SOLIDIFIER FOR LIQUID MEDICAL WASTE

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ABSTRACT

A solidifier for liquid medical waste disposed in a vessel, the solidifier comprising a mixture of absorbents having different apparent densities whereby at least one absorbent is negatively buoyant and at least one absorbent is positively buoyant relative to the liquid medical waste. Packaging for the solidifier is disclosed for effecting selective dispersal of the solidifier within the liquid medical waste disposed in the vessel.
SOLIDIFIER FOR LIQUID MEDICAL WASTE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation-in-part of copending application Ser. No. 09/865,141, filed May 24, 2001, entitled: SOLIDIFIER FOR A LIQUID, entirety of which is incorporated herein by reference and upon which priority is claimed.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

FIELD OF INVENTION

[0003] This invention relates to the handling and disposal of flowable (liquid) medical waste, such as body fluids, irritants, and related flowable materials. Whereas at times herein, such liquid medical waste is referred to as a “liquid”, it is to be recognized that when so used, the term “liquid” is deemed to be synonymous with “liquid medical waste” unless the context in which the term is used clearly indicates otherwise, and either term is deemed to include any flowable waste which results from, is generated in association with, the diagnosis, treatment or prevention of disease, or bodily injury, including surgical procedures, particularly invasive surgical procedures, or other medically related event which generates liquid (flowable) waste.

BACKGROUND OF INVENTION

[0004] Liquid medical waste commonly is collected at the site of its generation in a collection vessel adapted to receive and retain therein the liquid medical waste. Such wastes may, and often do, include medically contaminating organisms, chemical moieties, etc. Such liquid medical waste is flowable, much like water. Of necessity, such vessels must include some form of opening or port into the vessel and through which the liquid medical waste is introduced into the vessel. Consequently, the vessel is subject to spillage of such collected liquid medical waste due to outflow of collected waste from the vessel via its entry port, with potential for contamination of the ambient environment and/or personnel which might be exposed to the spilled liquid waste. In the handling and disposal of liquid medical waste it has been proposed to introduce into a vessel containing liquid medical waste, a gel-forming chemical compound which is intended to render the liquid medical waste in the vessel non-flowable. Desirably, the conversion of the flowable waste to a non-flowable waste is rapid and complete. Commonly, vessels containing a collection of liquid medical waste become filled before the completion of a medical event, such as surgery, thereby requiring exchange of a filled vessel with a fresh empty vessel. In most other instances, upon the completion of the medical event, it is desired that the vessel be substantially immediately removed from the operative arena. Either such event affords an opportunity for spillage of flowable medical waste from the vessel. Hence, rapidity of conversion is needed to permit the conversion to take place before, or immediately after, the completion of the event which generates the liquid medical waste and before the vessel must be handled or moved and thereby subject to inadvertent spillage. The need for completeness of the conversion is obvious since incomplete conversion will result in the continued existence of flowable liquid medical waste being present in the vessel, thereby essentially defeating the purpose of the conversion. As a further factor, “Solidification” or “stabilization”, as these terms are used herein is intended to refer to the alteration of the state of a flowable medical waste in a collection vessel to a substantially non-flowable medical waste without removal of the medical waste from such collection vessel. The agent employed to effect the solidification or stabilization is at times herein referred to as a “solidifier”. In the prior art medical applications, single component super-absorbsents have been used for stabilizing liquid infectious waste within a container against spillage through inadvertent tipping of the container in the course of a medical procedure, or during transfer, storage and/or disposal of the waste.

[0005] Known super absorbents heretofore used in the field of liquid medical waste may be characterized by a variety of properties. One such property is the apparent density (also termed “bulk density”) of the super absorbent relative to other super absorbents and/or relative to the density of the liquid sought to be stabilized. For example, the super absorbent may either sink or float with respect to the liquid collected in a vessel and which is intended to be stabilized, i.e. made non-flowable. For example, an absorbent having a density greater than the liquid to be stabilized will “sink” relative to the liquid in question and therefore would commence its stabilization action at the bottom of the liquid in the vessel and the stabilization action would progress upwardly through the liquid in the vessel. On the other hand, if the super absorbent is of lesser density than the density of the liquid medical waste in the vessel, the super absorbent will “float” and commence its stabilization activity at the upper level of the liquid, with the stabilization action progressing downwardly through the liquid. Each of these events is undesirable when working with liquid medical waste. In either event, the rapidity of completion of the stabilization event is most often insufficient to render the liquid medical waste non-flowable before the vessel with its collected liquid medical waste, must be handled, thereby substantially negating the usefulness of the single component super absorbent. Further, commencement of the stabilization event at one or the other of the top or bottom of the vessel can result in the formation of a graduation of stabilization of the liquid medical waste between the top and bottom ends of the vessel, even to the extent that “pockets” of flowable liquid medical waste are formed intermediate the top and bottom of the vessel.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is a schematic representation of a package containing a mixture of absorbents disposed in a liquid to be solidified.

