United States Patent Office 3,462,008 Patented Aug. 19, 1969

3,462,008

STORAGE AND HANDLING OF CHEMICAL SUBSTANCES

Geoffrey T. Tibbs, Hill Croft, 58 High Lane, Chester County, Woodley, England

No Drawing. Filed June 26, 1967, Ser. No. 648,934
Int. Cl. B65d 79/00
U.S. Cl. 206—47 1 Claim

ABSTRACT OF THE DISCLOSURE

A package unit comprising a container having two interactive materials stored therein. The interactive materials are in layers or strata in the container and the active materials are gelled to reduce reaction at the interfaces between the layers.

This invention relates to improvements in the storage of two or more interactive substances in a single container.

Interactive materials for use when mixed as cements, adhesives, mastics, sealing or other compounds have been packed in a single container and separated therein by an inert material which is compatible with the active materials but which does not react separately with either of them.

It has been found that it is not necessary to employ an inert material to separate the interactive materials provided care is taken in the preparation of, and composition of the interactive materials.

The object of the invention is that the compositions of the two interactive components be chosen so that although they will react normally when mixed together, when merely placed in contact as two separate layers in a tin, bottle, or other container, they will not react sufficiently at the interface to detract from the final compound obained by mixing the contents of the tin, bottle, or other container.

The invention comprises a method for the packing or storage of interactive materials in a single container in layers or concentric cylinders in which the active materials are gelled or stiffened before packing to reduce reaction at the interfaces or interface below that which will damage the compound produced when the active materials are subsequently mixed.

In carrying out the invention two interactive materials are packed in the same container by selecting their composition so that substantially no reaction occurs at the interface during storage to detract from the final compound obtained on mixing the two interactive materials.

This stability in the package is obtained by having the reactive compounds in a suitable physical form so that no or substantially no reaction takes place at the interface(s). The compounds are rendered inactive at the interface by the introduction of a gelling or stiffening agent into the component layers and the active components may be diluted with a suitable plasticiser, diluent, or extender which is compatible with the active ingredients but at the same time will not react with them, whilst reducing their concentration in the layer.

The invention will be described with reference to the following example:

	Parts
Polysulphide sold under the trademark Thiokol (active agent)	60.0
Fine particle size Silien (gelling agent)	2.0
Titanium oxide (pigmenting agent)	9.0
Surface coated calcium carbonate (gelling agent)	20.0

The above is packed as one layer with the following as the second layer.

	Parts
Dibutyl phthalate (diluent)	3.9
Bentone (gelling agent)	0.3
Acetone (to gel the bentone)	0.15
Lead peroxide (active agent)	4.5
Stearic acid (retardent)	0.15

The two layers when packed together are stable in the tin for a reasonable time, but when thoroughly mixed together cure in a matter of hours to give a rubbery sealant.

To use such a composition it is only necessary to mix by hand or mechanical means the contents of the tin, bottle or other container without the removal of any intervening barrier or partition or the transfer of material from one container to another.

The different components may be arranged in any suitable manner within this container, e.g. in vertical or horizontal layers, concentric cylinders, etc., though it is desirable that the arrangement be such that the area of contact between the active components is not unduly high in relation to the volumes of these components.

The mixing device may, if desired, be already inserted in the container as supplied to the user and may take several forms: a wire helix, a paddle stirrer, or a simple metal or plastics plate, etc. This package may be used in the building and other trades for the application of gun grade material. For use with the standard type of gun, the stirrer or mixing device is withdrawn, before use and this may conveniently, though not necessarily, be done through a suitably shaped hole in the end of the cartridge, designed to ensure that the smallest possible quantity of material is removed on the stirrer or mixing device.

In another form the materials are packed in a flexible but tough sausage-like skin or container, and the contents mixed immediately before use by manipulating the container, for instance by twisting or rolling it. One corner, may then be cut off and the contents squeezed out, through an added nozzle if necessary. Alternatively, the ingredients suitably stiffened may be extruded in the form of concentric cylinders which may be mixed by rolling in the hands or otherwise manipulating them. This is very convenient for caulking tapes.

What I claim is:

1. A packaging unit, comprising, in combination, a container; a gelled body of a first component comprising a mixture of polysulphide, silica, titanium oxide and calcium carbonate; and a gelled body of a second component comprising a mixture of dibutyl phthalate, bentone, acetone, lead peroxide and stearic acid, said mixtures being capable of reacting with each other when intimately mixed and being so proportioned that upon such mixing a rubber-like material is obtained, said bodies being located in said container adjacent to and in contact with each other, whereby, prior to said mixing, reaction between said two components at the interface between said two bodies is substantially prevented due to the jelled condition of said bodies, without requiring interposition of a third body of different composition.

References Cited

UNITED STATES PATENTS

2,791,327	5/1957	Sparks et al.	206—84
2,862,616	12/1958	Capozzi et al.	206—47
2,982,396	5/1961	Shihadeh	206—47
3,077,262	2/1963	Gaste	206—47

WILLIAM T. DIXSON, JR., Primary Examiner

U.S. Cl. X.R.

206—84

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,462,008 Dated August 19, 1969

Inventor(s) Geoffrey T. Tibbs

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the heading to the printed specification, line 5, after "England" insert --, assignor to FEB (Great Britain) Limited, Manchester, England, a Body Corporate of Great Britain --.

Signed and sealed this 3rd day of November 1970.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

WILLIAM E. SCHUYLER, JR.
Commissioner of Patents