



(11) **EP 1 409 632 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
18.07.2007 Bulletin 2007/29

(51) Int Cl.:
C11D 7/18 (2006.01) C11D 7/54 (2006.01)

(21) Application number: **01961943.6**

(86) International application number:
PCT/US2001/024775

(22) Date of filing: **03.08.2001**

(87) International publication number:
WO 2002/012428 (14.02.2002 Gazette 2002/07)

(54) **METHOD OF MAKING A COMPOSITION, A PRODUCT FROM SUCH METHOD, AND THE USE THEREOF IN REMOVING OR DISSOLVING A CONTAMINANT FROM AN ENVIRONMENT**

VERFAHREN ZUR HERSTELLUNG EINER ZUSAMMENSETZUNG SOWIE DIESE
ZUSAMMENSETZUNG, ALS AUCH DIE VERWENDUNG DIESER ZUR ENTFERNUNG ODER
AUFLÖSUNG EINER VERUNREINIGUNG AUS EINER UMGEBUNG

PROCEDE D'ELABORATION D'UNE COMPOSITION, PRODUIT DE CE PROCEDE, ET
UTILISATION CORRESPONDANTE DANS L'ELIMINATION OU LA DISSOLUTION D'UN
CONTAMINANT PROVENANT D'UN ENVIRONNEMENT

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**

(30) Priority: **04.08.2000 US 223064 P**

(43) Date of publication of application:
21.04.2004 Bulletin 2004/17

(60) Divisional application:
06025103.0

(73) Proprietor: **McClung, James E.**
Cedar Hill, TX 75104 (US)

(72) Inventor: **McClung, James E.**
Cedar Hill, TX 75104 (US)

(74) Representative: **Hall, Robert Leonard et al**
Harrison Goddard Foote
Fountain Precinct
Balm Green
Sheffield S1 2JA (GB)

(56) References cited:
EP-A- 0 659 876 EP-B- 0 540 515
DE-A- 4 026 806 US-A- 2 720 441
US-A- 4 609 475 US-A- 5 567 444
US-A- 5 674 538 US-A- 5 759 975
US-A- 5 958 984 US-A- 5 961 736

- **KIRK OTHMER: "ENCYCLOPEDIA OF CHEMICAL TECHNOLOGY 4.TH ED VOL.18" 1996, WILEY INTERSCIENCE , NEW YORK * page 268 - page 272 ***

Remarks:

The file contains technical information submitted after
the application was filed and not included in this
specification

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 1 409 632 B1

Description

BACKGROUND OF THE INVENTION

[0001] The invention relates to a method of making a composition and a product from such method wherein such composition is effective in reducing the concentration of a contaminant in an environment.

[0002] It is known that various processes used to produce printed materials such as printing processes and lithography processes utilize various machinery that contain several parts such as rollers, apparatus to contain and move fluids (such as hoses and trays), and other moving parts (such as gears and the like). Such machinery becomes contaminated with various contaminants, such as organic deposits, calcium deposits, bacteria, fungi, and additional residue created from the use of various organic-based inks and printing production fluids known in the art. Great difficulty is encountered in attempting to reduce the concentration of, preferably remove, such contaminants from the various parts of the machinery due, in part, to the difficulty in accessing the internal parts of such machinery.

[0003] In addition, when such contaminant residue is not removed on a consistent basis, it is known that such residue can accumulate and harden over time creating a residue which is difficult to remove and can cause undesirable chemical reactions to occur in the various processes. Processes used in the past to remove such residue have included mechanical removal that requires disassembling the machinery to access parts that contain such residue and then removing such residue by mechanical methods such as by hammering, chiseling, and the like. Such mechanical methods require significant downtime of the machinery and involve increased risk to the equipment and the personnel involved with removing such residue.

[0004] It is also known that various methods for removing such residue, other than mechanical methods, usually involve the use of fluids such as various solvents and surfactants. However, such solvents and surfactants do not completely remove such residue. Further, when such solvents and surfactants do not completely remove such residue, such residue begins to accumulate as discussed above. Thus, a composition and process of using such composition for removing contaminants from machinery such as printing and lithography equipment that does not require mechanical methods of removing such residue, provides for a substantially complete removal of such residue, and helps to prevent the accumulation of such residue, would be of significant contribution to the art and to the economy.

[0005] It is also known that various industrial processes used to produce goods utilize various systems, such as packaging systems, flexographic systems, food processing systems, bleaching systems, metallurgy systems, acid washing systems, veterinary product systems, pesticide systems, meat processing systems, poultry

processing systems, dairy processing systems, sanitizing systems, and the like and combinations thereof, which contain several parts such as gears, rollers, and the like. Such parts can become contaminated with various contaminants such as organic and calcium deposits, calcium and starch-based glues, and the like and combinations thereof. Various compositions known to reduce the concentration of, or remove, such contaminants utilize compositions which are difficult to dispose of due to environmental regulations and can present significant safety hazards. Thus, a composition, useful for removing such contaminants from such systems, which is non-toxic, easy to prepare, and capable of being disposed of without costly disposal procedures would also be of significant contribution to the art and to the economy.

[0006] It is also known that various industrial processes used to produce goods such as paper and pulp products utilize various water-containing systems. Such water-containing systems are also found in various printing systems, water treating systems, drainage systems, boiler systems, chiller systems, and the like. Use of such water-containing systems presents several problems relating to the fouling of such water-containing systems with various contaminants such as scale, algae, fungi, bacteria, surfactants, various organic compounds, and the like. The contaminants can foul such water-containing systems to such an extent that such water-containing systems require extensive cleaning to remove such contaminants, which results in a decrease in production of goods.

[0007] Various known compositions that can be used for reducing the concentration of, preferably removing or dissolving, such contaminants from such water-containing systems frequently utilize chlorine. However, use of such chlorine-based compositions present various environmental and safety hazards and further, disposal of such products produced using such chlorine-based compositions requires close environmental scrutiny and regulation. In addition, such chlorine-based compositions are frequently utilized in gaseous form which requires extensive safety and training procedures to be utilized. Thus, a composition, useful for removing or dissolving one or more contaminants from an environment that contains water-based systems, which is non-toxic, inexpensive, and easy to prepare and use would be of significant value to the art and to the economy.

[0008] In addition, compositions, useful in reducing the concentration of, preferably removing or dissolving, contaminants from an environment, which contain more than one component commonly require one of the components to be added to the environment first, followed by the addition of a second component. The two components must then react "in situ" to thereby provide a composition that can remove or dissolve the contaminants contained within the environment. Such compositions can be difficult to use due to the difficulty in determining how much of each component of the composition should be added. Thus, a composition useful in reducing the concentration of, preferably removing or dissolving, con-

taminants from an environment and that can be prepared "ex situ" in various concentrations, which can then be added to an environment to remove or dissolve contaminants would be of significant contribution to the art and to the economy.

[0009] In addition, a composition useful in reducing the concentration of, preferably removing or dissolving, contaminants from an environment which is prepared from easily accessible components and which can be prepared by a simple procedure utilizing a minimum of preparation apparatus would also be of significant contribution to the art and to the economy.

SUMMARY OF THE INVENTION

[0010] An object of the present invention is to provide a process for preparing a composition which is useful for reducing the concentration of, preferably removing or dissolving, one or more contaminants from an environment. Such process utilizes components which are inexpensive to use and easy to prepare. Another object of the present invention is to provide a process for preparing a composition which utilizes a simple and effective method which provides a composition having desirable properties such as enhanced capabilities for reducing the concentration of, preferably removing or dissolving, a contaminant from an environment when compared to a composition prepared by other methods.

[0011] A further object of the present invention is to provide an improved process of reducing the concentration of, preferably removing or dissolving, a contaminant from an environment.

[0012] In one aspect, the invention provides a process process of producing a composition from the following components:

a solution of hydrogen peroxide and water;
a solution of glycolic acid and water; and
low solids water comprising less than 10 ppm dissolved solids,
in which process the composition is produced by contacting said components, wherein said low solids water comprises less than 10 ppm dissolved solids and wherein water is present in an amount of at least 50 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water and in an amount at most 99.9 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water.

[0013] The invention also includes a composition prepared by the process of the preceding paragraph.

[0014] A novel composition of the present invention can be used for reducing the concentration of, preferably removing or dissolving, a wide variety of contaminants from a wide variety of environments. The invention accordingly provides also a process of removing or dissolving one or more contaminants from an environment com-

prising:

selecting a composition of hydrogen peroxide, glycolic acid, and water, wherein said water is present in an amount of least 50 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water and at most 99.9 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water wherein the weight ratio of said hydrogen peroxide to said glycolic acid is at least 1:1 and at most 30: 1, to provide a composition and contacting said contaminant with a concentration of said composition, wherein said concentration is effective in removing at least some of said one or more contaminants from said environment.

[0015] Such contaminants can include Groups II-VIII of the Periodic Table of the Elements, algae, fungi, bacteria, surfactants, natural gums, synthetic gums, organic compounds, paper fillers, paper filters, clays, sulfites, sulfates, oxides, adhesives, starches, and the like and combinations thereof. Such environments can include water-containing systems, paper producing systems, pulp producing systems, printing systems, packaging systems, flexographic systems, food processing systems, bleaching systems, metallurgy systems, acid washing systems, veterinary product systems, pesticide systems, meat processing systems, poultry processing systems, dairy processing systems, sanitizing systems, and the like and combinations thereof. Such water-containing systems can include swimming pools, water treating systems, drainage systems, boiler systems, chiller systems, sewage treating systems, irrigation systems, agriculture systems, cooling tower systems, and the like and combinations thereof.

