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(54) **ANTISTATIC AND REGENERABLE DESICCATOR**

(57) A desiccation package to provide humidity protection is described. The package comprising a first sheet comprising a mesh region, a second sheet comprising a second mesh region, the two sheets secured

together along the perimeter to form a package, and silica granules within the interior of the package, where the package is sealed to prevent loss of the granules from the interior.

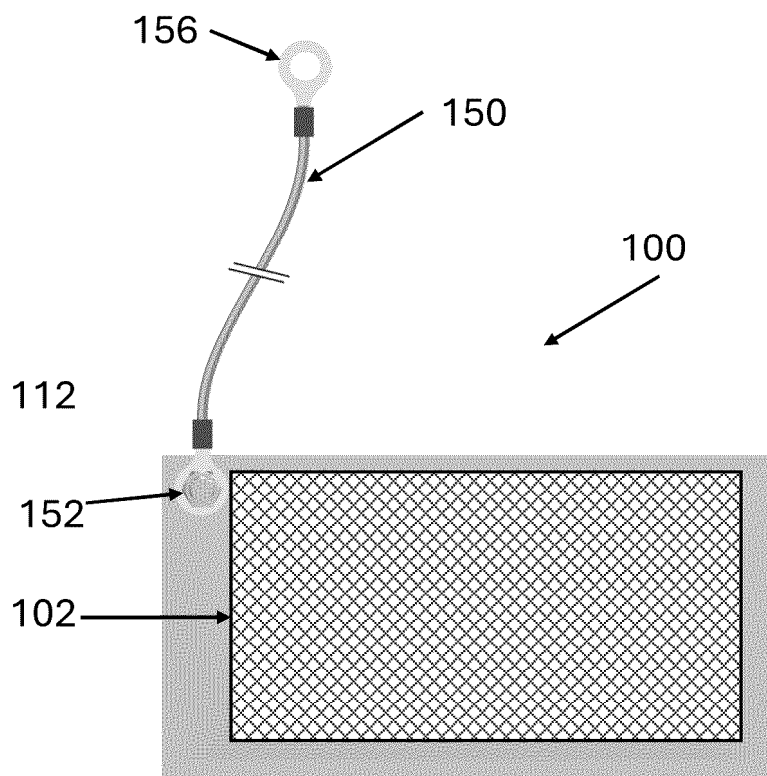


Fig. 4(b)

Description

Field of Invention

[0001] This invention relates to the field of humidity protection. 5

Background of Invention

[0002] Standard desiccator sachets are typically paper or plastic like materials. 10

[0003] Bespoke solid / rigid bodied solutions are also available (using a metal shell or plastic casing), but these come at high costs and lack the flexibility of a soft sachet. This means that physically fitting these rigid assemblies into small, sensitive electronic components can be difficult without modifications of the electronic device. 15

Summary of the Invention

[0004] According to an example there is provided a desiccation package suitable for providing humidity protection comprising; a first sheet comprising a stainless steel mesh sheet, a second sheet comprising a second stainless steel mesh sheet, the two sheets secured together along the perimeter to form a package, and silica granules within the interior of the package, an eyelet located within the package, further comprising an earth lead connected to the package via the eyelet, to allow the package to be grounded, where the package is sealed to prevent loss of the silica granules from the interior. 20

[0005] In an embodiment, the first and second metal sheets comprise at least one sheet. Further preferably, the first and second metal sheets comprise a plurality of sheets. 25

[0006] Preferably the package further comprises an eyelet located within the package. In a preferred embodiment, the eyelet is located along the perimeter of the package. Further preferably, the eyelet is in a corner of the desiccation package. 30

[0007] In an embodiment, the silica granules are between 1-3mm in diameter. 35

[0008] Preferably, the aperture of the mesh is approximately 0.1-1.0mm 40

[0009] Further preferably, the package is sealed via a fold and press along the top edge, after the silica granules have been placed within the package. Alternatively, the outer edges of opposed mesh sheets may be stitched together, to secure them together. Preferably, the first and second sheets are joined by sewing the sheets together along their out edges. 45

[0010] In an embodiment, the width of the package is between 20-200mm. Preferably, the height of the package is between 20-200mm. Further preferably, the width of the package is between 5-25mm. 50

[0011] In a preferred embodiment, the package 55

further comprising an earth lead connected to the package, to allow the package to be grounded. Further preferably the earth lead is connected to the package via the eyelet.