[0008] FIG. 2 is a schematic diagram of a package containing a mixture of absorbents in accordance with one aspect of the present invention; and

SUMMARY OF INVENTION

[0009] In accordance with one aspect of the present invention, the present inventor has discovered a solidifier which comprises a plurality of components, specifically first and second absorbents having respective different apparent
(bulk) densities, which in combination provide unique stabilization results with respect to liquid medical wastes disposed in a vessel. In the present invention, the “density” of the absorbent takes into consideration the bulk density of the absorbent. This, and/or other “density” factors are used to determine whether the absorbent “floats” or “sinks” when introduced into flowable liquid medical waste contained in a vessel. For example, whether a given absorbent, or mixture of absorbents, floats or sinks with respect to a liquid may be influenced by factors such as the overall shape of the particles of the absorbent, wettability of the absorbent particle by the liquid medical waste, entrapment of air, etc., as well as the specific gravity of the particles of the absorbent. Thus, the terms “floaters” and “sinkers”, are used herein, at times, to characterize a given absorbent or mixture of absorbents (a solidifier), with reference to whether the absorbent or mixture of absorbents, as a whole, starts its activation process predominantly adjacent the bottom of the vessel or predominately adjacent the upper surface of liquid medical waste in the vessel.

With respect to liquid medical waste applications, several specific absorbent compounds, all available in powder form, have been identified to achieve the desired buoyancy characteristics of the present solidifier. For example, in the positive buoyancy category Absorb-O-Gel™, available from Pioneer Medical; Aqua-Keep™ J550, manufactured by Sumitomo and available from Absorbent Technologies and Norseryl™ S-35, manufactured by Emerging Technologies, Inc. and available through The Chemical Company, each has a bulk density that result in positive buoyancy relative to the referent saline solution. Also, in the negative buoyancy category Medigel™ 300, available from BASF, Flosorb™ 60, available from Chemtall, Inc., and SA60N type II, available from Absorbent Technologies, each has a bulk density which results in a negative buoyancy relative to the referent saline solution.

Stated generally, floater absorbents absorb faster (hence solidify faster) that do sinkers, but have a lower absorbing capacity relative to sinkers. Also, the rate of solidification is dependent upon the ratio of the amount of the absorbent used per given volume of liquid. Still further, the speed and capacity of solidification of a given absorbent varies according to the type of solution being treated. For example, the solidification action of sodium-based polyacrylate absorbent in a saline solution is of lesser capacity than the solidification action of this absorbent in tap water, for example.

In accordance with one aspect of the present invention, a combination of floating and sinking powdered absorbents is provided. In one embodiment, the specific mixture includes between about 20% and 80%, by weight, of a sinking absorbent and between about 20% and 80%, by weight, of the floating absorbant. A mixture of absorbents within these stated ranges of weight percentages, provides for relatively uniform and rapid conversion of the referent liquid medical waste in a vessel to a gel which is non-flowable. Greater percentages of the sinking absorbent promotes earlier commencement of solidification of the liquid adjacent the bottom of the vessel of liquid, relative to the commencement and completion of solidification of the flowable liquid medical waste adjacent the surface of the liquid in the vessel. In similar manner, lesser percentages of the sinking absorbent reverses this commencement of solidification of the liquid medical waste within the vessel.

For present purposes, examples of the present invention are presented with respect to medical liquid waste as typified by a 0.9% saline solution at room temperature. Given the parameters set forth herein, one skilled in the art may readily compound other like effective solidifiers for other liquid (flowable) medical waste contained in a vessel. In all instances, however, it is critical to the present invention that there be a predetermined relationship between the buoyancy of each absorbent employed relative to the density of the liquid medical waste sought to be stabilized.