[0016] Also included in the invention is a process of producing a composition from the following components:

a solution of hydrogen peroxide and water;
a solution of glycolic acid and water; and
low solids water comprising less than 10 ppm dissolved solids,

in which process the composition is produced by contacting said components, wherein said low solids water comprises less than 10 ppm dissolved solids and wherein water is present in an amount of at least 50 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water and in an amount at most 99.9 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water.

[0017] Embodiments of the present invention will become apparent from the detailed description of the invention and the appended claims.

DETAILED DESCRIPTION OF THE INVENTION

[0018] It has been discovered that the performance of

a composition when reducing the concentration of, preferably removing or dissolving, one or more contaminants from an environment can be improved by utilizing a novel process of preparing such composition which comprises contacting hydrogen peroxide, glycolic acid and water, as described above under the heading "Summary of the Invention". The hydrogen peroxide is generally present as a hydrogen peroxide solution comprising hydrogen peroxide and water. Such hydrogen peroxide solution generally comprises at least about 0.1 weight percent hydrogen peroxide in water and at most about 20 weight percent hydrogen peroxide in water, preferably at least about 0.5 weight percent hydrogen peroxide in water and at most about 15 weight percent hydrogen peroxide in water, and more preferably at least about 1 weight percent hydrogen peroxide in water and at most about 15 weight percent hydrogen peroxide in water. An example hydrogen peroxide solution which can be used in a process of the present invention can be prepared by adding a stabilizing amount of water to a commercially available 35 weight percent technical grade solution of hydrogen peroxide in water from FMC Corporation, Philadelphia, Pennsylvania, to thereby obtain a hydrogen peroxide solution suitable for use in a process of the present invention.

[0019] The water suitable for use in a process of the present invention is preferably, and in some aspects - as described already - is necessarily, a low solids water generally comprising less than about 10 parts per million (ppm) dissolved solids, preferably less than about 5 ppm dissolved solids, more preferably less than about 1 ppm dissolved solids, and most preferably about 0 ppm dissolved solids. An example low solids water which can be used in a process of the present invention can be obtained commercially from PGT Inc., Cedar Hill, Texas, which is a low solids water produced by reverse osmosis having less than about 0.1 ppm dissolved solids.

[0020] The water, preferably low solids water, can be prepared by any suitable means known in the art for preparing water which can be used in a process of the present invention. Generally, the low solids water can be prepared by subjecting a high solids water to a treating means selected from the group consisting of reverse osmosis, deionization, and the like and combinations thereof. The high solids water generally comprises more dissolved solids than the low solids water. Generally, the high solids water comprises more than about 200 ppm of dissolved solids.

[0021] Generally, water is present in a stabilizing amount which allows for the contacting of hydrogen peroxide and glycolic acid according a process as described herein. Generally, a stabilizing amount of water as described herein should be large enough to prevent an uncontrollable or unpredictable reaction between the hydrogen peroxide and glycolic acid which can occur in a non-dilute environment as known in the art. However, a stabilizing amount of water as described herein should be small enough to prevent the resulting composition

from being so dilute that such resulting composition no longer has the ability to reduce the concentration of, preferably remove or dissolve, a contaminant from an environment as described herein. Thus, a novel aspect of the present invention is the presence of a stabilizing amount of water, preferably low solids water, which is large enough to allow the contacting of such hydrogen peroxide and glycolic acid in a predictable and controllable manner, yet, is small enough to prevent a significant dilution of the resulting composition so that such composition is effective in reducing the concentration of, preferably removing or dissolving, a contaminant from an environment as described herein.

[0022] Generally, a stabilizing amount of water, preferably low solids water, is present in an amount of at least about 50 percent by weight water based on the total weight of the hydrogen peroxide, glycolic acid, and water, and at most about 99.9 percent by weight water based on the total weight of the hydrogen peroxide, glycolic acid, and water. Preferably, a stabilizing amount of water is present in an amount of at least about 60 percent by weight water based on the total weight of the hydrogen peroxide, glycolic acid, and water, and at most about 97 percent by weight, and more preferably a stabilizing amount of water is present in an amount of at least about 70 percent by weight water based on the total weight of the hydrogen peroxide, glycolic acid, and water, and at most about 95 percent by weight water based on the total weight of the hydrogen peroxide, glycolic acid, and water.

[0023] The glycolic acid is preferably a glycolic acid solution comprising glycolic acid and water. Such glycolic acid solution generally comprises at least about 1 weight percent glycolic acid and at most about 15 weight percent glycolic acid, preferably at least about 1 weight percent glycolic acid and at most about 10 weight percent glycolic acid, and more preferably comprises at least about 1 weight percent glycolic acid and at most about 5 weight percent glycolic acid. An example glycolic acid solution which can be used in a process of the present invention can be obtained by adding low solids water as described herein to a commercially available 70 weight percent technical grade solution of glycolic acid obtained from DuPont Chemical, Wilmington, Delaware, to thereby obtain a 5 weight percent glycolic acid solution.

[0024] The hydrogen peroxide, glycolic acid, and water can be contacted by any suitable means and in any suitable order which provides for a composition of the present invention effective in reducing the concentration of, preferably removing or dissolving, a contaminant from an environment. Preferably, such contacting comprises mixing utilizing any suitable mixing means known in the art for mixing an aqueous solution with another aqueous solution. More preferably, a hydrogen peroxide solution as described herein is mixed with a glycolic acid solution as described herein. During contacting, the weight ratio of hydrogen peroxide to glycolic acid is generally at least about 1:1 and at most about 30:1, preferably at least about 2:1 and at most about 20:1, more preferably at

least about 2:1 and at most about 10:1, and most preferably at least about 2:1 and at most about 6:1.

[0025] The temperature during contacting of the hydrogen peroxide, glycolic acid, and water, preferably during the contacting of the hydrogen peroxide solution and glycolic acid solution, can be any temperature which provides a composition effective in reducing the concentration of, preferably removing or dissolving, a contaminant from the environment as described herein. Generally, the temperature during contacting is at least about -18°C (0°F) and at most about 38°C (100°F), preferably at least about -12°C (10°F) and at most about 32°C (90°F), and more preferably at least about -7°C (20°F) and at most about 27°C (80°F). The pressure during contacting can be any pressure which provides for a composition as described herein. The pressure is generally at least about atmospheric and at most about 689 kilopascals (kPa) (100 pounds per square inch absolute (psia)), preferably about atmospheric. The time period of contacting can be any time period capable of providing for a composition as described herein. The time period of contacting is generally at least about 0.1 minute and at most about 60 minutes, preferably at least about 0.1 minute and at most about 30 minutes.

[0026] A preferred method of preparing a composition of the present invention comprises mixing a 35 weight percent solution of hydrogen peroxide in water with a stabilizing amount of low solids water comprising less than about 1 ppm dissolved solids to thereby provide a resulting mixture comprising about 80 weight percent low solids water and the rest comprising the hydrogen peroxide solution. The resulting mixture is then contacted with a 5 weight percent glycolic acid solution prepared by contacting a 70 weight percent glycolic acid solution with low solids water comprising less than about 1 ppm dissolved solids to provide a composition having a pH of about 1.9 to about 3.5. Such composition is particularly suitable for use in reducing the concentration of, preferably removing or dissolving, calcium and starch glues and organic substances and mineral residue typically found in corrugated box manufacturing and printing and flexography processes.

[0027] Another preferred method of preparing a composition of the present invention comprises mixing a 35 weight percent solution of hydrogen peroxide in water with a stabilizing amount of low solids water comprising less than about 1 ppm dissolved solids to thereby provide a resulting mixture comprising about 43 weight percent low solids water and the rest comprising the hydrogen peroxide solution. The resulting mixture is then contacted with a 5 weight percent glycolic acid solution prepared by contacting a 70 weight percent glycolic acid solution with low solids water comprising less than about 1 ppm dissolved solids to provide a composition having a pH of about 1.9 to about 3.5. Such resulting composition is particularly suitable for use in reducing the concentration of, preferably removing or dissolving, contaminants typically found in water-containing systems.

[0028] A composition of the present invention generally has a pH of at least about 1.5 and at most about 4.5, preferably at least about 1.7 and at most about 4, and more preferably at least about 1.9 and at most about 3.8.

[0029] A composition of the present invention generally has a specific gravity of at least about 1.0 and at most about 1.5, preferably at least about 1.1 and at most about 1.4, more preferably at least about 1.3 and at most about 1.4, and most preferably about 1.35.

[0030] While not intending to be bound by theory, it is believed that a composition of the present invention comprises a molecule containing two carbon atoms, four hydrogen atoms, and four oxygen atoms. It is further believed that two of the four hydrogen atoms and two of the four oxygen atoms are present as hydroxyl groups (OH).

[0031] A composition of the present invention prepared by a process of the present invention described herein can be utilized to reduce the concentration of, preferably remove or dissolve, a wide array of contaminants from a wide array of environments. Such process generally comprises contacting such contaminant(s) with a concentration of a composition of the present invention, prepared according to a process as described herein, in a concentration effective in reducing the concentration of, preferably removing or dissolving, such contaminant(s) from such environment. Examples of suitable contaminants include, but are not limited to, elements of Groups II-VIII of the Periodic Table of the Elements (also referred to as Group II elements, Group III elements, Group IV elements, Group V elements, Group VI elements, Group VII elements, and Group VIII elements), algae, fungi, bacteria, surfactants, natural gums, synthetic gums, organic compounds, paper fibers, paper filters, clays, sulfites, sulfates, oxides, adhesives, starches, and the like and combinations thereof.

