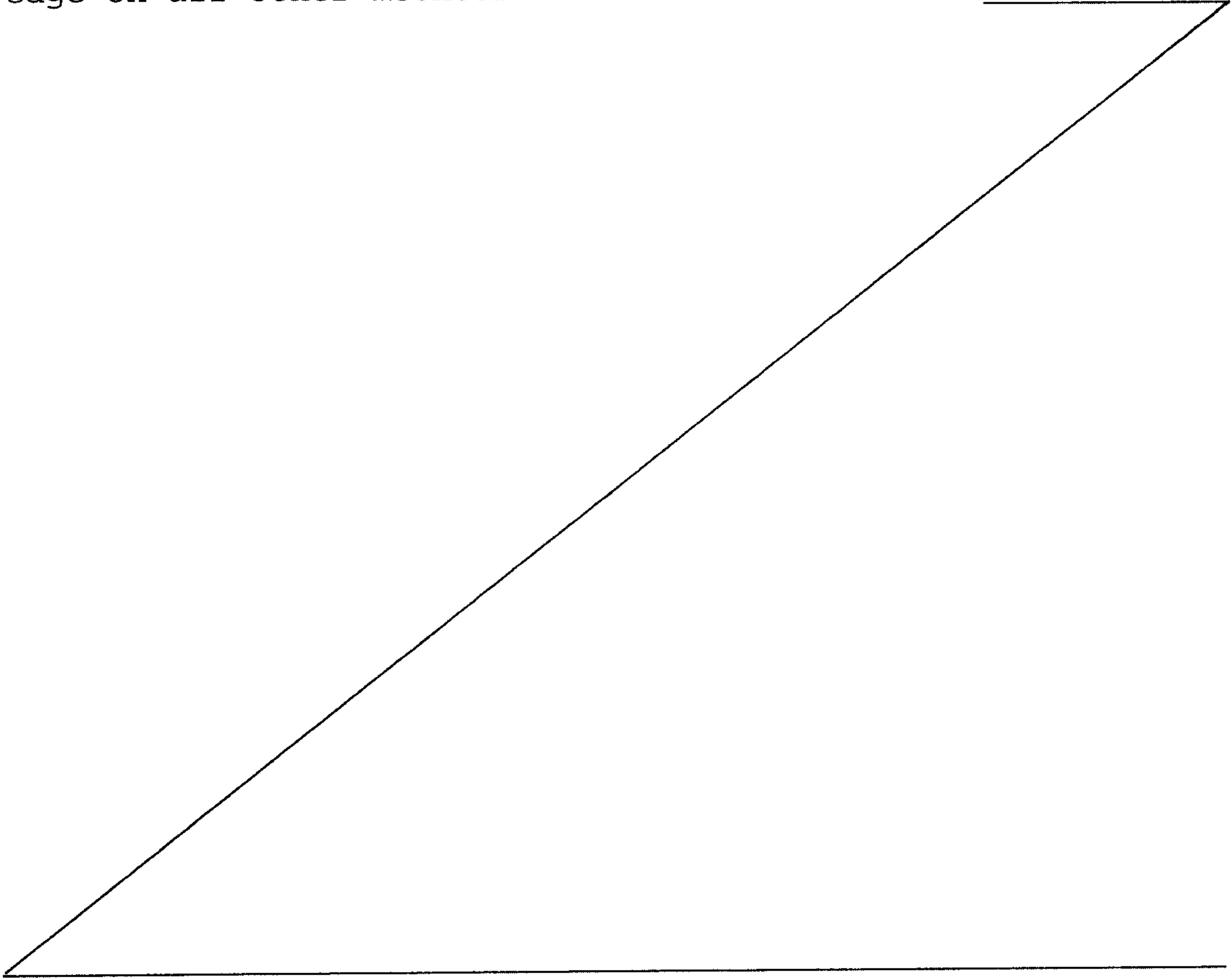
With this system we are clearly in advantage on those existing at the marketplace, since it has, on those requiring two phases, the advantages regarding use comfort we have discussed above besides avoiding dangerous mistakes. In regard with those comprising one only phase,

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its advantage lies on performance time, safer neutralization and lower cost.

