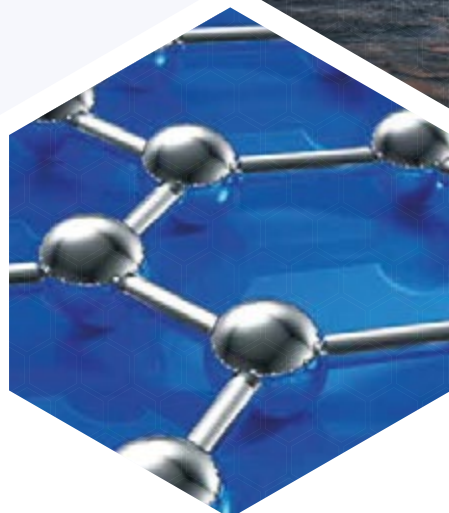


TOMORROW'S ANTI-CORROSION MATERIAL TODAY

Looking for new formulation tools in barrier and anti-corrosion performance?

- **Genable®** delivers Graphene's breakthrough barrier technology to coatings
 - **Genable® 1000 series** - significantly enhance and reduce content of existing anti-corrosion additives
 - **Genable® 2000 series** - outstanding anti-corrosion performance on aluminium substrates*
 - **Genable® 3000 series** - active non-metallic anticorrosion additives with industry leading performance*
- **Genable®** dispersions are stable long-term and designed to be delivered easily into existing manufacturing processes, enabling industry formulators to access, consistently, the exciting performance attributes of A-GNP graphene nanoplatelets.
- Available from stock, **Genable®** series dispersions are supplied in epoxy resins, a range of industry standard carrier solvents (butyl acetate, xylene, MEK, ethyl acetate), as well as water.
- **Genable®** dispersions are also supported by application guidelines, extended performance datasets and considerable formulation know-how within AGM's Technical Group.



FOR MORE INFORMATION

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

Genable® 1000 series

Dispersions to significantly enhance and/or reduce required content of existing anti-corrosion or barrier additives

EXAMPLE:

Genable® 1000 PERFORMANCE WITH ZINC PHOSPHATE IN A TYPICAL INDUSTRIAL EPOXY PRIMER SYSTEM

Over three times extension of coating lifetime in an in-house zinc phosphate based epoxy primer (control) with the addition of Genable® 1000. Primer typical of a standard industrial C3 zinc phosphate based epoxy primer system and tested under cyclic salt spray (ASTM G-85-94 Prohesion).

Substrate: SA 2.5 Sand blasted steel

Coat thickness: 60 microns

Mechanical: No adverse performance, with good adhesion to substrate and PU top coat



Products included in this range:

CARRIER MEDIUM	% WT/WT A-GNP10	STANDARD DISPERSIONS	% WT/WT A-GNP35	STANDARD DISPERSIONS
Epoxy EEW (190 g/eq.)	10	Genable®1000	1	Genable®1200
Epoxy EEW (190 g/eq.)	10	Genable®1001	1	Genable®1201
Butyl Acetate	10	Genable®1030	0.5	Genable®1230
Xylene	10	Genable®1031	0.5	Genable®1231
MEK	10	Genable®1032	0.5	Genable®1232
Ethyl Acetate	10	Genable®1033	0.5	Genable®1233
Water	10	Genable®1050	0.5	Genable®1250

Our experienced coatings team will work with you to select the most appropriate product and processing route based on your end formulation, performance and commercial goals.

Customised Genable®1000 technology based dispersions can be developed to meet specific application requirements. See back page for range of dispersions currently under development.

Genable® 2000 Series

Active, anti-corrosion dispersions for use on 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 can deliver highly effective active anti-corrosion performance.

Outstanding results have been observed on EIS and cyclic salt spray. Further testing under acetic acid salt spray is also under way, with highly promising results so far.

Please contact AGM Sales Office for more information about your specific requirements.

Genable® 3000 series

Formulated active and non-metallic, anti-corrosion additives with industry leading performance

EXAMPLE:

Genable® 3000 PERFORMANCE IN A TYPICAL INDUSTRIAL EPOXY PRIMER SYSTEM

Over five times extension to the primer coating lifetime under cyclic salt spray (ASTM G-85-94 Prohesion) with the addition of Genable® 3001. This extended durability targets applications in C4-CX environments such as high humidity industrial, marine and off-shore uses. A tool-box additive for formulators looking to enhance coating performance without the use of metal additives.



*Control is an in-house primer typical of a standard industrial C3 ZnPO₄ based system

Substrate: SA 2.5 Sand blasted steel

Coat thickness: 60 microns

Mechanical: No adverse performance, with good adhesion to substrate and PU top coat

Genable® 3000 series dispersions are available in epoxy resin, but with a range of solvent and water-based dispersions under near-term development. Please contact AGM Sales Office for more information about your specific requirements.

