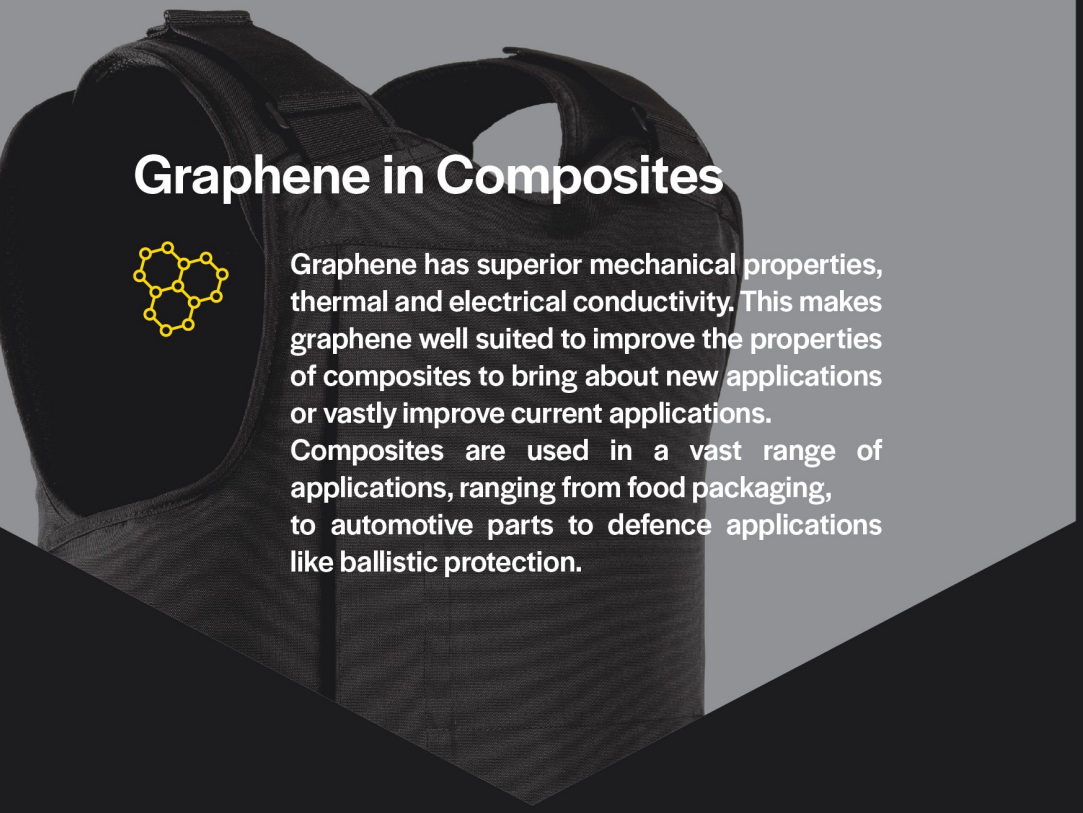


Graphene in Composites

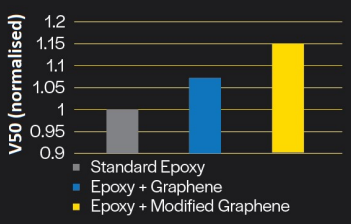
Graphene has superior mechanical properties, thermal and electrical conductivity. This makes graphene well suited to improve the properties of composites to bring about new applications or vastly improve current applications.
Composites are used in a vast range of applications, ranging from food packaging, to automotive parts to defence applications like ballistic protection.

2DM

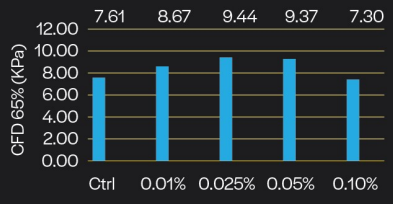
The main benefits of incorporating graphene are as follows:

- Higher electrical conductivity
- Higher thermal conductivity
- Improved abrasion resistance
- Higher barrier properties
- Improved mechanical properties
- Improved recyclability

Ballistic Limit
MIL-STD-662F



Graphene Infused Polyurethane Foam



Compression Force Deflection 65%
24% increase from Control

A study with 2DM's graphene in Nylon 6, ABS and Polycarbonate composites yielded the following:

- 54% — Improved tensile modulus by 54% in ABS
- 0.2-4.2 — Increased thermal conductivity from 0.2 W/mK to 4.2 W/mK in Polycarbonate
- 20% — Increased chemical resistance by 20% in ABS
- 24% — Improved flexural modulus by 24% in Nylon 6
- Increased electrical conductivity by a magnitude of 12, from 10^{-12} to 10^{-1} S/cm in Polycarbonate

Our Mission

2D Materials Pte Ltd (2DM) manufactures high performance graphene as an industrial additive to enhance the properties of many industrial materials such as paints & coatings, batteries, composites, polymers and lubricants. The company's mission is to expand the frontier of materials application through the use of high performance graphene.

Our core technology is a proprietary graphene production process developed at the Centre for Advanced 2D Materials at National University of Singapore, the first dedicated Centre towards graphene research in Asia, which was established under the leadership of Prof. Antonio Castro Neto and the scientific advice of Nobel Laureates in Physics for graphene – A.Geim and K. Novoselov.

2DM

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