As regards other single-phase systems which could be marketed, it keeps all inherent goodnesses thereto we have already discussed. Besides, this system will allow lenses to be free of any chemical preservative. Resulting solution is free of them and they are not required since by performing this method germs are eliminated and, since it is performed in a closed container, lenses remain aseptic
10 as long as we like, providing the container is not opened.

However, in any case, where this method has its leading edge on all other methods resides on the fact



that it uses activated peroxide, which destroys germs much faster and, since it has labile oxygen available throughout the full process, it is able to fully obliterate microorganisms.

5 Where other peroxide systems reach scarcely significant cleaning levels, this one arrives at levels being high enough to usually make unnecessary to use other cleaning products to keep lenses at an optimum wearing preservation status.

10 System we are proposing and which may clean, disinfect and preserve contact lenses, consists in submerging them in a container wherein a H_2O_2 having enough concentration, for instance between 0.5 % and 6 %, has been poured. It may reach aseptical action levels

15 within short time lapses, preferably 10-15 minutes, with 3 % peroxide concentrations. Also from the beginning, there is a peroxidase type catalytic enzyme, catalase for instance, introduced in solid form (granules, tablets, etc.) or in liquid form in

20 the solution, disposed in such a way as to be continuously, although slowly, released so that complex (H_2O_2 * enzyme) forming takes place in the solution to give rise to peroxide activation. It does not matter for how long lenses are submerged in the
25 solution while process is taking place, although it is advisable that it should last, due to user's comfort reasons, between half an hour and two hours.

Continuous enzyme release may be graduated in order that within the time period selected an oxygen volume
30 be released so that residual hydrogen peroxide concentration be lower than 50 ppm, for instance, a limit within which hydrogen peroxide causes no irritation on eye, although even full peroxide degradation may be reached at.

35 We may, thus, see that our procedure consists in

submerging contact lenses in a hydrogen peroxide solution having adequate concentration, according with time lapse selected for asepticizing the lens, and that this peroxide be activated by unstabilization produced by gradual release, from the beginning, of a catalyst, and that throughout the time lapse selected, catalyst release be able to reduce hydrogen peroxide residual levels below the limits which could cause discomfort when contacting solution with eye.

- 10 Releasing catalyst in a controlled manner from the beginning may be performed in many ways.

As examples, without these implying any limitation whatsoever, it may be made a tablet or bead carrying, together with the catalyst enzyme, other products to obtain a resulting solution having appropriate pH and osmose qualities to maintain the lenses parameters. These products may form buffers, such as boric acid and its salts, phosphates, etc. It may be used, as well, alkaline chlorides, disodium EDTA and other products.

- 20 Tablet or granule should be made in such a way as to have a catalyst concentration gradient being lower on its surface and higher in its nucleus. To obtain it, may be made tablets having several strata, or nucleated ones, or either tablets having its catalyst held on its outer stratum by slowly soluble products such as polyvinylpirolydones, polyacrylic acid, cellulose by-products, etc., and that its nucleus has its catalyst held by higher soluble products.

Or either that the tablet, after having been made, be subject to operations aiming to decrease the enzyme activity in a selective manner such as, for instance, with dry or wet heat or with products partially disactivating the catalyst, such as short chain alcohols.

It may also be made a tablet maintaining an acid pH on its surface which will make that its outer coating enzyme be partially destroyed, thus delaying the tablet dissolution. A tablet of this kind may be made by forming a nucleus
10 wherein the enzyme is mixed with the coadjuvants maintaining the pH and the osmotic pressure, and covering the nucleus with innocuous acids such as tartar or adipic.

Also a tablet not having a gradual action, but a phased one, may be made. To this end, a tablet, or any other galenical form, is made with three concentric strata. The outermost one holds an enzyme volume sufficient to obtain the formation of the complex activating peroxide. Middle stratum is neutral, with no enzyme, and will take for dissolving the time lapse chosen to make the complex act.
20 Once this stratum is dissolved, it will get in contact with the innermost one, which carries the required catalyst to simultaneously continue forming the active complex and degrading peroxide up to level not being bothersome for the eye.