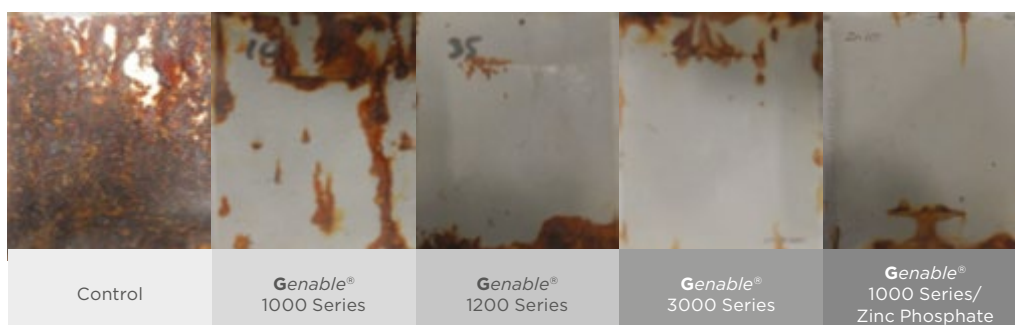
Genable® dispersions moving to C4, C5 and CX Environments

AGM is further investigating the Genable® series for applications in harsher C4/C5/CX environments and has embarked on an extensive test programme looking at the performance of a higher-build primer system (ISO12944). The thickness of this high-build primer is around 110 microns, and is therefore typically thinner than some comparative industry standard systems in C4/C5 category.

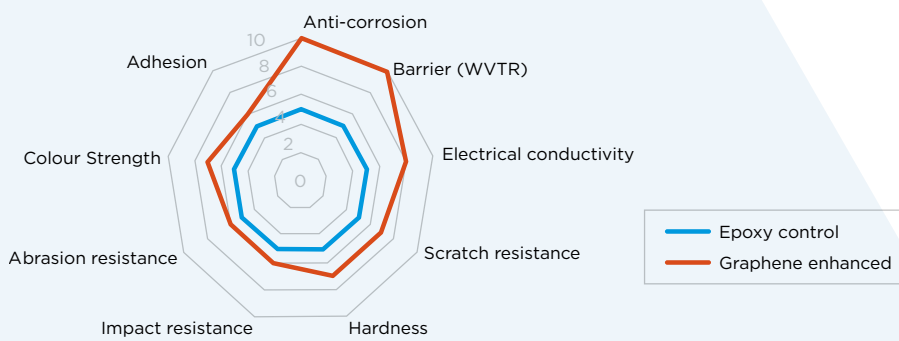
Extended durability, thinner and flexible coatings are directly equatable to significant cost savings in initial coating system application, as well as maintenance and repair for commercial end users.

High-build primers are now undergoing further testing under continuous salt spray conditions (ISO9227).

Prohesion Testing (ASTM G85 Annex 5) Double Coats after 3000 Hours



Typical Properties of graphene enhanced paints and coatings



Standard *Genable*[®] range of dispersions

Genable[®] range dispersions have been prepared to a set viscosity and particle size via a controlled manufacturing process. Shelf life of these products is 3 months at ambient temperature.

MATRIX	TYPE	MATRIX	TYPE	MATRIX	TYPE
Low Viscosity Epoxy Resin	Resin	Water	Solvent	Xylene	Solvent
Medium Viscosity Epoxy Resin	Resin	Ethyl Acetate	Solvent	MEK Solvent	Solvent
Butyl Acetate	Solvent				

Typical customised dispersions under development

MATRIX	TYPE	MATRIX	TYPE	MATRIX	TYPE
Vinyl Ester Resin	Resin	Waterborne Paint	Solvent	DPGDA	Solvent
Benzoxazine Resin	Resin	PGME	Solvent	Mono Ethylene Glycol	Solvent
UV Curable Resin	Resin	Glycol ether	Solvent	DCM	Solvent
PTFE	Resin	Toluene	Solvent	Paraffin Wax	Wax
Polyurethane Resin	Resin	IPA	Solvent	Group I Base Oil	Lubricant
Polyester Resin	Resin	White Spirit	Solvent	Group II Base Oil	Lubricant
Alkyd Resin	Resin	Acetone	Solvent	Group III Base Oil	Lubricant
Acrylic Resin	Resin	TPGDA	Solvent	Group IV Base Oil	Lubricant
Polyol	Solvent	Ethanol	Solvent	Group V Base Oil	Lubricant
HDDA	Solvent	DMSO	Solvent	Greases	Lubricant
Methyl Methacrylate	Solvent	Cyclohexanone	Solvent	Solventborne Paint	Paint

About Us

Applied Graphene Materials (AGM) was founded in 2010 with their operations and processes based on technology that Karl Coleman initially developed at Durham University. The Group was then admitted to FTSE AIM in November 2013 followed by successful fund raising to scale up production, support application development and business growth.

AGM has developed proprietary bottom-up processes which are capable of producing high-volume graphene nanoplatelets using a continuous process. The manufacturing processes are based on sustainable, readily available raw materials and therefore do not rely on the supply of graphite, unlike a number of other graphene production techniques. Applied Graphene Materials owns the intellectual property and know-how behind these processes.

We provide:

- Consistent and scalable nanoplatelet production over a range of suitable material formats and structures
- Delivery into target materials through stable, process friendly and application optimised dispersions

Benefit from AGM's technical knowledge and expertise from graphene grade selection through to integration and optimisation in your end formulation.

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