Brief description of the drawings

[0012] Further details, aspects and embodiments will be described, by way of example only, with reference to the drawings. In the drawings, like reference numbers are used to identify like or functionally similar elements. Elements in the FIG's are illustrated for simplicity and clarity and have not necessarily been drawn to scale.

FIG. 1(a) illustrates a plan view of a desiccator package according to an embodiment;

FIG 1(b) illustrates an alternative plan view of a desiccator package according to an embodiment;

FIG. 2 illustrates a side view of a desiccator package according to an embodiment;

FIG. 3 illustrates a top view of a desiccator package according to an embodiment;

FIG. 4(a) illustrates a side view of an embodiment of the package with an earthing strap;

FIG. 4(b) illustrates a plan view of an embodiment of the package with an earthing strap. 50

Detailed Description

[0013] Standard paper desiccation sachets are not robust and are often damaged when attempts are made to regenerate them in an oven, to remove gathered moisture. If the damaged material is refitted into the device, there is a high probability that the silica will fall freely into the device. 55

[0014] FIGs. 1-3 show alternative views of the desiccator package according to an embodiment, specifically a front view in FIG. 1(a) and 1(b), a side view in FIG 2, and a top view in FIG. 3. In FIG. 1(a) the mesh detail is too small to be seen, but this mesh is shown more clearly in FIG 1(b). Preferably, the desiccation package to provide humidity protection comprises a first sheet comprising a mesh region, a second sheet comprising a second mesh region, the two sheets secured together along the perimeter to form a package, and silica granules within the interior of the package, where the package is sealed to prevent loss of the granules from the interior. Preferably the first and second sheets are metal sheets, but they may be made of other materials, such as flexible carbon-based composites for example. 60

[0015] As shown, the package 100, comprises a top sheet 102 and a base sheet 120. Preferably the sheets are metal sheets, further preferably they are metallic mesh sheets, in an example, a stainless-steel mesh. Preferably, the first and second mesh regions are stainless steel mesh regions. Further preferably, the first and second metal sheets are stainless steel mesh sheets, and the first and second mesh regions are inte- 65

gral to the first and second stainless steel mesh sheets. Preferably, the aperture of the mesh is approximately 0.1-1.0mm

[0016] The sheets are joined along long edges 104 and 110, and short edge 106. This may be by welding, sewing, or folding and pressing each edge, for example. In an embodiment of the invention, the top sheet 102 may comprise at least one sheet, in an alternative embodiment the top sheet 103 is preferably a multiplicity of mesh sheets. Similarly, the base sheet 120 may comprise at least one sheet, or alternatively a multiplicity of mesh sheets. Desiccant granules, preferably silica granules are inserted into the package 100, and the package is sealed along edge 108 by folding and pressing the edge to secure the package 100. Further preferably, the package is sealed via a fold and press along the top edge, after the silica granules have been placed within the package. Alternatively, the sheets may be joined together by stitching them along the outer edges of the top and bottom sheets 102, 103. Once the silica granules have been inserted into the package the final edge will be sewn to seam the package. In an embodiment, the width of the package is between 20-200mm. Preferably, the height of the package is between 20-200mm. Further preferably, the width of the package is between 5-25mm. The silica granules will have that have had excess dust removed, and have been dehydrated before being, encased in the package 100, to create a portable, easy to use desiccator. In an embodiment, the silica granules are between 1-3mm in diameter.

