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[54] TRANSPARENT STORAGE CONTAINER FOR TC-99M ELUATE

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[51] **Int. Cl.** **G21f 5/00**
[58] **Field of Search** ..... 250/108 R, 108 WS; 252/106 R, 106 S, 108 R, 108 WS

[56] **References Cited**

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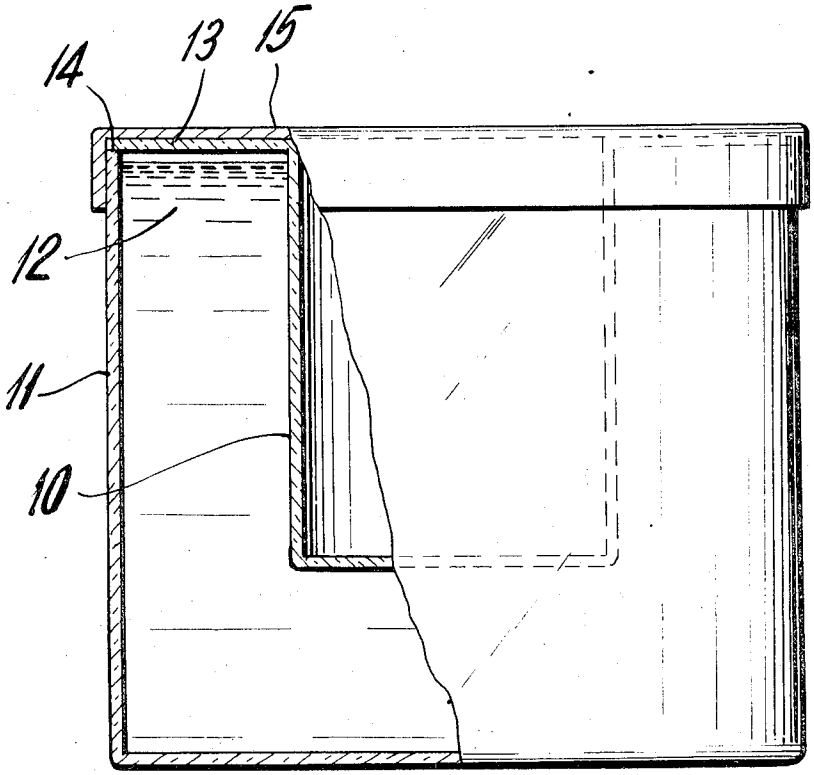
[57] **ABSTRACT**

A storage vessel for a reaction vial containing Tc–99m eluate comprises either a transparent leaded glass vessel having a thickness of from about 0.3 cm to about 2.5 cm and a lead content of from about 30 percent to about 65 percent by weight or an inner transparent receptacle which fits into an outer transparent container, the space between the inner and outer containers being filled with an aqueous, substantially saturated solution of lead perchlorate. A syringe for injecting Tc–99m eluate into a patient is formed of leaded glass as above.

