

# James Alexander Corporation

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## Crushable Glass Ampoules



### Glass Ampoule History

The hermetically sealed glass ampoule, which was originally used to store sterile solutions, was developed in the early 1890s by a French pharmacist, Stanislaus Limousin. The glass container had a long tapered neck, which was sealed with an open flame after the ampoule was filled. Although there have been many different variations of the ampoule over the years, the original concept has not changed.

The JAC crushable glass ampoule offers all of the advantages that make glass the indispensable package for many applications. Not only will JAC's glass ampoules extend product shelf life, they are also ideal whenever tamper resistant packaging is a must, when the formulation is sensitive to environmental exposure, or when the application calls for a two part system where the materials need to be mixed immediately prior to use.

Some of the current uses for James Alexander's glass ampoule-based activation systems include retail store antitheft devices, sobriety and controlled substance test kits, rear view mirror replacement kits, and pest control packages. Other applications for JAC ampoules include:

- \* Topical applications- application of product to the skin- topical Pharmaceuticals, cosmetics, and health and beauty aids
- \* Dropper tip assemblies- dispensing of liquids in dropper form- microbiological reagents, fixatives and solvents
- \* Inhalation- as with attractants, deodorizers, respirator fit test products and pharmaceuticals
- \* Tandem applications- where two substances are mixed immediately prior to use- medical device test reagents, chemiluminescent light sticks, and topical pharmaceuticals

### Glass Composition

James Alexander's crushable glass ampoule can be made of USP (United States Pharmacopeia) type I or type III glass. USP type I glass is a borosilicate glass composed principally of silicon dioxide and boric oxide, with low levels of the non-network forming oxides. It is a chemically resistant glass exhibiting low leachability and a low thermal coefficient of expansion.

USP type III glass is commonly called "soda lime" glass. It is composed of relatively high proportions of sodium oxide and calcium oxide. Soda lime glass melts at a lower temperature, which makes it easier to mold into various shapes. This glass is less chemically resistant than USP type I glass and is typically used in applications where a slight variation in the pH will not affect the contents of the ampoule.

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## Glass Dimensions

JAC's crushable glass ampoules come in a variety of diameters to meet varied packaging needs. Standard diameters are 7.0 mm and 8.0 mm. All diameters have tolerances of +/- 0.25 mm. The length of a sealed glass ampoule can be varied from approximately 30 mm (1.2 inches) to more than 100 mm (3.9 inches). Tolerances for sealed ampoule length are typically +/- 1.5 mm.

Custom diameters and sizes are available for customers with nonstandard needs. When designing packages requiring glass ampoules, James Alexander recommends that customers attempt to utilize standard diameters in order to minimize lead times and cost.

## Powder Filling

James Alexander has also developed the capability of filling crushable ampoules with powders, with reproducible fill volumes as low as 50 milligrams. Powder ampoules are ideal for diagnostic test kits and a variety of other applications. Since ampoule quality and fill volume reproducibility are highly dependent on the characteristics and consistency of the particular powder or crystal, a small pre-production sample run is required.

## Further Packaging Options

Here are just some of the innovative ways JAC can package crushable ampoules:

\* In JAC single or tandem ampoule swabs. The ampoules may contain a liquid or a powder.

\* In JAC single or tandem dropper tip assemblies. This configuration is ideal for diagnostic applications.

\* JAC can also supply ampoules in bulk for those clients with in-house manufacturing capabilities.

For more information, please contact your James Alexander Corporation  
Customer Service Representative