To make this tablet may be used, as outer stratum, a mixture of above mentioned products to obtain a correct final pH, or either soluble coatings integrating the catalyst.

Middle stratum may be formed out with products to cover the nucleus, which may be difficult solving materials such as acrylic polymers, polyethylglycols, cellulose by-products, polyvinylpyrrolidones, etc., or small crystallizing molecule products coating as well, such as solid chloride or boric acid and its salts, etc.

Also a nucleated tablet may be made without resorting to coatings.

There are, besides, forms for partially unstabilizing
10 hydrogen peroxide in order to obtain a higher activity thereof. Thus it becomes unstabilized when the solution pH is increased up to basic values, preferably above 10. This happens due to the same chemical-physical reason that in case of forming the complex (H_2O_2 * enzyme). That is, because activation energy required for decomposing peroxide decreases. Therefore, those substances which under standard conditions would take long in decomposing it, would do it now, thus giving rise to local oxidative phenomena which perform above described effects. We may thus see that by
20 increasing pH to high basic values oxygen labilization is obtained and this may act with a higher oxidative power throughout the full disinfection process.

This system could be made, for instance, by placing lenses within a container together with the hydrogen peroxide solution and a tablet having two concentric strata. It would have inside a peroxide neutralizer together with, besides other coadjuvant products, the buffer acid part. Its outer area would carry at least the buffer basic part. Both strata may either be separate or not through a slow

solubility coating in order to delay acting of the peroxide neutralizer down to required levels.

This system has a much higher germicide and cleaning power than that of other systems based on delayed tablets which only seek for further neutralizer acting.

We have mentioned here some performance forms for this method, being more those which may be performed and the fact of not mentioning it meaning no limitation whatsoever.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

10 The procedure to disinfect and clean contact lenses is fundamentally carried out by means of two substances. On one side, a hydrogen peroxide solution, preferably at 0,3% to 3% weight, and, on the other, a catalyst being capable to form an active complex with peroxide, preferably catalase. It has been previewed that this catalyst will be prepared in a tablet, capsule or any other galenical form, either as only component thereof or together with other complementary substances to complete the lens maintenance process.

20 As such, the disinfecting and cleaning procedure consists in submerging the lenses in a container having, at the same time, a hydrogen peroxide solution and a tablet having the enzymatic catalyst placed in a special manner allowing to successively release it, thus activating the peroxide and have it act disinfecting and cleaning the lens. When the tablet has fully dissolved, the volume of enzymatic catalyst released will be such that it may degrade, during

the established time lapse, the whole peroxide present in the solution, which will have been transformed due to the addition of the other components in a regulated pH and osmolality solution similar to tears, which will maintain the lens parameters and will be compatible with the eye. Besides, user may keep the lens stored in its closed container for as long as he/she likes.

Process has been disposed to end within the term of half an hour to two hours, although different time lapses may be
10 chosen.

For performing this method a tablet may be preferably made having a nucleus and a coating. The nucleus would carry the catalasa, being sufficient to determine the peroxide degradation and it may carry as well a part of the other raw materials used for obtaining the pH and osmolality sought for. These raw materials may be boric acid and sodium tetraborate, monosodium and disodium phosphates, sodium chloride, potassium chloride, disodium EDTA and other excipients.

20 Coating would carry enough catalase volume to unstabilize peroxide and form an active complex, and it may also carry in its composition matters like those it carries in its nucleus, such as sodium chloride and boric acid, and it may carry, as well, other components making its solubility slower, such as polymers of the polyvinylpyrrolidone, polyacrylic acid, polyethyleneglycol, etc., types.

The nucleus may also be coated with a film able to delay its action, or otherwise.

It is not considered necessary to make this description any longer for any expert in this matter to understand the invention scope and the advantages obtained therefrom.

