

Evolution in Inherent Vibration-Suppressive Materials

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Abstract

From Aerospace through to Healthcare and Manufacturing, the need to control and/or suppress vibration across a wide range of products and markets is a critical requirement. Whether it is protecting delicate electronics from excess vibration on a satellite launch or controlling supersonic shock waves in ballistic armour, the use of the right combination of material allows this control while maintain other properties such as strength. This study shows how graphene composites has developed materials for extreme vibration suppression in ballistic events and how technology transfer can be achieved to utilise these materials in other market areas. Combining polymers into a composite structure can wield strong, lightweight materials with excellent vibration dampening characteristics without compromising tensile and flexural properties.

References

- [1] Harland,C., B.Eng Engineering Project, University of Durham (2022)
- [2] Liu,Y., Hu, H., Scientific Research and Essays Vol. 5 (10), pp 1052-1063, 18 May, 2010
- [3] Strankowski,M., et al, *Materials* **2018**, 11, 82; doi:10.3390/ma11010082

Figures

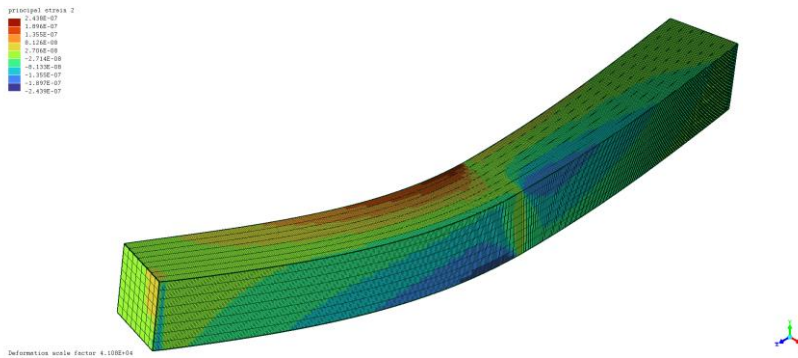


Figure 1: Simulation of strain in composite bar

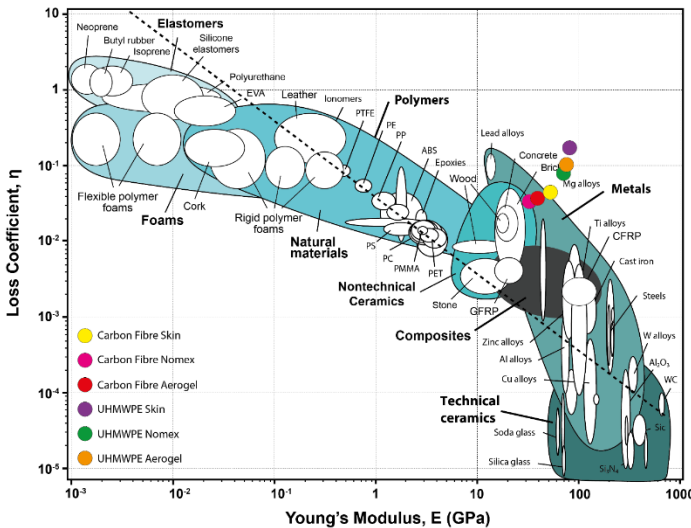


Figure 2: Ashby Chart relating to loss coefficients of GC structural materials [1]