

Industrial residues content Glasses:

The chemical resistance improvement with the galvanic waste added.

The sustainable development concepts attainment requires the use of no usual raw materials as raw materials in ordinary products. The use of carcinogenic chromium content residues as the galvanic waste in the production of glassy products is in accordance of this deal. To study these materials chemical behavior boron-soda-lime glasses from 10 until 50%wt of galvanic waste added were prepared by fusion at 1300°C. In these glasses, the modifier function of the transition metals (Cr, Ni, Cu, Zn) was considerate as Ca replacing. Silica fine powder and granite industrial wastes were used to composition adjustment. The samples behavior in hydrolytic, acid and basic media was analyzed by FTIR, XRD and SEM-EDX techniques. The observed metal based glasses dissolution behavior were close similar to the Ca based glasses with the chemical resistance improvement when the transitions metals were used as glass modifier. For 15%wt modifier the hydrolytic dissolution rate for calcium and transition metals based glasses are $84,0 \times 10^{-8}$ and $9,1 \times 10^{-8} \text{ g.cm}^{-2}.\text{s}^{-1}$ respectively. For up 30%wt galvanic waste additions, eskolaite secondary phase formation was observed. These secondary phases were chemically resistant.