In the foregoing example of percentages of absorbents, the mixture of powdered absorbents is presumed to be introduced into the vessel of liquid medical waste in the form of a flowing stream of substantially uniform volume of the mixture, and that the two absorbents commence and complete their solidification activity at substantially the same rates of solidification. In those instances where it is desired that the solidification of the liquid commence and attain completion adjacent the bottom of the vessel, in addition to the relative bulk, densities of the two absorbents, one need take into consideration the relative rates at which the two absorbents effect solidification. Faster-acting absorbents, either a floater or a sinker, can create undesirable, or even deleterious effects. For example, even when the mixture is of substantially equal quantities, by weight, of the two absorbents, if the floater absorbent is faster-acting than the sinker absorbent, the faster-acting absorbent may form a solid or semi-solid cap at the surface of the liquid medical waste in the vessel which captures or precludes the move-
ment: of the sinker absorbent past the cap, thereby resulting in incomplete solidification of the remainder of the liquid within the vessel. On the other hand, if the sinker absorbent of this mixture is the faster-acting absorbent, then the solidification of the liquid may proceed “from the bottom up” within the vessel, which can be a desired result, but would not be desired where a minimum time for full solidification of the liquid medical waste in the vessel was a critical desired result.

[0018] In any event, the present combination of absorbents provides a benefit over the use of a single absorbent. More specifically, when using a single absorbent, solidification can only commence and proceed to completion either from the top-down or from the bottom-up within the container. If the single component absorbent is introduced into the vessel at a location partway between the bottom and top level of the liquid medical waste in a vessel, only partial solidification of the liquid medical waste within the vessel would be effected since the absorbent would either sink or float away from its point of introduction into the vessel, leaving a portion of the liquid medical waste unalstabilized above or below the introduction point. In either of these situations, the initially solidified portion of the liquid medical waste in the vessel tends to capture a portion of the absorbent within the vessel, initially solidified portion and delay the migration of the absorbent to other portions of the liquid. Where time is of the essence, such action is not acceptable, as in liquid medical wastes contained in a vessel. Moreover, where time is not of the essence, single absorbents tend to incompletely disperse throughout the liquid medical waste in the vessel, leaving pockets of flowable liquid medical waste within the vessel—a situation which can be disastrous when handling liquid medical waste.

[0019] In the mixture of the present invention, the fact that the absorbent works from both the bottom-up and from the top-down, greatly enhances the ability of the absorbent mixture rapidly and fully solidify or gel the liquid medical waste. This combination of the present invention also eliminates the need for stirring of the liquid medical waste to ensure distribution of the absorbent throughout the liquid medical waste, which action can splash liquid from the vessel, or other spillage from the vessel.

[0020] The following examples set forth two tests which record the times consumed in solidification of 500 cc of tap water at room temperature employing different percentage compositions of sinkers and floaters, and provide guidance to one skilled in the art for formulating further mixtures, etc.:  

[0021] Fifteen grams of a powder mixture of Florsorb™ 60 sinker, having an apparent density of about 0.7 and Aqua Keep™ 5550 floater, having an apparent density of about 0.4, employing the percentages by weight given in the following Tables was added via a funnel to a vessel containing 500 cc of tap water. The powder mixture was poured through the funnel at a uniform rate of 7 gm/sec, without stirring. No substantial clumping of the mixture within the liquid was noted. The predominant portion of the particles of the Florsorb™ 60 was in the range of 500 to 800 micrometers, and in the range of 100-200 micrometers for the AquaKeep J550. The observed times for solidification of the water in the container are given in the Table I.

[0022] A further test was conducted identically with the test described hereinabove except the sinker was BASF 2103 and the floater was Norseryl S35 (predominant particle size range of 100-500 micrometers.

<table>
<thead>
<tr>
<th>Table I</th>
<th>Time to Solidify (sec.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinker  (wt %)</td>
<td>Floater (wt %)</td>
</tr>
<tr>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>80</td>
<td>0</td>
</tr>
<tr>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>100</td>
</tr>
</tbody>
</table>

[0023] In a further test, the sinker of the second test, at 100% by wt, clumped significantly when added to the water, but when mixed with the floater, no significant clumping of the mixture was noted. Avoiding clumping of the mixture within the liquid is of major import in the present invention, in that clumping prohibits full utilization of the quantity of the mixture and less than complete solidification per unit of absorbent used.

