

## Processing and Characterization of Glass-Epoxy Composites Filled with Linz-Donawitz (LD) Slag

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**Abstract :** Linz-Donawitz (LD) slag a major solid waste generated in huge quantities during steel making. It comes from slag formers such as burned lime/dolomite and from oxidizing of silica, iron etc. while refining the iron into steel in the LD furnace. Although a number of ways for its utilization have been suggested, its potential as a filler material in polymeric matrices has not yet been explored. The present work reports the possible use of this waste in glass fiber reinforced epoxy composites as a filler material. Hybrid composites consisting of bi-directional e-glass-fiber reinforced epoxy filled with different LD slag content (0, 7.5, 15, 22.5 wt%) are prepared by simple hand lay-up technique. The composites are characterized in regard to their density, porosity, micro-hardness and strength properties. X-ray diffractography is carried out in order to ascertain the various phases present in LDS. This work shows that LD slag, in spite of being a waste, possesses fairly good filler characteristics as it modifies the strength properties and improves the composite micro-hardness of the polymeric resin.

**Keywords :** characterization, glass-epoxy composites, LD slag, waste utilization

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