[0032] Examples of a suitable environment include, but are not limited to, water-containing systems, paper producing systems, pulp producing systems, printing systems, packaging systems, flexographic systems, food processing systems, bleaching systems, metallurgy systems, acid washing systems, veterinary product systems, pesticide systems, meat processing systems, poultry processing systems, dairy processing systems, sanitizing systems, and the like and combinations thereof. The term "system" refers to any method, process, apparatus, components, and the like and combinations thereof related in any way or manner to the disclosed type of system. For example, the term "water-containing systems" refers to any method, process, apparatus, components, and the like and combinations thereof known in the art related in any way or manner to water containing or containment. Also for example, the term "food processing systems" refers to any method, process, apparatus, components, and the like and combinations thereof known in the art related in any way or manner to food processing. Also for example, the term "printing systems" refers to any method, process, apparatus, components, and the like and combinations thereof known in the art related in

any way or manner to printing.

[0033] Examples of suitable water-containing systems include, but are not limited to, swimming pools, water treating systems, drainage systems, boiler systems, chiller systems, sewage treating systems, irrigation systems, agricultural systems, cooling tower systems, and the like and combinations thereof.

[0034] A composition of the present invention can be contacted with one or more contaminants as described herein by any suitable means and under any suitable conditions which are effective in reducing the concentration of, preferably removing or dissolving, such contaminants from an environment. The contacting condition, also referred to as the contaminant contacting condition, which comprises a concentration of a composition as described herein, a contacting temperature, a contacting pressure, and a contacting time period can be any contacting condition effective in reducing the concentration of, preferably removing or dissolving, a contaminant from an environment as described herein. The contacting condition will generally depend on the type and concentration of contaminant and type of environment. For example, the contacting condition will generally have an increased composition concentration, temperature, pressure, and time period when the concentration of one or more contaminants is increased compared to the contacting condition necessary when such contaminants are present in a reduced concentration. For example, when a composition of the present invention is used as a swimming pool shock treatment to help initially reduce the concentration of, preferably remove or dissolve, a contaminant, the composition concentration will be significantly increased and the time period decreased compared to when a composition of the present invention is used to maintain the reduction in concentration of contaminants in such swimming pool over, for example, a thirty day period. Selecting the proper contacting condition based on the concentration of contaminants within an environment is within the skill in the art.

[0035] When the environment comprises a liquid medium, such as the water-containing systems described herein, the concentration of composition is generally at least about 0.1 part composition by volume per million parts environment (ppmv) and at most about 25 volume percent, preferably at least about 0.5 ppmv and at most about 20 volume percent, and more preferably at least about 1 ppmv and at most about 15 volume percent. When the environment does not comprise a liquid medium, such as when the composition is applied directly to a contaminant, the concentration of composition is generally at least about 0.1 part composition by weight per million parts environment (ppm) and at most about 20 weight percent, preferably at least about 0.5 ppm and at most about 10 weight percent, and more preferably at least about 1 ppm and at most about 5 weight percent.

[0036] Generally, the contacting temperature, also referred to as the contaminant contacting temperature, is at least about 10°C (50°F) and at most about 93°C

(200°F), preferably at least about 21 °C (70°F) and at most about 66°C (150°F). The contacting pressure, also referred to as the contaminant contacting pressure, is generally at least about atmospheric and at most about 689 kilopascals (kPa) (100 pounds per square inch absolute (psia)), preferably about atmospheric. The contacting time, also referred to as the contaminant contacting time, is generally at least about 0.1 minute and at most about 30 days, preferably at least about 0.5 minute and at most about 20 days, and more preferably at least about 1 minute and at most about 10 days.

[0037] Examples of suitable uses of a composition of the present invention include, but are not limited to, the following.

[0038] A composition of the present invention can be used as a descalant, biocide, slimicide, flocculant, and the like and combinations thereof to reduce the concentration of, preferably remove or dissolve, scale, algae, and the like and combinations thereof from machinery and apparatus used to produce paper and pulp.

[0039] A composition of the present invention can be used as a descalant, biocide and/or algicide to reduce the concentration of, preferably remove or dissolve, various contaminants from water-containing systems used in the printing industry. For example, a composition of the present invention can be used as a calcium and surfactant remover to reduce the concentration of, preferably remove or dissolve, calcium, dissolved minerals, surfactants, bacteria, and the like and combinations thereof from the lines and tanks of water-containing systems used in the printing industries, packaging industries, and the like and combinations thereof. Also for example, a composition of the present invention can be used to reduce the concentration of, preferably remove or dissolve, various surfactants, natural gums, calcium carbonate, polymer-containing residue, and the like and combinations thereof from lithographic plate surfaces. A composition of the present invention can also be used as a rubber roller rinse to reduce the concentration of, preferably remove or dissolve, organic contaminants, water-based contaminants, and liquid metal precipitants including, but not limited to, paper fiber, paper fillers, clay coatings, sulfites, sulfates, titanium dioxide, chromium, barium, calcium carbonate, and the like and combinations thereof. The reduction in concentration, preferably the removing or dissolving, of these contaminants results in improved consistency of ink transfer and aids in restricting the neutralization of acid fountain chemistries commonly used in lithography and lithographic processes.

[0040] A composition of the present invention can be used for reducing the concentration of, preferably removing or dissolving, a contaminant such as scale, algae, fungi, bacteria, minerals, and the like and combinations thereof from water-containing systems such as water tanks, water lines, pumps, and the like and combinations thereof. Such contaminants are known to exist in such water-containing systems commonly utilized in the printing and paper industries and the like because of the high

contact rate with paper products which contain mold, fungi spores and bacteria which are commonly found in the wood used to produce such paper products.

[0041] A composition of the present invention can be used to reduce the concentration of, preferably remove or dissolve, an adhesive. In various processes, such as the process of manufacturing corrugated boxes and packaging, glues and adhesives containing organic compounds and starches are commonly used. A composition of the present invention can be contacted, such as by spraying, with such glues and adhesives and, after a time period effective for allowing a composition of the present invention to penetrate such glues and adhesives, can thus provide for easy removal of such glues and adhesives.

[0042] A composition of the present invention can be used to treat anilox rolls, particularly the cells contained by, or within, such anilox rolls, commonly found in flexographic situations. Anilox rolls commonly utilized in flexographic situations commonly contain organic substances of microscopic size found in various concentrations. There are various methods of applying various compositions to remove such substances which include spraying onto the surface being treated, mechanically applying to the surface, immersion treating, and the like and combinations thereof. Utilizing a composition of the present invention provides an improvement over existing technologies of cleaning anilox rolls which are currently being used such as baking soda blasting, ultra-sonic cleaning, and utilizing chemicals of high alkalinity concentration.

[0043] A composition of the present invention can be used to reduce the concentration of, preferably remove or dissolve, various contaminants commonly found in food processing and food packaging environments and the like.

[0044] A composition of the present invention can be used in waste sludge treatment processes to help break down solids and provide biocide effects.

[0045] A composition of the present invention can be used as an industrial biocide treatment to kill various fungi such as the bottrus fungi, mold or bacteria.

[0046] A composition of the present invention can be used to enhance the bleaching processes commonly found in the textile industries, paper and pulp industries, and the like and combinations thereof.

[0047] A composition of the present invention can be used to enhance the effectiveness of known descalants, slimicides, antimicrobials, and the like and combinations thereof.

[0048] A composition of the present invention can be used in fish farming and agricultural processes as a pesticide for killing microorganisms and/or parasites, including bacteria and fungi, found to exist within such processes. Such agricultural processes include, but are not limited to, agricultural rendering and growing, including various related holding areas which can contain such bacteria, fungi, and parasites.

[0049] A composition of the present invention can be

used to reduce the concentration of, preferably remove or dissolve, various contaminants commonly found in meat, poultry, and dairy rendering and processing facilities.

5 **[0050]** A composition of the present invention can be used to reduce the concentration of, preferably remove or dissolve, various contaminants commonly found in metallurgy processes involving copper or other metals.

10 **[0051]** A composition of the present invention can be used to reduce the concentration of, preferably remove or dissolve, various contaminants commonly found in processes comprising the acid-washing of concrete.

15 **[0052]** A composition of the present invention can be used to reduce the concentration of, preferably remove or dissolve, various contaminants commonly found in processes to produce veterinary products.

20 **[0053]** A composition of the present invention can be used to reduce the concentration of, preferably remove or dissolve, various contaminants commonly found in beer processing systems, wine processing systems, and the like such as removing contaminants from various vats.

25 **[0054]** A composition of the present invention can be used to reduce the concentration of, preferably remove or dissolve, various contaminants from the surfaces of automobiles such as removing bug and tar residue from an external surface, e.g., a bumper, of a car or truck.

30 **[0055]** A composition of the present invention can be used as an additive in various products used in the cosmetic industry such as face-peel products.

35 **[0056]** A composition of the present invention can be used to reduce the concentration of, preferably remove or dissolve, contaminants such as calcium-based and organic-based substances commonly found in the marine industry such as from the external surfaces of ships.

40 **[0057]** Preferably, a composition of the present invention is used to reduce the concentration of, preferably remove or dissolve, contaminants from printing systems. A composition of the present invention can be used in addition to, or preferably as an alternative to, various mechanical means and the use of various solvents and/or various surfactants, such as sodium hydroxide, to remove such contaminants.

45 **[0058]** Also preferred, a composition of the present invention is used as a sanitizer, fungicide, algacide, and the like and combinations thereof to reduce the concentration of, preferably remove or dissolve, contaminants from water-containing systems such as swimming pools, water gardens, and the like and combinations thereof. A composition of the present invention can be used in addition to, or preferably as an alternative to, chlorine-based, or bromide-based, or biguanide-based compositions.

