

Genable® 2000 Series

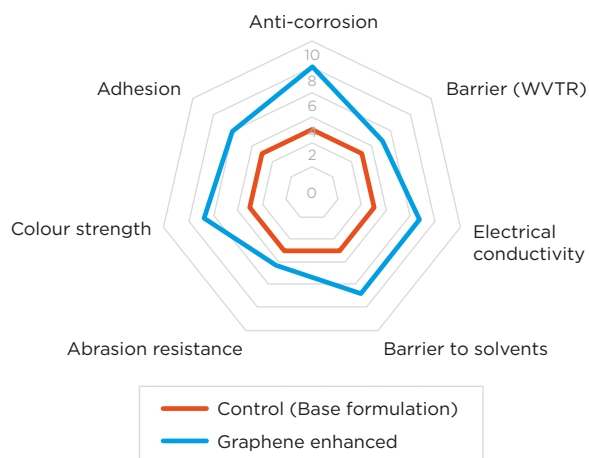
✓ CONVERSION COATINGS

✓ AEROSPACE

✓ AUTOMOTIVE

Dual action enhanced passivation and barrier performance for aluminium substrates

- AGM's **Genable®** 2000 series dispersions are formulated specifically to provide anti-corrosive properties for primer coatings on aluminium substrates.
- Containing a modified A-GNP grade, these products have demonstrated highly effective anti-corrosion performance, with dual action enhanced passivation and barrier performance mechanisms
- Within a final formulation **Genable®** 2000 dispersions offer a cost effective technology, with loading levels down to just 0.3 wt%
- **Genable®** dispersions are designed to be delivered easily into existing manufacturing processes, enabling industry formulators to access, consistently, the performance attributes of A-GNP graphene nanoplatelets.
- **Genable®** 2000 series dispersions are supplied as standard in epoxy resins, but with a range of customised dispersions under development
- **Genable®** dispersions are supported by application guidelines, extended performance datasets and considerable formulation know-how within AGM's Technical Group.



Standard **Genable®** 2000 series dispersions

Genable® dispersions have been prepared to a set viscosity and particle size via a controlled manufacturing process.

MATRIX	TYPE
Genable 2400	Stabilised dispersion of graphene in Epoxy EEW (190g/eq.) Resin
Genable 2401	Stabilised dispersion of graphene in Epoxy EEW (250g/eq.) Resin

- Typical addition levels of 0.3 - 1% depending on application
- Typical storage life 3-6 months at ambient temperature
- Set of Technical Application Notes to support formulators

Customised dispersions

Our customised dispersions are developed to meet customer-specific processing, performance and application needs. Example systems include:

- Epoxy
- Saturated Polyester
- Alkyd (Short, Medium, Long Oil)
- Polyester Polyol
- Acrylic Polyol
- Ethyl Silicate

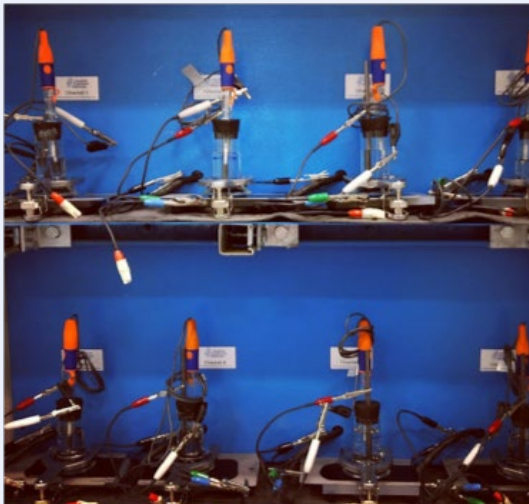
FOR MORE INFORMATION

www.appliedgraphenematerials.com +44 (0)1642 438214 info@appliedgraphenematerials.com

EXAMPLE

Electrochemical Investigation

Impedance spectroscopy is a non-destructive test method and provides an indication of corrosion protection. Our data indicates that coatings containing **Genable® 2000** provide greater barrier type corrosion protection. Additional electrochemical testing suggests that the graphene is acting to increase the rate of passivation of the metal surface, acting in a catalytic manner to increase the rate of oxidation of aluminium to aluminium oxide within the scribed regions. The increased passivation layer build up within the scribed regions essentially acts to seal up the scribe in a self-healing type behaviour.



