

4. CONCLUSIONS

AA 2014/uncarbonized eggshell composite was successfully developed through electromagnetic stir casting process. Microstructure results have confirmed the uniform distribution of uncarbonized eggshell in the matrix. No porosity was observed in the manufactured composite. The selected parameters reinforcement preheat temperature, stirring current, stirring time, matrix pouring temperature, and reinforcement weight percentage have affected the tensile strength of prepared AA 2014/ uncarbonized eggshell composite through stir casting. The maximum tensile strength of 287.194 MPa was found for reinforcement preheat temperature 537.87 °C, stirring current 12 A, stirring time 179.9 sec, matrix pouring temperature 726.8 °C, and reinforcement weight percentage of 12.46. Tensile strength and hardness was enhanced by 51.35 % and 41.66 % respectively. However the reduction in density and toughness was observed in the fabricated composite.

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