

Commercial silicate glass-ceramics: characterization by xrd And tem on crystallization

ABSTRACT

Crystallization in commercial spodumene glass-ceramic, Corningware® and commercial fluosilicate glass-ceramic, Macor® were characterized by comparing with the quench studies of in-house melted glasses using XRD and advanced microscopy techniques (TEM). XRD, Energy Dispersive X-Ray Analysis (EDAX) and Selected Area Diffraction Pattern (SADP) by TEM confirmed the crystallization of the β -spodumene s.s. with minor needle-like rutile and also precipitation of cuboidal spinel in in-house spodumene glass-ceramics. The techniques were also used in confirming crystallization in the in-house fluosilicate glassceramics where different microstructure based on the early-formed fluorophlogopite crystals were observed with minor cuboidal mullite present as compared to the commercial fluosilicate glass-ceramics.