Terms under which this specification has been described should be taken at all times in their amplest non limitative sense.

WHAT IS CLAIMED IS:

1. A process for cleaning and disinfecting a contact lens, comprising:
 - submerging a contact lens in a container containing an aqueous solution of hydrogen peroxide and a tablet;
 - producing from the beginning a controlled destabilizing of the hydrogen peroxide using a destabilizer contained in the tablet in order to obtain an activation of the hydrogen peroxide due to increase oxygen lability and mobility throughout the whole solution, with consequent increase of its germicide and cleaning effects, said destabilizer comprising an enzyme catalyst and a buffer; and
 - reducing by degradation of the hydrogen peroxide a concentration of hydrogen peroxide down to a level allowing the solution to be compatible with the eye.
2. A process for cleaning and disinfecting a contact lens according to claim 1, wherein the enzyme catalyst is catalase.
- 20 3. A process for cleaning and disinfecting a controlled contact lens according to claim 1, wherein time for said controlled destabilizing constitutes a full lens disinfecting time or a major part of it.
4. A process for cleaning and disinfecting a contact lens according to claim 1, wherein the enzyme catalyst is distributed uniformly into the tablet.

5. A process for cleaning and disinfecting a contact lens according to claim 1, wherein at the end of the cleaning and disinfecting process, the solution pH is a near-neutral pH.

6. A process for cleaning and disinfecting a contact lens according to claim 5, wherein at the end of the cleaning and disinfecting process, the solution pH ranges from 6,5 to 7,5.

7. A process for cleaning and disinfecting a contact lens
10 comprising:

- submerging the lens in a container containing a hydrogen peroxide solution and a tablet containing an alkalising agent, an acidic agent and an enzyme catalyst;
- increasing from the beginning, the pH of the peroxide solution to highly alkaline values through the initial dissolution of a portion of the tablet which contains the alkalising agent; and
- through the tablet dissolution process continuing with a release of the acidic agent and the enzyme catalyst,
20 progressively neutralising the solution and decomposing the hydrogen peroxide down to a level allowing the final solution to be compatible with the eye.

8. A process for cleaning and disinfecting a contact lens according to claim 7, wherein the enzyme catalyst is catalase.

9. A process for cleaning and disinfecting a contact lens according to claim 7, wherein the portion of the tablet

which contains the alkalising agent, also contains catalase.

10. A process for cleaning and disinfecting a contact lens according to claim 7, wherein the acidic and alkalising agents contained in the tablet consist of a buffer which, at the end of the disinfecting process, makes the pH of the solution near-neutral.

11. A process for cleaning and disinfecting a contact lens according to claim 10, wherein the acidic and alkalising agents contained in the tablet consist of a buffer which, at the of the disinfecting process, makes the pH of the solution between 6,5 and 7,5.

12. A process for cleaning and disinfecting a contact lens according to claim 1, wherein the buffer contains borax and boric acid.

13. A process for cleaning and disinfecting a contact lens according to claims 6 or 10, wherein the tablet comprises a buffer containing borax and boric acid.

14. A process for cleaning and disinfecting a contact lens according to claims 1, 2, 3, 4, 7 or 8, wherein the enzyme catalyst contained in the tablet is in a quantity sufficient to decompose the hydrogen peroxide in the solution into oxygen and water to levels compatible with the eye.

15. A process for cleaning and disinfecting a contact lens according to claims 1 or 7, wherein the total duration of the process of lens cleaning and disinfection, which is

from the beginning until the decomposition of the hydrogen peroxide down to levels compatible with the eye, is between half-an-hour and two hours.

16. A process for cleaning and disinfecting a contact lens according to claims 1, 7, 14 or 15, wherein the residual level of hydrogen peroxide at the end of the process is not over 50 ppm.

17. A process for cleaning and disinfecting a contact lens according to claims 1 or 7, wherein the tablet components
10 cause the solution to have a tonicity similar to that of tears.

18. A process for cleaning and disinfecting a contact lens according to claim 17, wherein the tonicity is between 200 and 350 milliosmoles/kg.