[0017] In a preferred embodiment, the package 100 is formed of a stainless-steel mesh. This makes the package 100 corrosion resistant, heat resistant and durable. In a further preferred embodiment, the package is provided with an eyelet 112, which is used to secure a fixing strap to the package 100, to provide an earth connection, and thus make the package anti-static. Preferably the package further comprises an eyelet located within the package. In a preferred embodiment, the eyelet is located along the perimeter of the package. Further preferably, the eyelet is in a corner of the desiccation package.

[0018] Use of the stainless-steel mesh to form an embodiment of the package 100 means that the package 100 is also extremely durable, corrosion resistant, and heat resistant.

[0019] The silica gel granules within the package will desiccate the surrounding atmosphere, removing moisture for sensitive areas. In a preferred embodiment the package will provide a reuseable, regeneratable antistatic device for removing moisture and humidity from sensitive areas.

[0020] In addition, in a preferred embodiment, package 100 is conductive, allowing the package 100 to be securely grounded with an earth lead, as shown in figure 4.

[0021] The package 100 as described is suitable for

use within sensitive electronic components, especially around components sensitive to electrostatic discharge (ESD). This would also be a safer alternative to standard desiccant sachets when used in potentially explosive environments. This is because the package 100 can be securely grounded to a suitable earth point.

[0022] The package 100 is capable of withstanding the extremely high oven temperatures that may be present during regeneration. This is due to a Stainless-steel screen embodiment of the desiccation package having a melting point circa ~1375°C.

[0023] In summary the desiccation package 100, has one or more of the following properties:

1. Antistatic
2. corrosion resistant.
3. Desiccating
4. Heat resistant
5. Regenerating
6. Reuseable

[0024] Fig 4(a) and Fig 4(b) show an embodiment of the desiccation package with a strap 150, connected to eyelet 112. The eyelet 112 is preferably a metal eyelet fixed into the perimeter of the package. At one end of the strap 150, the strap is secured to eyelet 112 via nut 152 and bolt 154. At the opposite end of the strap 150 is securing ring 156, which can be secured to a device where the package is positioned. The length of the strap 150 will vary according to what the strap is to be affixed to. In a preferred embodiment, the desiccation package further comprising an earth lead connected to the package, to allow the desiccation package to be grounded. Further preferably the earth lead is connected to the desiccation package via the eyelet.

[0025] In an embodiment the Stainless-steel mesh desiccation package 100 and securing ring 156 for the earth strap 150, makes the desiccation package anti-static.

[0026] The combination of these three features delivers a reuseable, regeneratable antistatic desiccation device for removing moisture and humidity from sensitive areas.

[0027] The desiccation package can be produced in any size / dimension with varying capacity for silica granules. The size is not important in this patent as we can produce it any size. Typically, the length of the package 100 is between 20-200mm, the width of the package 100 is between 20-200mm, and the depth of the package is between 5-40mm.

[0028] The package 100 is suitable to be used inside assemblies that require antistatic properties. This is important for sensitive electronic circuits that are susceptible to electromagnetic interference (EMI) or in explosive atmospheres where static discharges (arcs) may cause ignition to surrounding atmosphere.

[0029] The package 100 will also be used inside assemblies that may be subject to flooding or high levels

of humidity / moisture as it can be repeatedly regenerated as required, safely in any conventional oven.

[0030] The package 100 will also be used in assemblies that require low maintenance costs as the device can be reused, alleviating the need for periodic replacement as expected from desiccators existing in the current market.

[0031] In the foregoing specification, it will be evident to a skilled person that that various modifications and changes to the examples herein described may be made therein without departing from the scope of the invention as set forth in the appended claims, and that the claims are not limited to the specific examples described above. It is envisaged that the safety mechanism discussed herein may be utilised in any type of manufacturing machine with fixed and moving parts where a mechanism must be actuated at a set relative position of components of the mechanical safety system.

[0032] Those skilled in the art will recognize that the design of the components and the mechanical process described, depicted herein are merely exemplary, and that in fact many other configurations, architectures or process steps can be implemented that achieve the same functionality.