[0024] In similar manner, the present inventor has discovered that inclusion in a mixture of a sinker absorbent and a floater absorbent, a third absorbent which also is a sinker, and which may have the same bulk density but a particle shape different from the other sinker absorbent, one can achieve more complete and uniform dispersion of the more dense sinker. This effect has been found also to be enhanced by choosing a third sinker absorbent which has a larger average particle size than does the more dense sinker. In one test, 50% by weight of Aqua-Keep 5550 (floater) was mixed with 10% by weight of ASAP 2102 (“light sinker”) and 40% by weight of Florsorb 60 (“heavy sinker”). This mixture exhibited enhanced dispersion of the Florsorb 60 absorbent as compared to the dispersion of the Florsorb 60 employed without the second sinker absorbent.

[0025] In a further embodiment of the present invention, a second sinker absorbent was added to the two-absorbent mixture to produce a three-component mixture of absorbents. This added sinker was found to enhance the dispersion of all of the absorbents throughout the volume of the liquid, particularly the dispersion of the sinkers. In one example, 50% by wt of Florsorb™ 60 (first sinker), 10% by wt. of BASF 2102 (second sinker) and 40% by wt. of Absorb-O-Gel (floater) were mixed to define a three com-
ponent absorbent system. This mixture exhibited the described enhancement of dispersion of the several absorbents of the mixture, particularly the dispersion of the sinkers. Having this knowledge, one skilled in the art will recognize that through the choice of the three components of the mixture, one can obtain substantially simultaneous solidification at the bottom, top and central portions of the liquid, hence enhanced reduction of solidification time.

[0026] It will be recognized by one skilled in the art that the relative percentages of the absorbents used may be varied to suit particular liquid medical waste concerns. For example, in some types of liquid medical waste it may be desired for more of the solidification to take place from the bottom-up, but it is still desired to have a buoyant absorbent to form a cap at the top surface of the liquid while solidification takes place. In this instance, the relative percentage of sinker absorbent may be increased and the percentage of floater absorbent may be relatively decreased. Such a situation might occur when there is primary concern about the loss of liquid medical waste from the bottom of the vessel (as from a discharge port), but the floating cap would also be useful minimizing or precluding spillage or evaporation of the liquid medical waste from the top of the vessel. Conversely, the relative percentages may be adjusted in the opposite manner where flow of the liquid, or spillage from a vessel that must be moved, is the primary concern, but where escape of liquid medical waste from the bottom or the vessel, or simply more rapid solidification, is also a concern.

[0027] In accordance with the basic concept of the present invention one can either prevent or use to one’s advantage the potential stratification issues that arise due to the use of only a single absorbent which has a single given buoyancy relative to the liquid medical waste to be solidified. This advantage is accomplished through the use of multiple absorbents mixed together, preferably in powder form, and introduced into the body of liquid medical waste in a vessel to be solidified in a substantially uniform flowing stream of the mixture, such absorbents being chosen on the basis of their buoyancies relative to the liquid to be solidified.

[0028] In accordance with another aspect of the present invention, the manner of introduction of the mixture of absorbents into the liquid medical waste in a vessel has been found by the present inventor to be of importance. In this respect, packaging of the powder mixture can be selected to accomplish controlled delivery of selected quantities of a given absorbent, or a given mixture of absorbents, or both, into the liquid medical waste at a preselected vertical level within the liquid medical waste contained in a vessel. FIG. 1 depicts one embodiment of an elongated package containing a mixture of absorbent(s). In one embodiment, the packaging material is of a material which is soluble in the liquid medical waste which is to be solidified. For example, a package formed of rice paper or even a light basis weight cellulosic paper may be employed when dealing with liquid medical wastes. Specific soluble packaging materials include Acetate Dissolvo and Alcohol Dissolvo fabric from CMS Gilbreth Packaging Systems, Inc.