50 **[0059]** Also preferred, a composition of the present invention is used as a sanitizer, fungicide, algacide, and the like and combinations thereof to reduce the concentration of, preferably remove or dissolve, contaminants from water-containing systems commonly found in mu-

municipal water treating systems, commercial drainage systems, industrial boiler systems, industrial chiller systems, cooling tower systems, and the like and combinations thereof. A composition of the present invention can be used in addition to, or preferably as an alternative to, chlorine-based, or bromide-based, or biguanide-based compositions.

[0060] The following examples are presented to further illustrate this invention and are not to be construed as unduly limiting the scope of this invention.

EXAMPLE I

[0061] This example illustrates a preparation of a composition of the present invention.

[0062] A 208-liter (55-gallon) quantity of a composition of the present invention was prepared by mixing 31.2 liters (8.25 gallons) of 35 weight percent hydrogen peroxide solution (obtained from FMC Corporation, Philadelphia, Pennsylvania, as a 35 weight percent technical grade solution of hydrogen peroxide in water) with 131.26 liters (34.675 gallons) of low solids water comprising less than about 0.1 ppm dissolved solids (obtained from PGT Inc., Cedar Hill, Texas, the low solids water had been produced by reverse osmosis) at room temperature (about 21°C (70°F)) and atmospheric pressure to thereby provide a resulting mixture. Total mixing time was about 15 minutes. The resulting mixture was then contacted with 43.7 liters (11.55 gallons) of a 5 weight percent glycolic acid solution which had been prepared by contacting 3.12 liters (0.825 gallons) of approximately 70 weight percent glycolic acid solution (obtained from DuPont Chemical, Wilmington, Delaware, as a 70 weight percent technical grade solution of glycolic acid in water) with 40.60 liters (10.725 gallons) of low solids water comprising less than about 0.1 ppm dissolved solids (obtained from PGT Inc., the low solids water had been produced by reverse osmosis) at room temperature (about 21°C (70°F)) and atmospheric pressure to thereby obtain about 208 liters (55 gallons) of a composition of the present invention referred to herein as Composition A" having a pH of about 3.3.

EXAMPLE II

[0063] This example illustrates the use of a composition of the present invention (Composition A as described herein) to reduce the concentration of, preferably remove or dissolve, calcium and/or starch glues and substances from corrugating equipment used in manufacturing corrugated boxes.

[0064] Equipment was obtained from Packaging Corporation of America (PCA) located in Waco, Texas and had been in use for several years. A significant amount of glue residue (color of such residue was a dirty-white due to the glue drying to a semi-translucent appearance over time) was observed. A significant concentration of glue residue was located on a cross-member of the ad-

hesive application device of such equipment about 10 inches under the glue applicator which applied the glue to the web paperboard to form a corrugated box sheet. The glue residue level had accumulated to such an extent that production problems were encountered. PCA had requested assistance from several chemical companies to develop a product which would remove or allow removal of the glue residue. It is believed that twenty unsuccessful attempts were made by the various chemical vendor companies to do so. Composition A was then applied directly to the glue residue using a trigger sprayer. Within about 5 minutes, the semi-translucent appearance of the glue residue turned to a white color as such glue residue originally appeared (i.e., the appearance of the glue before it dried). Layer by layer the accumulated glue residue turned white. Within about 20 minutes, the layers of residue were all visibly re-hydrated and could be removed by hand by peeling each layer from the cross-member. When Composition A reached the bottom layer of residue which had been estimated as having initially formed over 20 years prior, such bottom layer was able to be removed which enabled the equipment to be operated again. Overall, maintenance problems for the equipment based on glue residue was minimized. Before the application of Composition A, the preferred and possibly only means to remove this residue was with a hammer and chisel. The hammer and chisel were used to chisel the layers away from the cross-member section of the adhesive application device.

EXAMPLE III

[0065] This example illustrates another use of a composition of the present invention (Composition A as described herein) to remove organic substances and mineral residue from equipment such as anilox rolls used in flexography processes.

[0066] Equipment utilizing anilox rolls was provided by Packaging Corporation of America (PCA) located in Waco, Texas. Such equipment had been used for several years. An inherent problem which exists in flexography processes is various contaminants have a tendency to accumulate and bond to small laser-etched cells within the anilox rolls. These cells supply water and solvent-based flexography inks to the raised image photo-polymer printing plate. After removal of excess flexography inks, there are multiple procedures used to remove sealants and residue from the anilox rolls. The anilox rolls of the PCA equipment had various mineral and ink component deposits which could not be easily removed by previous methods, such as baking soda blasting and using ultrasound equipment.

[0067] In a first method, Composition A was sprayed directly onto the surface of the anilox roll cells having a concentration of 57 cells per linear centimeter (145 cells per linear inch) of anilox roll. The anilox roll was hydrated with Composition A and remained hydrated for about 5 minutes. Thereafter, a standard aqueous-based flexo-

graphic wash was used to rinse the contamination out of the cells. The application of Composition A appeared to decompose the bonded minerals and deposits, allowing such bonded minerals and deposits to be removed by washing with normal alkaline types of flexography wash. This process allowed for recovery of cell depth and cell volume of the anilox rolls. Composition A allowed for the anilox equipment to be cleaned on press, without the costly purchase of cleaning equipment, which provided a reduction in down-time and capital expenditure costs for PCA.

[0068] The second method of applying Composition A was by adding Composition A to the flexography printing unit ink reservoir contacting the ink pump. The contact time was about five minutes followed by rinsing using standard aqueous-based flexographic wash procedures. Previously, methods such as baking soda blasting and using ultrasound equipment were utilized, but had only cleaned the surface of the anilox cells. Composition A performed better than such previous methods and opened the cells to a like-new condition.

EXAMPLE IV

[0069] This example illustrates another preparation of a composition of the present invention. A 208-liter (55-gallon) quantity of a composition of the present invention was prepared by mixing 68.7 liters (18.15 gallons) of a 35 weight percent hydrogen peroxide solution (obtained from FMC Corporation, Philadelphia, Pennsylvania, as a 35 weight percent technical grade solution of hydrogen peroxide in water) with 52.0 liters (13.75 gallons) of low solids water comprising less than about 0.1 ppm dissolved solids (obtained from PGT Inc., Cedar Hill, Texas, the low solids water had been produced by reverse osmosis) at room temperature (about 21°C (70°F)) and atmospheric pressure to thereby provide a resulting mixture. Total mixing time was about 15 minutes. The resulting mixture was then contacted with 87 liters (23.1 gallons) of a 5 weight percent glycolic acid solution which had been prepared by contacting 6.2 liters (1.65 gallons) of 70 weight percent glycolic acid solution (obtained from DuPont Chemical, Wilmington, Delaware, as a 70 weight percent technical grade solution of glycolic acid in water) with 81.2 liters (21.45 gallons) of low solids water comprising less than about 0.1 ppm dissolved solids (obtained from PGT Inc., Cedar Hill, Texas, the low solids water had been produced by reverse osmosis) at room temperature (about 21 °C (70°F)) and atmospheric pressure to thereby obtain about 208 liters (55 gallons) of a composition of the present invention referred to herein as "Composition B" having a pH of about 2.2.

EXAMPLE V

[0070] This example illustrates a use of a composition of the present invention (Composition B as described herein) to remove residue and bacterial growth and fungi

from a printing press fountain solution recirculating system (a water-containing system).

[0071] A printing press was obtained from Rock Term Company, Waxahachie, Texas, and contained a Man Roland fountain solution recirculating system, also referred to as a dampening system, which comprised a blender, chiller, and recirculating unit containing an approximately 114 liter (30 gallon) reservoir with a total capacity of 757 liters (200 gallons) of water. The equipment has been used almost continuously for about 20 years. A significant amount of mineral substance residue, such as mineral deposits consisting of calcium and lime deposits, and bacterial and fungi growth was observed, including hair algae, which were white, green, brown and various other colors which are common to the industry. Various solvents had been used in an attempt to remove the residue and growth before such residue had accumulated and caused production interruptions. Common industry products used for cleaning such printing press recirculating systems included products comprising a mixture of sodium hydroxide, glycol ethers, and various biocides, such as those sold by various chemical manufacturers, including Vain International (a worldwide chemical manufacturer which manufactures pressroom and printing chemicals and distributes such products throughout the world).

[0072] However, use of such solvents was unsuccessful in removing the mineral residue and bacterial and fungal growth. The mineral residue and growth had accumulated to a point that such had become hardened within the water lines and could not be removed. The lines had become plugged, making production difficult. An additional option of replacing the water lines and/or flushing the water system with bleach would have been an option, but the amount of water which would have to be consumed would have amounted to thousands of liters (gallons) of water. In addition, production-related issues resulting from bleach residue would have been difficult to alleviate, making the bleaching option undesirable and economically unfeasible.

[0073] A five-gallon quantity of Composition B described herein was supplied for the following procedure. Composition B was poured directly, in 0.47-liter (one-pint) quantities, into each of the six water trays of the recirculating system. Upon contact of Composition B with the mineral residue and bacterial and algae growth, it was observed that within about 15 to 30 seconds, water immediately began flowing in the return line from the press back to the recirculating system indicating that Composition B was removing the various contaminants. Then, the drain of the recirculating system became unplugged so that water could easily flow. An additional fifteen-liter (four-gallon) quantity of Composition B was then added directly to the one hundred and fourteen-liter (30-gallon) reservoir. Within about 15 to 30 seconds, water immediately began flowing in the return line from the press back to the reservoir indicating that Composition B was removing the various contaminants. It was observed that the substance being removed by Composi-

tion B contained paper dust, slime, fungus, algae, ink components, and the like. About 132 liters (35 gallons) of such substance were collected in an empty barrel. In about 30 minutes, about 757 liters (200 gallons) of fresh water were passed through the water system to further help remove the debris and remains of dead algae and bacterial growth and minerals which had been dislodged and/or dissolved by Composition B.