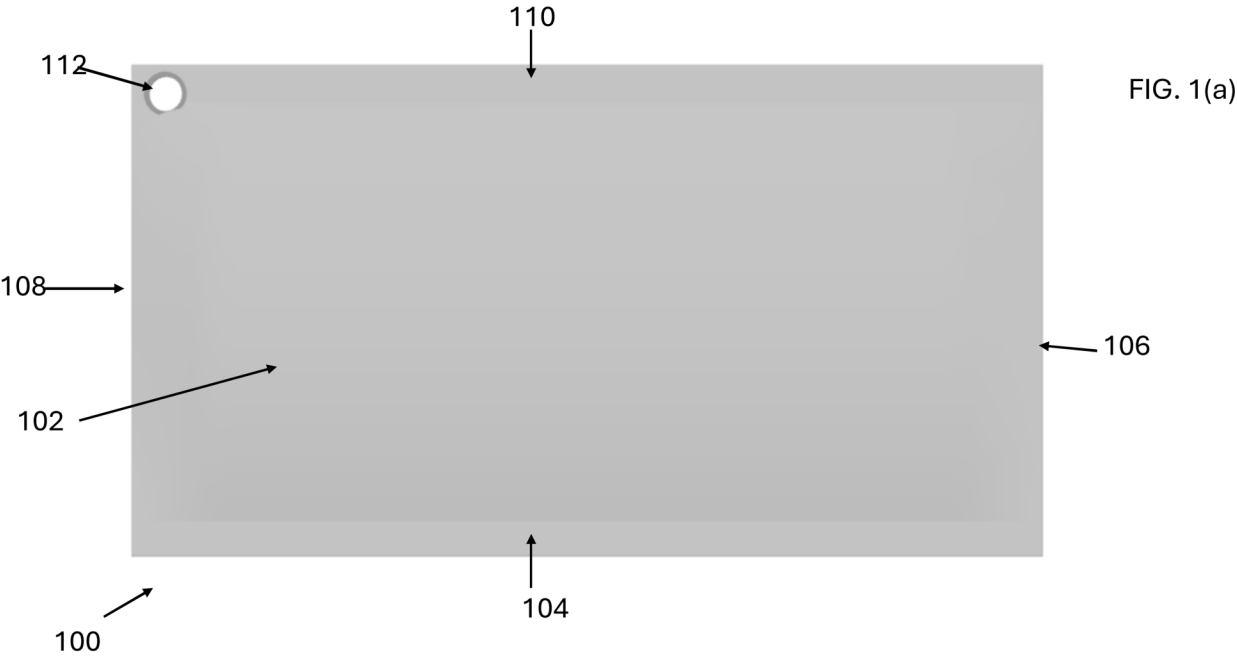
[0033] In the claims, any reference signs placed between parentheses shall not be construed as limiting the claim. The word 'comprising' does not exclude the presence of other elements or steps than those listed in a claim. In the claims, the word 'comprising' does not exclude the presence of other elements or steps than those listed in a claim. Furthermore, the terms 'a' or 'an,' as used herein, are defined as one or more than one. Also, the use of introductory phrases in the claims, such as 'at least one', 'one or more', etc., should not be construed to imply that the introduction of another claim element by the indefinite articles 'a' or 'an' limits any particular claim to containing only one such element, even when the same claim includes the introductory phrases 'one or more' or 'at least one' and indefinite articles such as 'a' or 'an.' The same holds true for the use of definite articles. Unless stated otherwise, terms such as 'first' and 'second' are used to arbitrarily distinguish between the elements such terms describe. Thus, these terms are not necessarily intended to indicate temporal or other prioritization of such elements. The mere fact that certain measures are recited in mutually different claims does not indicate that a combination of these measures cannot be used to advantage.

