Low Melting Glass Compositions, Articles, and Methods of Making the Same

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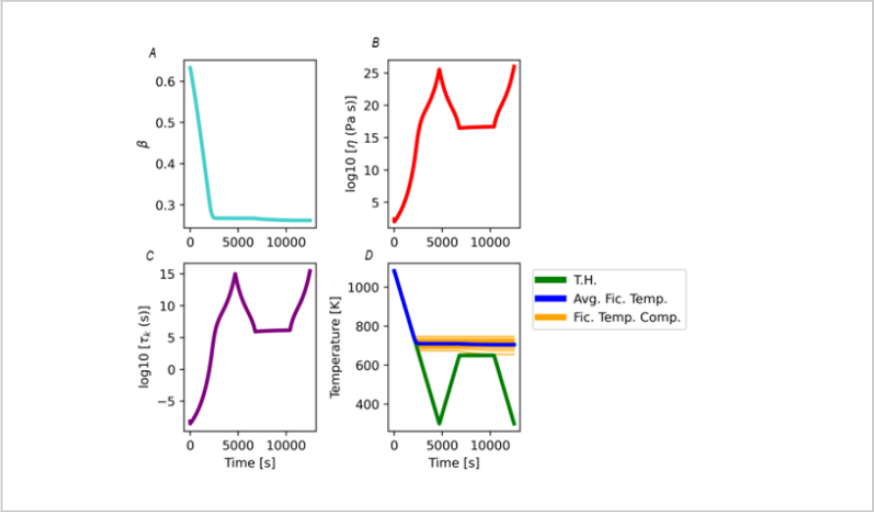

The relaxation behavior of an exemplary glass composition

Technology Summary

A new family of aluminosilicophosphate glass shows improved thermal stability, comparable chemical durability, and a lower melting point of 250° C over soda-lime silicate glass. Despite lower melting points, this glass improves corrosion resistance and decreases carbon emissions by reducing power consumption. The formed glass exhibits low fragility index reinforcing thermal and chemical stability. Moreover, the compositions display optical clarity with tunable tint. Glass matrix shows suitably high solubilities for transition metals for color glass applications and laser host materials.

Application & Market Utility

Soda-lime processes include fiber-drawing, float-processing, a press-and-blow process, a blow-and-blow process, and glass blowing at around 1,450° C, releasing 86 million tons of CO2 annually. Beyond commodity applications, glass has higher value-added use in the automotive industry, electronic industry, spectroscopy etc. Glass compositions and articles must withstand exposure to moisture without losing their desired physical and chemical properties. This glass may be suitable for electronic or portable computing devices, medical and food industries, architectural and art applications.

Next Steps

Based on earlier scholarly presentations, many glass manufacturers approached Dr. Mauro about downstream de-risking. A recent press release generated a wave of unsolicited interest that supports its commercial potential.

TECHNOLOGY READINESS LEVEL 4

Seeking

Investment | Licensing | Research

Keywords

- Phospho-based glass
- Non-carbonaceous
- Low Temperature
- Reduced carbon footprint
- Tableware

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