[0074] The recirculating system was then recharged with a standard fountain solution having a pH of about 3.8. The press was immediately placed into production. Normal startup recovery time had previously been about 20 to 25 printed sheets before production. After use of Composition B, startup recovery time was about 2 to 3 sheets. It is believed that the better startup was because the pH of Composition, B was at or near the recommended pH of the fountain solution. Before use of Composition B, products previously used comprised sodium hydroxide, glycol ethers and biocides, with some of these products containing foaming agents or alkalis such as caustic soda. The residual pH left in the water system after using traditional cleaning products would normally be in a range of about 9 to about 10.5. Thus, since the pH of fountain solutions is typically in a range of about 3.8 to about 4.0 and since Composition B has a similar residual pH, use of Composition B provides a direct benefit to production ability, print quality, and reduction of water costs.

EXAMPLE VI

[0075] This example illustrates a use of a composition of the present invention (Composition B as described herein) to remove a contaminant from a swimming pool.

[0076] The test site consisted of a swimming pool which contained 95000 liters (25,000 gallons) of water which was substantially free of chlorine and other chemical substances. The swimming pool was rectangular in shape with a shallow end depth of approximately one meter (three feet) and a deep end depth of approximately three meters (nine feet). The swimming pool had been covered and dormant for about nine months. Before treatment, the water appeared blackish in color and emitted a strong foul odor. The surface areas of the pool under water were covered with a green algae growth which was about 3.8 centimeters (1.5 inches) thick. The green algae growth appeared to cover an underlying gray-colored algae-type substance. Due to the extensive algae growth, the bottom surface of the pool and the surfaces of the first and second steps of the pool were not visible. The filter media contained in the swimming pool filtration system was diatomaceous earth. The pH of the water was 7.2 and the temperature of the water was about 26°C (78°F).

[0077] A two hundred and eight-liter (ten-gallon) quantity of Composition B described herein was then added to the pool by pouring Composition B at a steady rate into the pool from a plastic bucket while walking around

the edges of the pool from the shallow to the deep end. After approximately twenty-five minutes, the color of the water turned to a light green "pea-soup" color. Debris began to float to the top and such debris appeared to be large pieces of the green algae and gray-colored algae-type substance. The clarity of the water continued to improve. After approximately twenty-four hours, the water appeared to be somewhat cloudy or "milky" in color. The green algae and gray-colored algae-type substance appeared to have been "killed" with the remains of such algae appearing as a white skeletal debris which covered the bottom of the pool with some of the debris floating on top. The pH of the pool was 6.8. A flocculent was then added in an amount of about two liters (two fluid quarts) to aid in the removal of the floating debris. After approximately seventy-two hours from the addition of Composition B, the bottom of the pool was vacuumed and the vacuumed debris was exhausted into an area next to the pool. The pH of the pool was 6.8. Tap water was then added to the pool until the pH of the pool water was 7.0.

[0078] The pool water remained uncovered, dormant, and was not circulated for two weeks. After the two-week period, the dissolved oxygen (DO) was 106 parts per million (ppm), the water appeared to very clear (the bottom surface of the deep end was visible), and the pump used to circulate the pool water was started and set to circulate the pool water for two hours each day. One week later (three weeks total time from the addition of Composition B), which included a five-centimeter (two-inch) rain, the DO was 98 ppm. After one more week (four weeks total time from the addition of Composition B), the DO was 44 ppm. The water was still clear, but several small areas of green algae growth on the surface areas of the pool underwater were observed.

[0079] A 9 liter (2.5 gallon) "maintenance dose" of Composition B described herein was then added to the pool by pouring from a plastic bucket at one end of the pool. After adding, the DO was 100 ppm (which was the desired reading) and the pH was 7.4. The pool was then maintained at a dosage rate of 9 liters (2.5 gallons) of Composition B added every two weeks.

EXAMPLE VII

[0080] This example demonstrates the effect of various increases in concentration of a composition of the present invention.

[0081] Two test sites (1 and 2) were utilized to determine the toxicity of a composition of the present invention. Test site 1 consisted of an outdoor water garden comprising a circular-shaped fiberglass molded tank having a diameter of about 152 centimeters (5 feet) and which contained approximately 1900 liters (500 gallons) of water. The tank also contained soil, rock, several bricks, and 36 minnows. The water was foul-smelling and black in color. A substance which appeared to be a black mold or algae covered the soil and rocks at the bottom of the tank.

[0082] A 240 milliliter (eight fluid ounce) quantity of Composition B described herein was then added to the tank by pouring Composition B directly from a plastic bottle into the water at one end of the tank. The temperature of the water during addition was about 26°C (78°F). Upon addition, the water immediately began to bubble. The bubbling began on one end of the tank and proceeded to the other end of the tank within about 15 minutes. After 24 hours had elapsed, the water appeared to be clear and the bricks and rock contained within the tank were completely visible and were no longer covered with the black mold or algae. The minnows appeared to be unaffected by the addition of Composition B. Skeletal debris appeared to cover the bottom of the tank. A pH reading and dissolved oxygen reading were not obtained.

Based on the observations, a recommended dosage rate of 240 milliliters (eight ounces) of Composition B applied every two to three weeks was developed.

[0083] Test site 2 consisted of a standard 110-liter (29-gallon) aquarium containing twenty-three liters (six gallons) of crushed coral gravel. To such aquarium was charged 110 liters (29 gallons) of reverse osmosis treated water. The pH was 8.0. The growth medium used in the tank included a General Electric brand Gro-Lite bulb (which had a UV spectrum similar to sunlight) and TET-RA-MIN tropical fish food. The water was allowed to cycle through the aquarium for about five days without the addition of any chemicals, live fish, or plants. After five days, twenty-four small bait shop minnows were added to the water and left alone for about two days (about 48 hours). Then, Composition B was added in an amount of 100 parts Composition B by weight per million parts water (i.e., 100 ppm). About thirty minutes after such addition, the dissolved oxygen level was 106 ppm.

[0084] After twenty-four hours, the dissolved oxygen level was about 44 ppm and an additional 200 ppm amount of Composition B was added. After thirty minutes, the dissolved oxygen was about 210 ppm. The minnows were observed to be swimming near the bottom of the tank. After an additional twenty-four hours, the dissolved oxygen was 86 ppm. An additional 500 ppm amount of Composition B was then added. Thereafter, a reading for the dissolved oxygen could not be obtained because the dissolved oxygen was so high that the titration medium being used (sodium thiosulfate) kept turning black which prevented an accurate dissolved oxygen reading from being obtained. Even after six hours had passed and over 600 ppm of sodium thiosulfate had been used, a dissolved oxygen reading still could not be obtained.

[0085] No additional chemicals were added to the tank for a period of four days. After ten days had passed from the initial application of Composition B, the fish present in the tank began to expire at a rate of about one fish per day over the next two weeks. The scales of about three of the fish appeared to be expanded away from the bodies of such fish. After four weeks had passed since the initial application of Composition B to the tank, the water was still very clear and free of algae growth. The dissolved

oxygen was 44 ppm.

[0086] The results shown in the above examples clearly demonstrate that the present invention is well adapted to carry out the objects and attain the ends and advantages mentioned as well as those inherent therein.

[0087] Reasonable variations, modifications, and adaptations can be made within the scope of the disclosure and the appended claims.

Claims

1. A process of producing a composition from the following components:

a solution of hydrogen peroxide and water;
a solution of glycolic acid and water; and
low solids water comprising less than 10 ppm dissolved solids,

in which process the composition is produced by contacting said components, wherein said low solids water comprises less than 10 ppm dissolved solids and wherein water is present in an amount of at least 50 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water and in an amount at most 99.9 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water.

2. A composition prepared by the process of claim 1.
3. The process according to claim 1 or the composition according to claim 2 wherein the weight ratio of said hydrogen peroxide to said glycolic acid is at least 1:1 and at most 30:1.
4. The process according to claim 1 or the composition according to claim 2 wherein the weight ratio of said hydrogen peroxide to said glycolic acid is at least 2:1 and at most 20:1.
5. The process according to claim 1 or the composition according to claim 2 wherein the weight ratio of said hydrogen peroxide to said glycolic acid is at least 2:1 and at most 10:1.
6. The process according to any of claims 1 or 3 to 5 or the composition according to any of claims 2 to 5 wherein said hydrogen peroxide solution comprises at least 0.1 weight percent said hydrogen peroxide and at most 20 weight percent said hydrogen peroxide, and further wherein said glycolic acid solution comprises at least 1 weight percent said glycolic acid and at most 15 weight percent said glycolic acid.
7. The process according to any of claims 1 or 3 to 5 or the composition according to any of claims 2 to 5

wherein said hydrogen peroxide solution comprises at least 0.5 weight percent said hydrogen peroxide and at most 15 weight percent said hydrogen peroxide, and further wherein said glycolic acid solution comprises at least 1 weight percent said glycolic acid and at most 10 weight percent said glycolic acid.

