High Strain Rate Characterization of Shear Thickening Fluids using Split Hopkinson Pressure Bar Technique

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HIGHLIGHTS

- The high strain rate impact performance of STF is experimentally investigated on in-house designed and fabricated SHPB apparatus.
- The dynamic behavior of STF was studied in terms of stress-strain response, variation of impact toughness with loading rate and characteristic shear thickening transition time.
- The impact toughness of STF was found to increase progressively with the loading rate.
- The phase transition time of STF was found to be in the range of 13-25 μs.