

# ON THE FORMATION OF UNUSUAL GLASSES BY SOL-GEL PROCESSING

EDGAR DUTRA ZANOTTO

*DEMA-UFSCar - 13560 - São Carlos SP Brazil*

It is frequently advertised that one of the main advantages of the sol-gel technique bears on its potential to produce new glasses from hesitant vitrifying compositions, which would normally crystallize if processed by quenching a melt. In this article we show that due to the intrinsic nature of gels (high-OH<sup>-</sup> content, etc.) they crystallize faster than melt-derived glasses at any temperature. Additionally, gels must be slowly heated from room temperature to approximately half of the liquidus temperature to densify to a glass. That is a much more dangerous path than quenching from the liquid state because the nucleation regions is crossed on heating. Finally, there is no report on a gel-derived glass made from systems prone to crystallization. It is concluded that the gel route is worse than conventional processing to reach the vitreous state and cannot lead to dense glasses of reluctant vitrifying compositions.