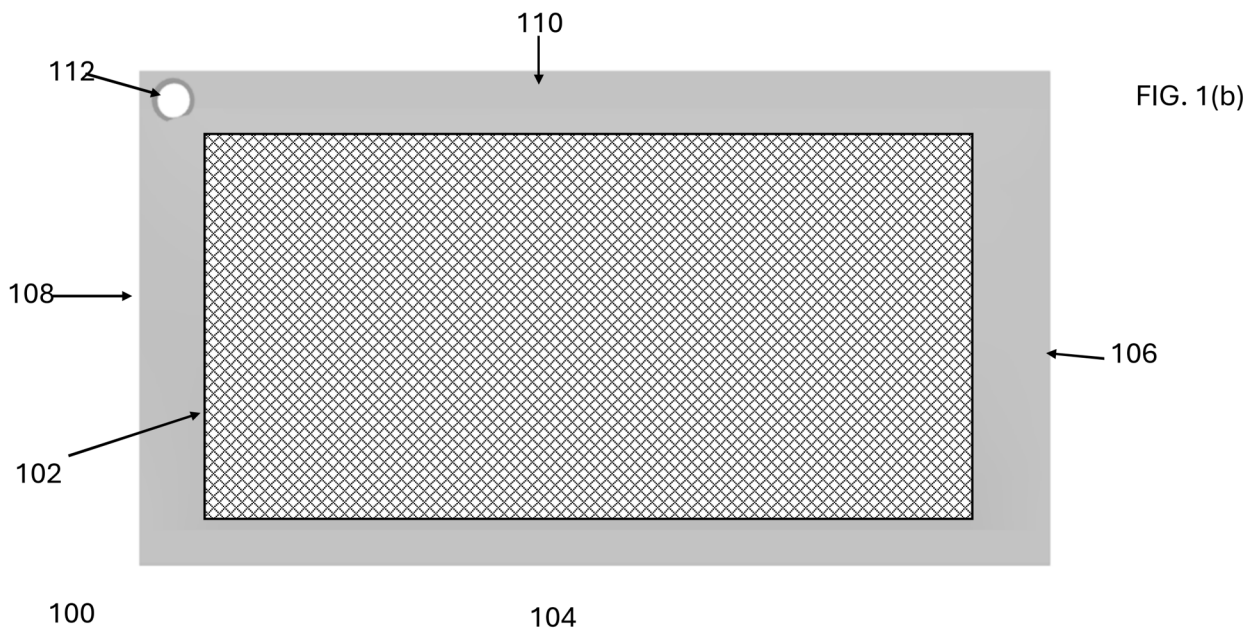
Claims

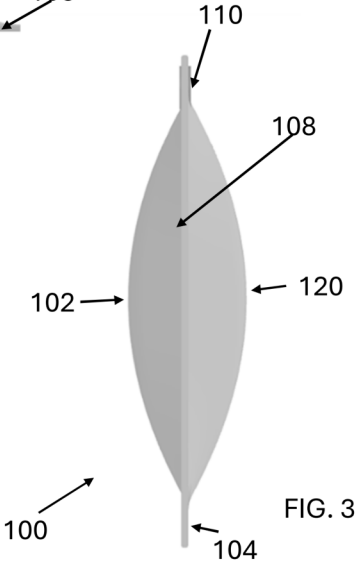
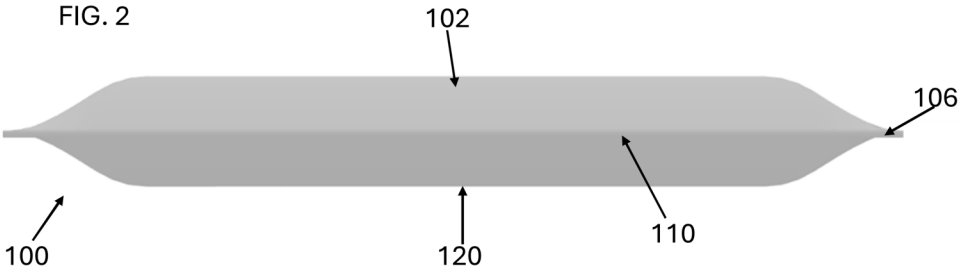
1. A desiccation package suitable for providing humidity protection comprising;
a first sheet comprising a stainless steel mesh sheet , a second sheet comprising a second stainless steel mesh sheet , the two sheets secured

together along the perimeter to form a package, and silica granules within the interior of the package, an eyelet located within the package, further comprising an earth lead connected to the package via the eyelet , to allow the package to be grounded, where the package is sealed to prevent loss of the silica granules from the interior.