(left) Samples under electrochemical testing in paint test cells

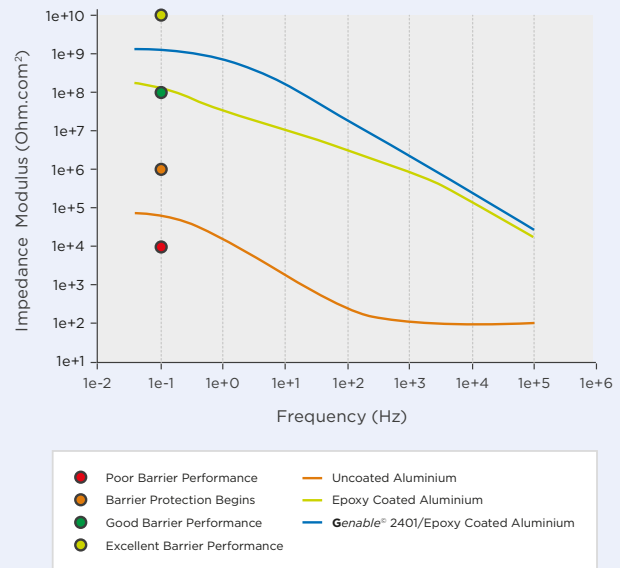


Fig. 1. Impedance values indicating higher corrosion protection for the test piece containing **Genable®** dispersion.

EXAMPLE

TAFEL PLOTS

Tafel plots show the onset of passivation in the scribed **Genable® 2401** samples whereas no such regions were found within the scans for blank control samples nor samples containing other graphenes.

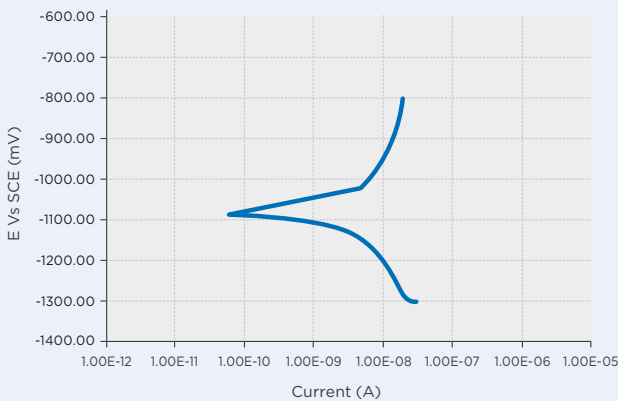


Fig. 2 Tafel plot for sample without passivation

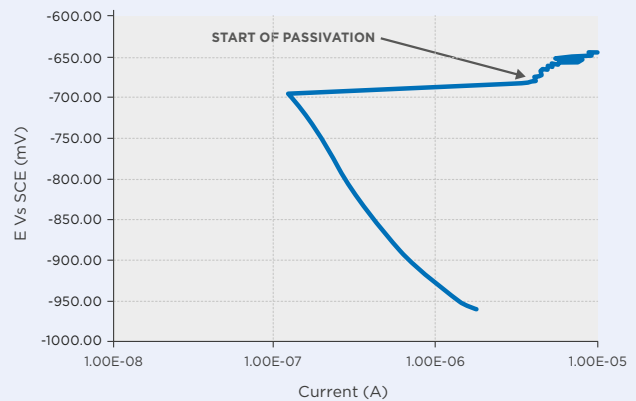


Fig. 3 Tafel plot for **Genable® 2401** sample showing the onset of passivation

FOR MORE INFORMATION

www.appliedgraphenematerials.com +44 (0)1642 438214 info@appliedgraphenematerials.com