[0029] In the embodiment of FIG. 1, the package 20 was filled with a mixture 22 of 50% by wt. of Aqua-Keep 3550, 10%, by wt. of ASAP 2102 and 40% by wt. of Flosorb 60. The packaging material for the depicted package was polyvinyl alcohol which readily absorbs in liquid medical wastes. As depicted in FIG. 2, upon admission of the package 20 of absorbent mixture into a vessel 24 containing liquid medical waste 26 to be solidified, the package commences dissolving and the contents 22 thereof are released into the liquid medical waste in the vessel 24. Thereupon, the sinkers 28 gravitate to the bottom 30 of the vessel and the floaters 32 rise toward the top surface 34 of the liquid medical waste, thereby substantially distributing the absorbents to their respective desired locations within the liquid medical waste. Through the use of an elongated package, there is a greater likelihood that the package will enter the liquid medical waste and lodge within the vessel with one end of the package disposed adjacent the bottom of the vessel and the opposite end of the package being disposed above the bottom of the vessel, thereby enhancing the distribution of the mixture within the liquid medical waste in the vessel and resultant enhanced speed and completeness of solidification of the liquid medical waste. Irrespective of the ultimate orientation of a package of a mixture of absorbents, the use of a packaged mixture of absorbents provides enhanced dispersion of the absorbents, as compared to pouring of the mixture into a vessel containing the liquid medical waste, thereby enhancing the desired stabilization of the liquid medical waste in the vessel.

[0030] Another packaging related embodiment relates to the segregation of the different buoyant absorbents into different packaging compartments of an overall singular package with the overall packaging made of a material which dissolves or disintegrates when immersed within the liquid medical waste. In this embodiment, each absorbent is placed with a different compartment in the packaging and each compartment is engineered with different decomposition or dissolving effects. For example, if the combination is of floating and sinking absorbents and the desire is to release the sinker first, so that it does not become trapped by the floater, the packaging would be engineered so that the compartment containing the sinker would dissolve or disintegrate first, thus releasing the sinker first. This type of packaging engineering may utilize a thicker wall-thickness of the dissolving or disintegrating packaging for containing the floater so that this component would be released last, or may utilize different packaging materials of different rates of dissolution or disintegration. One skilled in the art will readily recognize similar packaging concepts as well as a mixture of absorbents in one or both of the different compartments of the package. For example, one might choose to employ inner and outer packages, the outer packages containing the first-to-be released absorbent and the inner package containing the second-to-be released absorbent, etc.

[0031] Additionally, the buoyancy of the package itself may be engineered to achieve further solidification effects. For example, the complete package may be designed to be negatively buoyant so that the package would sink to the bottom of a vessel containing the liquid medical waste. There, the package would dissolve, releasing the sinker absorbent and allowing the floater absorbent to rise within the liquid medical waste. The converse, that is, designing the package to be positively buoyant, would result in release of both the floater and sinker absorbents, the floater absorbent being adjacent the top surface of the liquid while the sinker sank toward the bottom of the liquid.

[0032] Staged release packaging may also be employed, wherein a portion of a mixture of absorbents is released over
time, such as in the course of sinking of the overall package toward the bottom of the vessel which contains the liquid.

[0033] The foregoing description of various embodiments is provided for purposes of illustration and not limitation. One skilled in the art will recognize numerous changes, additions, substitutions or deletions to the features and components described herein. For example, while specific absorbents have been listed and/or described, a variety of other absorbents may be substituted or included in a mixture of absorbents for a given set of circumstances involving solidification of a liquid or a mixture of liquids, etc., without departing from the scope of the present invention.

What is claimed:

1. A solidifier for the solidification of a volume of liquid medical waste contained in a vessel comprising:
   a first absorbent,
   a second absorbent,
   said first absorbent having an apparent density which renders said first absorbent positively buoyant relative to the liquid medical waste disposed within the vessel,
   said second absorbent having an apparent density which renders said second absorbent negatively buoyant relative to the liquid medical waste disposed within the vessel.

2. The solidifier of claim 1 wherein said first and second absorbents comprise a mixture thereof.

3. The solidifier of claim 2 wherein said mixture comprises substantially equal parts, by weight, of said first and second absorbents.

4. The solidifier of claim 1 wherein said mixture comprises greater than fifty percent, by weight, of said second absorbent whereby said second absorbent gravitates toward the bottom of said vessel.

5. The solidifier of claim 1 wherein said first absorbent comprises between about eighty percent and about twenty percent, by weight of said first absorbent.