2. The desiccation package as claimed in claim 1 wherein the first and second metal sheets comprise at least one sheet.
3. The desiccation package as claimed in claim 2 wherein the first and second metal sheets comprise a plurality of sheets.
4. The desiccation package of claim 1 wherein the eyelet is located along the perimeter of the package.
5. The desiccation package as claimed in claim 4 wherein the eyelet is in a corner of the desiccation package.
6. The desiccation package as claimed in any preceding claim wherein the silica granules are between 1-3mm in diameter.
7. The desiccation package according to any preceding claim wherein the aperture of the mesh is approximately 0.1-1.0mm
8. The desiccation package as claimed in any preceding claim wherein the package is sealed via a fold and press along a top edge, after the silica granules have been placed within the package.
9. The desiccation package as claimed in any of claims 1 to 8 wherein the first and second sheets are joined by sewing the sheets together along their outer edges.
10. The desiccation package as claimed in any preceding claim wherein the width of the package is between 20-200mm.
11. The desiccation package as claimed in any preceding claim wherein the height of the package is between 20-200mm.
12. The desiccation package of any preceding claim wherein the width of the package is between 5-25mm.







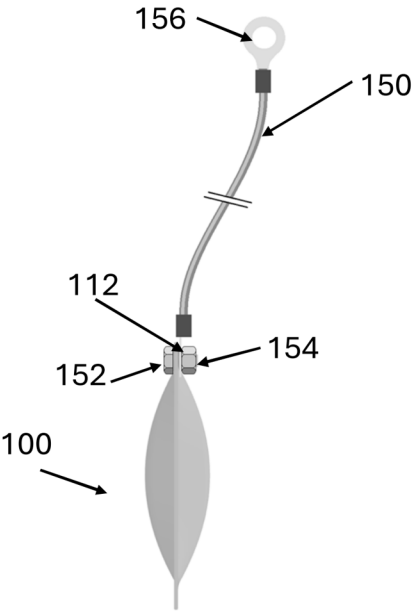


Fig. 4(a)

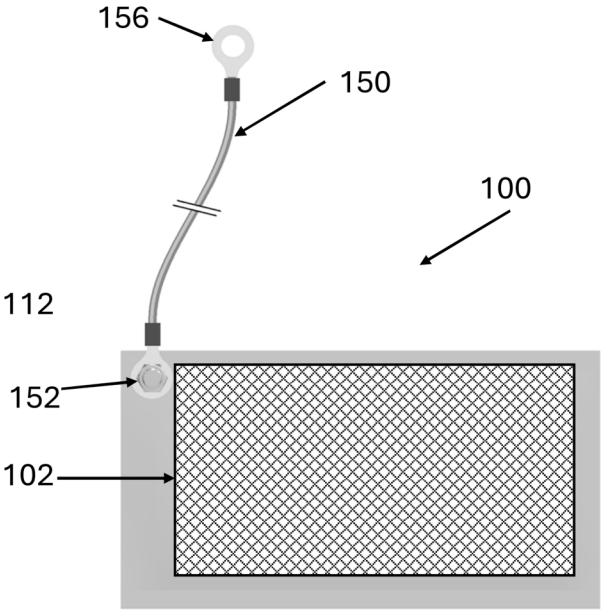


Fig. 4(b)



EUROPEAN SEARCH REPORT

Application Number

EP 26 16 6857

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		26 August 2026	Tempels, Marco
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
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