8. The process according to any of claims 1 or 3 to 5 or the composition according to any of claims 2 to 5 wherein said hydrogen peroxide solution comprises at least 1 weight percent said hydrogen peroxide and at most 15 weight percent said hydrogen peroxide, and further wherein said glycolic acid solution comprises at least 1 weight percent said glycolic acid and at most 5 weight percent said glycolic acid.
9. The process according to any of claims 1 or 3 to 8 or the composition according to any of claims 2 to 8 wherein water is present in an amount of at least 60 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water and at most 97 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water.
10. The process according to any of claims 1 or 3 to 9 or the composition according to any of claims 2 to 9 wherein water is present in an amount of at most 95 weight percent based on the total weight of said hydrogen peroxide, glycolic acid and water.
11. The process according to any of claims 1 or 3 to 8 or the composition according to any of claims 2 to 8 wherein water is present in an amount of at least 70 weight percent based on the total weight of said hydrogen peroxide, glycolic acid and water and at most 95 weight percent based on the total weight of said hydrogen peroxide, glycolic acid and water.
12. The process according to any of claims 1 or 3 to 11 or the composition according to any of claims 2 to 11 wherein said composition has a pH of at least 1.5 and at most 4.5.
13. The process according to any of claims 1 or 3 to 12 or the composition according to any of claims 2 to 12 wherein said composition has a specific gravity of at least 1.0 and at most 1.5.

14. A process of removing or dissolving one or more contaminants from an environment comprising:

selecting a composition of hydrogen peroxide, glycolic acid, and water, wherein said water is present in an amount of at least 50 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water and at most 99.9 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water

wherein the weight ratio of said hydrogen peroxide to said glycolic acid is at least 1:1 and at most 30:1, to provide a composition and contacting said contaminant with a concentration of said composition, wherein said concentration is effective in removing at least some of said one or more contaminants from said environment.

15. The process according to claim 14 wherein said one or more contaminants are selected from the group consisting of Group II elements, Group III elements, Group IV elements, Group V elements, Group VI elements, Group VII elements, Group VIII elements, algae, fungi, bacteria, surfactants, natural gums, synthetic gums, organic compounds, paper fibers, paper filters, clays, sulfites, sulfates, oxides, adhesives, starches, and combinations thereof.
16. The process according to claim 15 which removes contaminant bacteria.
17. The process according to claim 15 wherein said environment is selected from the group consisting of water-containing systems, paper producing systems, pulp producing systems, printing systems, packaging systems, flexographic systems, food processing systems, bleaching systems, metallurgy systems, acid washing systems, veterinary product systems, pesticide systems, meat processing systems, poultry processing systems, dairy processing systems, sanitizing systems, and combinations thereof.
18. The process according to claim 17 wherein said environment is a water-containing system selected from the group consisting of swimming pools, water treating systems, drainage systems, boiler systems, chiller systems, sewage treating systems, irrigation systems, agricultural systems, cooling tower systems, and combinations thereof.
19. The process of claim 14, wherein said environment is selected from the group consisting of waste sludge treatment systems, sewage treating systems, and municipal water treating systems.
20. The process of claim 14, wherein said environment is an agricultural system.
21. The process of claim 14, wherein said environment is selected from the group consisting of boiler systems, chiller systems and cooling tower systems.
22. The process according to claim 14 wherein said contaminant comprises algae and said environment comprises water-containing system.

23. The process according to claim 14 wherein said water-containing system comprises a swimming pool.
24. The process according to claim 14, wherein said environment is selected from the group consisting of a printing system or a packaging system.
25. The process according to claim 24 wherein said contaminant comprises a Group II element.
26. The process according to claim 24 wherein said contaminant comprises a starch.
27. The process of claim 14, wherein said environment is selected from the group consisting of paper producing systems and pulp producing systems.
28. The process of any of claims 14 to 27 wherein said water is present in an amount of at least 60 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water and at most 97 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water.
29. The process of any of claims 14 to 28 wherein water is present in an amount of at most 95 weight percent based on the total weight of said hydrogen peroxide, glycolic acid and water.
30. The process of any of claims 14 to 27 wherein said water is present in an amount of at least 70 weight percent based on the total weight of said hydrogen peroxide, glycolic acid and water and at most 95 weight percent based on the total weight of said hydrogen peroxide, glycolic acid and water.
31. The use of a composition of any of claims 2 to 13 as an industrial biocide to kill various fungi, mold or bacteria.
32. The use of a composition of any of claims 2 to 13 as a sanitiser to reduce the concentration of contaminants from water-containing systems.
33. A process of removing contaminating bacteria from an environment selected from the group consisting of water-containing systems, paper producing systems, pulp producing systems, printing systems, packaging systems, flexographic systems, food processing systems, bleaching systems, metallurgy systems, acid washing systems, veterinary product systems, pesticide systems, meat processing systems, poultry processing systems, dairy processing systems, sanitizing systems, and combinations thereof, comprising contacting the contaminating bacteria with an anti-bacterial composition obtainable by producing a composition from the following components:

a solution of hydrogen peroxide and water;
a solution of glycolic acid and water; and
water,

the composition being produced by contacting said components, wherein water is present in an amount of at least 50 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water and in an amount at most 99.9 weight percent based on the total weight of said hydrogen peroxide, glycolic acid, and water.

34. A process of claim 33 wherein the composition is obtainable by contacting the solution of hydrogen peroxide and water, the solution of glycolic acid and water, and low solids water comprising less than 10 ppm dissolved solids.

35. A process of claim 33 or claim 34 wherein the water is in an amount of at least 60 and at most 97% by weight based on the total weight of hydrogen peroxide, glycolic acid and water.

36. A process of any of claims 33 to 35 wherein the water is in an amount of at most 95 weight percent based on the total weight of said hydrogen peroxide, glycolic acid and water.

37. A process of claim 33 or claim 34 wherein the water is in an amount of at least 70 and at most 95% by weight based on the total weight of hydrogen peroxide, glycolic acid and water.

38. A process of claim 33 to 37 wherein the anti-bacterial composition has a pH of at least 1.7 and at most 4.

Patentansprüche

1. Verfahren zur Herstellung einer Zubereitung aus den folgenden Komponenten:

- eine Lösung aus Wasserstoffperoxid und Wasser;
- eine Lösung aus Glycolsäure und Wasser; und
- Wasser mit einer geringen Konzentration an Feststoffen, das weniger als 10 ppm gelöste Feststoffe umfasst;

wobei in dem Verfahren die Zubereitung hergestellt wird durch In-Kontakt-Bringen der Komponenten, worin das eine niedrige Konzentration an Feststoffen umfassende Wasser weniger als 10 ppm gelöste Feststoffe umfasst und worin Wasser in einer Menge von wenigstens 50 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser, und in einer Menge von höchstens 99,9 Gew.-%, zugegen ist, bezogen auf

- die Gesamtmenge an Wasserstoffperoxid, Glycol-säure und Wasser.
2. Zubereitung hergestellt durch das Verfahren von Anspruch 1. 5
 3. Verfahren nach Anspruch 1 oder Zubereitung nach Anspruch 2, worin das GewichtsVerhältnis von Wasserstoffperoxid zu Glycolsäure wenigstens 1:1 und höchstens 30:1 ist. 10
 4. Verfahren nach Anspruch 1 oder Zubereitung nach Anspruch 2, worin das GewichtsVerhältnis von Wasserstoffperoxid zu Glycolsäure wenigstens 2:1 und höchstens 20:1 ist. 15
 5. Verfahren nach Anspruch 1 oder Zubereitung nach Anspruch 2, worin das GewichtsVerhältnis von Wasserstoffperoxid zu Glycolsäure wenigstens 2:1 und höchstens 10:1 ist. 20
 6. Verfahren nach einem der Ansprüche 1 oder 3 bis 5 oder Zubereitung nach einem der Ansprüche 2 bis 5, worin die Wasserstoffperoxid-Lösung wenigstens 0,1 Gew.-% Wasserstoffperoxid und höchstens 20 Gew.-% Wasserstoffperoxid umfasst, und weiter worin die Glycolsäure-Lösung wenigstens 1 Gew.-% Glycolsäure und höchstens 15 Gew.-% Glycol-säure umfasst. 25
 7. Verfahren nach einem der Ansprüche 1 oder 3 bis 5 oder Zubereitung nach einem der Ansprüche 2 bis 5, worin die Wasserstoffperoxid-Lösung wenigstens 0,5 Gew.-% Wasserstoffperoxid und höchstens 15 Gew.-% Wasserstoffperoxid umfasst und weiter worin die Glycolsäure-Lösung wenigstens 1 Gew.-% Glycolsäure und höchstens 10 Gew.-% Glycol-säure umfasst. 30
 8. Verfahren nach einem der Ansprüche 1 oder 3 bis 5 oder Zubereitung nach einem der Ansprüche 2 bis 5, worin die Wasserstoffperoxid-Lösung wenigstens 1 Gew.-% Wasserstoffperoxid und höchstens 15 Gew.-% Wasserstoffperoxid umfasst und weiter worin die Glycolsäure-Lösung wenigstens 1 Gew.-% Glycolsäure und höchstens 5 Gew.-% Glycolsäure umfasst. 35
 9. Verfahren nach einem der Ansprüche 1 oder 3 bis 8 oder Zubereitung nach einem der Ansprüche 2 bis 8, worin Wasser in einer Menge von wenigstens 60 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser, und in einer Menge von höchstens 97 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser. 40
 10. Verfahren nach einem der Ansprüche 1 oder 3 bis 9 45
 11. Verfahren nach einem der Ansprüche 1 oder 3 bis 8 oder Zubereitung nach einem der Ansprüche 2 bis 8, worin Wasser in einer Menge von wenigstens 70 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser, und in einer Menge von höchstens 95 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser. 50
 12. Verfahren nach irgendeinem der Ansprüche 1 oder 3 bis 11 oder Zubereitung nach irgendeinem der Ansprüche 2 bis 11, worin die Zubereitung einen pH-Wert von wenigstens 1,5 und höchstens 4,5 aufweist. 55
 13. Verfahren nach irgendeinem der Ansprüche 1 oder 3 bis 12 oder Zubereitung nach irgendeinem der Ansprüche 2 bis 12, worin die Zubereitung ein spezifisches Gewicht von wenigstens 1,0 und höchstens 1,5 aufweist.
 14. Verfahren zum Entfernen oder Lösen einer oder mehrerer kontaminierender Stoff(e) von einer Umgebung, umfassend
 - Wählen einer Zubereitung aus Wasserstoffperoxid, Glycolsäure und Wasser, worin das Wasser in einer Menge von wenigstens 50 Gew.-%, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser, und in einer Menge von höchstens 99,9 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser, worin das Gewichtsverhältnis des Wasserstoffperoxids zu der Glycolsäure wenigstens 1:1 und höchstens 30:1 ist, unter Bereitstellen einer Zubereitung; und
 - In-Kontakt-Bringen des kontaminierenden Stoffes mit einer Konzentration der Zubereitung, worin die Konzentration wirksam zum Entfernen wenigstens einer Teilmenge des einen oder der mehreren kontaminierenden Stoff(e) von der Umgebung ist.
 15. Verfahren nach Anspruch 14, worin der eine oder die mehreren kontaminierenden Stoff(e) gewählt ist/sind aus der Gruppe, die besteht aus Elementen der Gruppe II, Elementen der Gruppe III, Elementen der Gruppe IV, Elementen der Gruppe V, Elementen der Gruppe VI, Elementen der Gruppe VII, Elementen der Gruppe VIII, Algen, Pilze, Bakterien, oberflächenaktive Mittel (Tenside), natürliche Gummen,

