

Press Release

Huntingdon, Great Britain, March 2018

Success by Design Custom Glass Formulations  
(Hall 5 / Stand A16)

Looking for the solution to a difficult engineering problem and needing a specially formulated glass? This was one such issue faced by a customer of [Goodfellow](https://www.azom.com/ads/abmc.aspx?b=3779" \t "_blank). This particular customer’s early research had been based around using commercially available types of glass. However, it was felt that a new glass could be developed with better specific properties.

Glass has two main defining characteristics: it is an amorphous (non-crystalline) solid, meaning that there is no long-range order of the positioning of its molecules; and it exhibits a reversible transition from a hard, brittle state to a molten state when heated, without a pronounced change in material structure. These two characteristics provide the basis for the development of innovative glass formulations that can result in novel solutions to high-tech challenges.

Successful glass formulation requires a thorough knowledge of the raw materials to be used, an understanding of the dynamic interaction of these raw materials, and a great deal of experience with the formulation process itself. Complementing those skills is another critical element of glass formulation: a mindset that embraces the prospect of creating something new and unique that functions like no other material.

**Developing a Custom Glass Formulation to Suit Client Requirements**

Goodfellow started by working with a glass research group, to develop a range of glass formulations with the desired properties that were considered to be worth evaluating. The list of formulations initially identified were then refined in terms of their ease of manufacturing, for subsequent machining operations and the ability to scale up to mass production volumes. After trials on these prototype formulations were completed the most suitable glass formulation with the best balance between preferred properties and reliability of production was selected. The successful glass formulation was then processed into mass production volumes and finished components machined from the glass blanks.

This novel new glass formulation offered significantly better properties than existing commercially available glass materials, whilst also being economically viable in mass produced volumes.

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