6. The solidifier of claim 1 and including a third absorbent.

7. The solidifier of claim 6 wherein said third absorbent exhibits an apparent density which renders said third absorbent positively buoyant relative to the liquid medical waste.

8. The solidifier of claim 6 wherein the apparent density of said third absorbent is intermediate the apparent densities of said first and second absorbents.

9. The solidifier of claim 6 wherein said absorbents comprise a mixture of said first, second and third absorbents.

10. The solidifier of claim 9 wherein said mixture comprises about fifty percent, by weight, of said second absorbent, about ten percent, by weight, of said third absorbent, and about forty percent, by weight, of said first absorbent.

11. The solidifier of claim 6 wherein the average particle size of said third absorbent is greater than the average particle size of said second absorbent.

12. The solidifier of claim 1 wherein each of said absorbents is in the form of a flowable powder.

13. The solidifier of claim 1 and further including packaging for said mixture which is dissolvable or disintegrative when disposed in the liquid medical waste.

14. The solidifier of claim 13 wherein said packaging comprises two or more compartments, each compartment containing a portion of one or more of said absorbents.

15. The solidifier of claim 14 wherein said two or more compartments exhibit different rates of dissolution or disintegration when disposed in the liquid medical waste.

16. The solidifier of claim 6 wherein each of said absorbents is in the form of a flowable powder.

17. The solidifier of claim 6 and further including packaging for said mixture which is dissolvable or disintegrative when disposed in the liquid medical waste.

18. The solidifier of claim 17 wherein said packaging comprises two or more compartments, each compartment containing a portion of one or more of said absorbents.

19. The solidifier of claim 18 wherein said two or more compartments exhibit different rates of dissolution or disintegration when disposed in said liquid to be solidified.

20. A solidifier in powder form for solidifying a volume of liquid medical waste in a vessel comprising:
   a first mixture of powdered absorbents,
   a second mixture of powdered absorbents,
   said first mixture of powdered absorbents exhibiting an apparent density which renders said first mixture of powdered absorbents positively buoyant relative to the liquid medical waste,
   said second mixture of powdered absorbents exhibiting an apparent density which renders said second mixture of powdered absorbents negatively buoyant relative to the liquid medical waste.

21. A solidifier for a liquid medical waste disposed in a vessel and having a density approximating the density of a 0.9% saline solution comprising a mixture of a plurality of different absorbents, at least one of said absorbents having an apparent density which renders it negatively buoyant in the liquid medical waste, and at least one of said absorbents having an apparent density which renders it positively buoyant relative to the liquid medical waste.

22. The solidifier of claim 21 and including packaging for said mixture, said packaging being dissolvable or disintegrative when disposed within the liquid medical waste.

23. The solidifier of claim 21 wherein said mixture includes at least three different absorbents, two of said absorbents having respective apparent densities which render each negatively buoyant relative to the liquid medical waste, and the third of said absorbents having an apparent density which renders said third absorbent positively buoyant relative to the liquid medical waste.

24. The solidifier of claim 21 wherein said negatively buoyant absorbents exhibit different apparent densities whereby one of said negatively buoyant absorbents is more buoyant than the other of said negatively buoyant absorbents and said absorbent of lesser buoyancy enhances the distribution within said liquid of said absorbent of greater buoyancy.

25. A method for the solidification of a liquid medical waste comprising the steps of:
   introducing the liquid medical waste into a vessel,
   mixing together a first absorbent having an apparent density which renders said first absorbent positively buoyant relative to the liquid medical waste whereby said first absorbent floats adjacent the surface of the liquid, and at least one further absorbent having an apparent density which renders said further absorbent negatively buoyant relative to the liquid medical waste,
whereby said at least one further absorbent sinks toward the bottom of the liquid medical waste, and introducing at least a portion of said mixture into the liquid medical waste disposed in the vessel.

26. The method of claim 25 and including the step of mixing a still further absorbent with said first and further absorbents, said still further absorbent having an apparent density intermediate the densities of said first and further absorbents and which renders said still further absorbent negatively buoyant relative to the liquid medical waste disposed within the vessel.

27. The method of claim 26 wherein said still further absorbent exhibits an average particle size greater than the average particle size of said at least one further absorbent.