- synthetische Gummen, organische Verbindungen, Papierfasern, Papierfilter, Tone, Sulfite, Sulfate, Oxide, Klebstoffe, Stärken und Kombinationen daraus.
- 16.** Verfahren nach Anspruch 15, welches kontaminierende Bakterien entfernt. 5
- 17.** Verfahren nach Anspruch 15, worin die Umgebung gewählt ist aus der Gruppe, die besteht aus Wasser-enthaltenden Systemen, Papier-produzierenden Systemen, Pulpe-produzierenden Systemen, Druck-Systemen, Verpackungs-Systemen, Flexographie-Systemen, Lebensmittel-Verarbeitungs-Systemen, Bleich-Systemen, Metallurgie-Systemen, Säurewasch-Systemen, Veterinär-Produkt-Systemen, Pestizid-Systemen, Fleisch-Verarbeitungs-Systemen, Geflügel-Verarbeitungs-Systemen, Molkerei-Verarbeitungs-Systemen, Hygienisierungs-Systemen und Kombinationen daraus. 10 15
- 18.** Verfahren nach Anspruch 17, worin die Umgebung ein Wasser enthaltendes System ist, das gewählt ist aus der Gruppe, die besteht aus Swimmingpools, Wasserbehandlungs-Systemen, Drainage-Systemen, Heißwasser-Erzeugungs-Systemen, Kühlaggregat-Systemen, Abwasser-Behandlungs-Systemen, Bewässerungs-Systemen, landwirtschaftlichen Systemen, Kühlturm-Systemen und Kombinationen daraus. 20 25 30
- 19.** Verfahren nach Anspruch 14, worin die Umgebung gewählt ist aus der Gruppe, die besteht aus Abwasserschamm-Behandlungs-Systemen, Abwasser-Behandlungs-Systemen und städtischen Wasser-Behandlungs-Systemen. 35
- 20.** Verfahren nach Anspruch 14, worin die Umgebung ein landwirtschaftliches System ist. 40
- 21.** Verfahren nach Anspruch 14, worin die Umgebung gewählt ist aus der Gruppe, die besteht aus Heißwasser-Erzeugungs-Systemen, Kühlaggregat-Systemen und Kühlturm-Systemen. 45
- 22.** Verfahren nach Anspruch 14, worin der kontaminierende Stoff Algen umfasst und die Umgebung Wasser enthaltende Systeme umfasst. 50
- 23.** Verfahren nach Anspruch 14, worin das Wasser-enthaltende System einen Swimmingpool umfasst. 55
- 24.** Verfahren nach Anspruch 14, worin die Umgebung gewählt ist aus der Gruppe, die besteht aus einem Druck-System oder einem Verpackungs-System.
- 25.** Verfahren nach Anspruch 24, worin der kontaminierende Stoff ein Element der Gruppe II umfasst.
- 26.** Verfahren nach Anspruch 24, worin der kontaminierende Stoff Stärke umfasst.
- 27.** Verfahren nach Anspruch 14, worin die Umgebung gewählt ist aus der Gruppe, die besteht aus Papier-produzierenden Systemen und Pulpe-produzierenden Systemen.
- 28.** Verfahren nach einem der Ansprüche 14 bis 27, worin das Wasser in einer Menge von wenigstens 60 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser, und in einer Menge von höchstens 97 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht Wasserstoffperoxid, Glycolsäure und Wasser.
- 29.** Verfahren nach einem der Ansprüche 14 bis 28, worin das Wasser in einer Menge von höchstens 95 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht des Wasserstoffperoxids, der Glycolsäure und des Wassers.
- 30.** Verfahren nach einem der Ansprüche 14 bis 27, worin das Wasser in einer Menge von wenigstens 70 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser, und in einer Menge von höchstens 95 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser.
- 31.** Verwendung einer Zubereitung nach irgendeinem der Ansprüche 2 bis 13 als Industrie-Biozid zum Abtöten verschiedener Pilze, Schimmelpilze oder Bakterien.
- 32.** Verwendung einer Zubereitung nach einem der Ansprüche 2 bis 13 als Hygienisierungs-System zum Reduzieren der Konzentration an kontaminierenden Stoffen in Wasser-enthaltenden Systemen.
- 33.** Verfahren zum Entfernen kontaminierender Bakterien von einer Umgebung, die gewählt ist aus der Gruppe, die besteht aus Wasser-enthaltenden Systemen, Papier-produzierenden Systemen, Pulpe-produzierenden Systemen, Druck-Systemen, Verpackungs-Systemen, Flexographie-Systemen, Lebensmittel-Verarbeitungs-Systemen, Bleich-Systemen, Metallurgie-Systemen, Säure-Wasch-Systemen, Veterinär-Produkt-Systemen, Pestizid-Systemen, Fleisch-Verarbeitungs-Systemen, Geflügel-Verarbeitungs-Systemen, Molkerei-Verarbeitungs-Systemen, Hygienisierungs-Systemen und Kombinationen daraus, umfassend das In-Kontakt-Bringen der kontaminierenden Bakterien mit einer antibakteriellen Zubereitung, die erhältlich ist durch Herstellen einer Zubereitung aus den folgenden Komponenten:

- Lösung aus Wasserstoffperoxid und Wasser;
- Lösung aus Glycolsäure und Wasser; und
- Wasser

worin die Zubereitung hergestellt wird durch In-Kontakt-Bringen der Komponenten, worin das Wasser in einer Menge von wenigstens 50 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser und in einer Menge von höchstens 99,9 Gew.-% zugegen ist, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser.

34. Verfahren nach Anspruch 33, worin die Zubereitung erhältlich ist durch In-Kontakt-Bringen der Lösung von Wasserstoffperoxid und Wasser, der Lösung von Glycolsäure und Wasser und Wasser mit einem niedrigen Gehalt an Feststoffen, das weniger als 10 ppm gelöste Feststoffe umfasst.
35. Verfahren nach Anspruch 33 oder Anspruch 34, worin das Wasser in einer Menge von wenigstens 60 und höchstens 97 Gew.-% vorliegt, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser.
36. Verfahren nach einem der Ansprüche 33 bis 35, worin das Wasser in einer Menge von höchstens 95 Gew.-% vorliegt, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser.
37. Verfahren nach Anspruch 33 oder Anspruch 34, worin das Wasser in einer Menge von wenigstens 70 und höchstens 95 Gew.-% vorliegt, bezogen auf das Gesamtgewicht von Wasserstoffperoxid, Glycolsäure und Wasser.
38. Verfahren nach Anspruch 33 bis 37, worin die antibakterielle Zubereitung einen pH-Wert von wenigstens 1,7 und höchstens 4 aufweist.

Revendications

1. Procédé pour la production d'une composition à partir des constituants suivants :

une solution de peroxyde d'hydrogène et d'eau ;
 une solution d'acide glycolique et d'eau ; et
 de l'eau à basse teneur en matières solides, ayant une teneur en matières solides dissoutes inférieure à 10 ppm,
 procédé dans lequel la composition est produite en mettant en contact lesdits constituants, ladite eau à basse teneur en matières solides comprenant moins de 10 ppm de substances solides dissoutes et l'eau étant présente en une quantité d'au moins 50 % en poids sur la base du poids

total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau et en une quantité d'au plus 99,9 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau.