5 Claims, 3 Drawing Figures



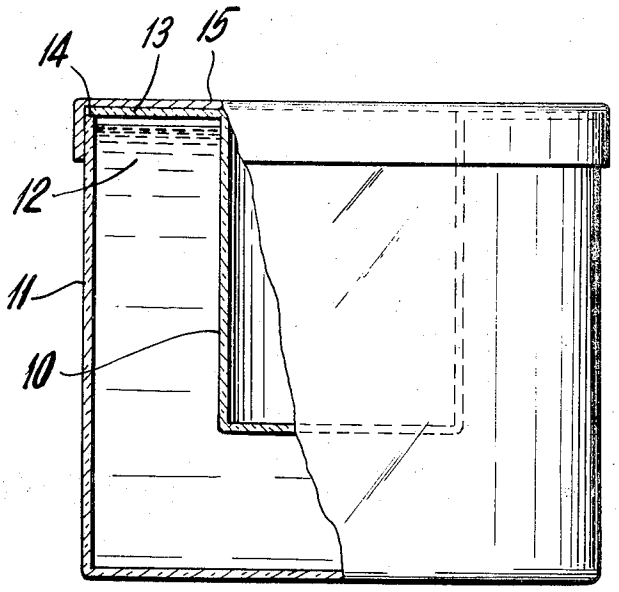


FIG. 1

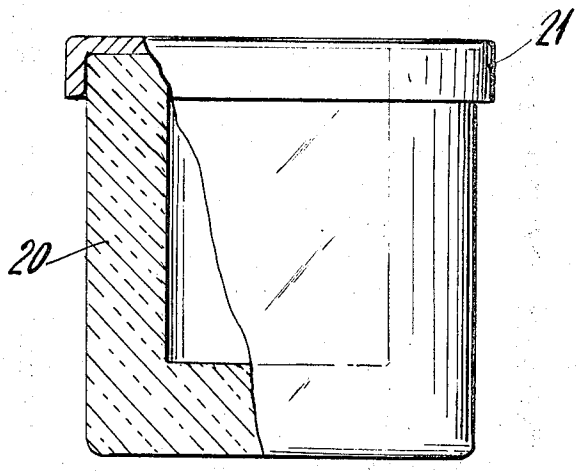


FIG. 2

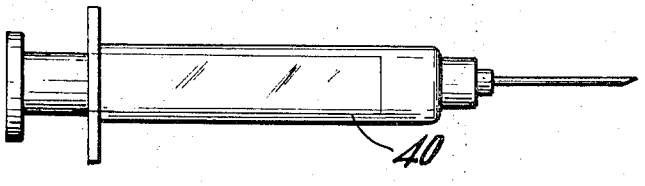


FIG. 3

TRANSPARENT STORAGE CONTAINER FOR TC-99M ELUATE

BACKGROUND OF THE INVENTION

The present day use of the field of medicine of radioactive diagnostic kits requires that the vessel containing the radioactive substance be shielded to reduce radiation exposure to personnel administering the radioactive diagnostic test to the patient. For example, an aliquot of an eluate from a Tc–99m generator that contains from about 1 to about 100 millicuries of Tc–99m is used to prepare a radioactive formulation in a reaction vial from which it is withdrawn into a syringe for injection into the patient. While it is desirable to be able to observe the product during preparation, it has not been possible heretofore to permit this due to the necessity of providing lead shielding around both the reaction vial and the syringe. The eluate remaining in the reaction vial is then stored in a lead container which does not permit visual observation of the amount of eluate remaining. Even when the syringe shielding and the lead container are provided (at great cost) with glass windows, it is still not possible to observe the eluate clearly.

OBJECTS OF THE INVENTION

It is, accordingly, an object of the present invention to provide a storage vessel for a reaction vial containing radioactive material, which storage vessel, while transparent, nevertheless provides protection against exposure to radiation. Another object is to provide a syringe which, while transparent, nevertheless provides protection against exposure to radiation. These and other objects of the present invention will be apparent from the following description.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an elevational view of one embodiment of a storage vessel, partially in section; and

FIG. 2 is an elevational view of another embodiment of a storage vessel, partially in section; and

FIG. 3 is a plan view of a syringe.

DETAILED DESCRIPTION

Referring to the drawings, FIG. 1 shows a storage container formed of an inner, substantially beaker-shaped container **10** which is formed of glass or transparent plastic, and an outer substantially beaker-shaped container **11** also formed of glass or transparent plastic. The inner and outer containers are spaced apart a distance of from about 0.6 cm to about 2.5 cm and the intervening space is filled with a substantially saturated solution of lead perchlorate **12.** Inner container **10** has top flange **13** which rests on the rim **14**

of outer container **11.** In use the reaction vial (not shown) is placed in inner container **10** and a lead cap **15** placed on the top. Cap **15** and lead perchlorate solution **12** provide protection against radiation.

FIG. **2** shows another substantially beaker-shaped storage container **20** formed of solid, transparent leaded glass having a wall thickness of from about 0.3 cm to about 2.5 cm, preferably from about 0.6 cm to about 1.2 cm, and a lead content of from about 30 percent to about 65 percent by weight. Generally, a higher lead content will be associated with a thinner wall. Once the reaction vial (not shown) is placed in container **20,** a lead cap **21** is placed over the container.

If desired, the cap in either of the above storage containers may be formed of leaded glass in which event the entire container including the cap is transparent.

FIG. **3** is a plan view of a syringe which is otherwise conventional but which is formed of transparent leaded glass barrel **40** having a wall thickness of from about 0.6 cm to about 1.2 cm, and a lead content of from about 30 percent to about 65 percent. Generally, a higher lead content is employed with a thinner wall syringe.

What is claimed is:

1. A storage container for a vessel housing radioactive eluate comprising an entirely transparent outer container shell including side and bottom walls, an entirely transparent cover member seated on the rim of the outer container side walls, said cover member including a central depression defining a radioactive material receiving cavity, said cavity being spaced from the interior walls of the outer shell defining a continuous compartment therebetween, said compartment being filled with transparent radioactive shielding material.

2. The container recited in claim **1** including a cap member sealing the tops of said depression and said outer shell which cap member extends across the rim of said outer shell and across said depression, said cap member being crimped about the exterior side walls of said outer shell, and said cap member is fabricated from radioactive shielding material.

3. The container of claim **1** wherein said radioactive shielding material is a solution of substantially saturated lead perchlorate.

4. The storage container of claim **1** wherein said cover and said outer shell are fabricated from glass having a wall thickness of 0.3 cm to 2.5 cm and a lead content of from 30 percent to 65 percent by weight.

5. The storage container of claim **1** wherein said cover and said outer shell are fabricated from a transparent plastic.

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