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Fabricating Copper-Based Composite by using Waste Steel Chips and TiB_2 Reinforcement Material

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Abstract–*Nowadays the wastes of the steel from the manufacturing sectors are producing in very large quantity. However, industries are not able to reutilise these wastes as it is not fruitful for these industries. Therefore, In the present study, an attempt was made to developed copper-based composite material reinforced with waste steel chips and TiB_2 (Titanium diboride). Uniform distribution of reinforcement particles was observed in the copper-based matrix material. Mechanical properties such as hardness and tensile strength were improved by utilizing 5 wt. % waste steel chips and 5 wt. % TiB_2 in copper-based matrix. Tensile strength for Cu/5 wt. % steel chips composite and Cu/5 wt. % TiB_2 composite was found to be 220 MPa and 215 MPa respectively. Hardness was found to be 35 BHN and 45 BHN for Cu/5 wt. % steel chips composite and Cu/5 wt. % TiB_2 composite respectively.*

Key words*:* Copper, waste steel chips, reutilize, composite; TiB_2