2. Composition préparée par le procédé suivant la revendication 1.
3. Procédé suivant la revendication 1 ou composition suivant la revendication 2, dans lequel le rapport pondéral dudit peroxyde d'hydrogène audit acide glycolique est d'au moins 1:1 et d'au plus 30:1.
4. Procédé suivant la revendication 1 ou composition suivant la revendication 2, dans lequel le rapport pondéral dudit peroxyde d'hydrogène audit acide glycolique est d'au moins 2:1 et d'au plus 20:1.
5. Procédé suivant la revendication 1 ou composition suivant la revendication 2, dans lequel le rapport pondéral dudit peroxyde d'hydrogène audit acide glycolique est d'au moins 2:1 et d'au plus 10:1.
6. Procédé suivant l'une quelconque des revendications 1 ou 3 à 5 ou composition suivant l'une quelconque des revendications 2 à 5, dans lequel ladite solution de peroxyde d'hydrogène comprend au moins 0,1 % en poids dudit peroxyde d'hydrogène et au plus 20 % en poids dudit peroxyde d'hydrogène, et en outre dans lequel ladite solution d'acide glycolique comprend au moins 1 % en poids dudit acide glycolique et au plus 15 % en poids dudit acide glycolique.
7. Procédé suivant l'une quelconque des revendications 1 ou 3 à 5 ou composition suivant l'une quelconque des revendications 2 à 5, dans lequel ladite solution de peroxyde d'hydrogène comprend au moins 0,5 % en poids dudit peroxyde d'hydrogène et au plus 15 % en poids dudit peroxyde d'hydrogène, et en outre dans lequel ladite solution d'acide glycolique comprend au moins 1 % en poids dudit acide glycolique et au plus 10 % en poids dudit acide glycolique.
8. Procédé suivant l'une quelconque des revendications 1 ou 3 à 5 ou composition suivant l'une quelconque des revendications 2 à 5, dans lequel ladite solution de peroxyde d'hydrogène comprend au moins 1 % en poids dudit peroxyde d'hydrogène et au plus 15 % en poids dudit peroxyde d'hydrogène, et en outre dans lequel ladite solution d'acide glycolique comprend au moins 1 % en poids dudit acide glycolique et au plus 5 % en poids dudit acide glycolique.
9. Procédé suivant l'une quelconque des revendica-

- tions 1 ou 3 à 8 ou composition suivant l'une quelconque des revendications 2 à 8, dans lequel l'eau est présente en une quantité d'au moins 60 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau et d'au plus 97 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau.
10. Procédé suivant l'une quelconque des revendications 1 ou 3 à 9 ou composition suivant l'une quelconque des revendications 2 à 9, dans lequel l'eau est présente en une quantité d'au plus 95 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau.
11. Procédé suivant l'une quelconque des revendications 1 ou 3 à 8 ou composition suivant l'une quelconque des revendications 2 à 8, dans lequel l'eau est présente en une quantité d'au moins 70 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau et d'au plus 95 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau.
12. Procédé suivant l'une quelconque des revendications 1 ou 3 à 11 ou composition suivant l'une quelconque des revendications 2 à 11, dans lequel ladite composition a un pH d'au moins 1,5 et d'au plus 4,5.
13. Procédé suivant l'une quelconque des revendications 1 ou 3 à 12 ou composition suivant l'une quelconque des revendications 2 à 12, dans lequel ladite composition a une densité d'au moins 1,0 et d'au plus 1,5.
14. Procédé pour éliminer ou dissoudre un ou plusieurs contaminants d'un environnement, comprenant les étapes consistant :
- à choisir une composition de peroxyde d'hydrogène, d'acide glycolique et d'eau, dans laquelle ladite eau est présente en une quantité d'au moins 50 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau et d'au plus 99,9 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau, le rapport pondéral dudit peroxyde d'hydrogène audit acide glycolique étant d'au moins 1:1 et d'au plus 30:1, pour fournir une composition, et
- à mettre en contact ledit contaminant avec une concentration de ladite composition, ladite concentration étant efficace pour éliminer au moins une partie dudit ou desdits contaminants dudit environnement.
15. Procédé suivant la revendication 14, dans lequel ledit ou lesdits contaminants sont choisis dans le groupe consistant en des éléments du Groupe II, des éléments du Groupe III, des éléments du Groupe IV, des éléments du Groupe V, des éléments du Groupe VI, des éléments du Groupe VII, des éléments du Groupe VIII, des algues, des champignons, des bactéries, des agents tensioactifs, des gommes naturelles, des gommes synthétiques, des composés organiques, des fibres de papier, des filtres en papier, des argiles, des sulfures, des sulfates, des agents oxydants, des agents adhésifs, des amidons, et leurs associations.
16. Procédé suivant la revendication 15, qui élimine les bactéries contaminantes.
17. Procédé suivant la revendication 15, dans lequel ledit environnement est choisi dans le groupe consistant en des systèmes aqueux, des systèmes de production de papier, des systèmes de production de pâte à papier, des systèmes d'impression, des systèmes d'emballage, des systèmes flexographiques, des systèmes de préparation alimentaire, des systèmes de blanchiment, des systèmes métallurgiques, des systèmes de lavage à l'acide, des systèmes de produits vétérinaires, des systèmes de pesticides, des systèmes de préparation de viande, des systèmes de préparation de volaille, des systèmes de préparation de produits laitiers, des systèmes d'assainissement et leurs associations.
18. Procédé suivant la revendication 17, dans lequel ledit environnement est un système aqueux choisi dans le groupe consistant en des piscines, des systèmes de traitement d'eau, des systèmes de drainage, des systèmes de chaudières, des systèmes de refroidisseurs, des systèmes de traitement des eaux usées, des systèmes d'irrigation, des systèmes agricoles, des systèmes de colonnes de refroidissement et leurs associations.
19. Procédé suivant la revendication 14, dans lequel ledit environnement est choisi dans le groupe consistant en des systèmes de traitement de boues résiduelles, des systèmes de traitement des eaux usées et des systèmes de traitement d'eau de ville.
20. Procédé suivant la revendication 14, dans lequel ledit environnement est un système agricole.
21. Procédé suivant la revendication 14, dans lequel ledit environnement est choisi dans le groupe consistant en des systèmes de chaudières, des systèmes de refroidisseurs et des systèmes de colonnes de refroidissement.
22. Procédé suivant la revendication 14, dans lequel le-

- dit contaminant comprend des algues et ledit environnement comprend un système contenant de l'eau.
- 23.** Procédé suivant la revendication 14, dans lequel ledit système contenant de l'eau comprend une piscine. 5
- 24.** Procédé suivant la revendication 14, dans lequel ledit environnement est choisi dans le groupe consistant en un système d'impression ou un système d'emballage. 10
- 25.** Procédé suivant la revendication 24, dans lequel ledit contaminant comprend un élément du Groupe II. 15
- 26.** Procédé suivant la revendication 24, dans lequel ledit contaminant comprend un amidon.
- 27.** Procédé suivant la revendication 14, dans lequel ledit environnement est choisi dans le groupe consistant en des systèmes de production de papier et des systèmes de production de pâte à papier. 20
- 28.** Procédé suivant l'une quelconque des revendications 14 à 27, dans lequel ladite eau est présente en une quantité d'au moins 60 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau et d'au plus 97 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau. 25
- 29.** Procédé suivant l'une quelconque des revendications 14 à 28, dans lequel l'eau est présente en une quantité d'au plus 95 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau. 30
- 30.** Procédé suivant l'une quelconque des revendications 14 à 27, dans lequel ladite eau est présente en une quantité d'au moins 70 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau et d'au plus 95 % sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau. 35
- 31.** Utilisation d'une composition suivant l'une quelconque des revendications 2 à 13, comme biocide industriel pour tuer divers champignons, diverses moisissures ou bactéries. 40
- 32.** Utilisation d'une composition suivant l'une quelconque des revendications 2 à 13, comme agent assainissant pour réduire la concentration de contaminants de systèmes aqueux. 45
- 33.** Procédé pour éliminer des bactéries contaminantes d'un environnement choisi dans le groupe consistant en des systèmes aqueux, des systèmes de production de papier, des systèmes de production de pâte à papier, des systèmes d'impression, des systèmes d'emballage, des systèmes flexographiques, des systèmes de préparation alimentaire, des systèmes de blanchiment, des systèmes métallurgiques, des systèmes de lavage à l'acide, des systèmes de produits vétérinaires, des systèmes de pesticides, des systèmes de préparation de viande, des systèmes de préparation de volaille, des systèmes de préparation de produits laitiers, des systèmes d'assainissement et leurs associations, comprenant la mise en contact des bactéries contaminantes avec une composition antibactérienne pouvant être obtenue en produisant une composition à partir des constituants suivants :
- une solution de peroxyde d'hydrogène et d'eau ;
une solution d'acide glycolique et d'eau ; et
de l'eau,
la composition étant produite en mettant en contact lesdits constituants, l'eau étant présente en une quantité d'au moins 50 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau et en une quantité d'au plus 99,9 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau.
- 34.** Procédé suivant la revendication 33, dans lequel la composition peut être obtenue en mettant en contact la solution de peroxyde d'hydrogène et d'eau, la solution d'acide glycolique et d'eau, et l'eau à basse teneur en matières solides comprenant moins de 10 ppm de matières solides dissoutes. 50
- 35.** Procédé suivant la revendication 33 ou la revendication 34, dans lequel l'eau est présente en une quantité d'au moins 60 et d'au plus 97 % en poids sur la base du poids total du peroxyde d'hydrogène, de l'acide glycolique et de l'eau. 55
- 36.** Procédé suivant l'une quelconque des revendications 33 à 35, dans lequel l'eau est présente en une quantité d'au plus 95 % en poids sur la base du poids total dudit peroxyde d'hydrogène, dudit acide glycolique et de ladite eau.
- 37.** Procédé suivant la revendication 33 ou la revendication 34, dans lequel l'eau est présente en une quantité d'au moins 70 et d'au plus 95 % en poids sur la base du poids total du peroxyde d'hydrogène, de l'acide glycolique et de l'eau.
- 38.** Procédé suivant les revendications 33 à 37, dans lequel la composition antibactérienne a un pH d'au moins 1,7 et d'au plus 4.