Certificate No: LR26344375MR
Issue Date: 06/05/2026
Expiry Date: 05/05/2031

European Union Recognised Organisation (EU RO) Mutual Recognition Type Approval Certificate in accordance with Article 10.1 of EU Regulation 391/2009.

This is to certify to the Manufacturer named below, that the Product referred to herein has been inspected for the Manufacturer, pursuant to the relevant requirements of the European Union Recognised Organisation Mutual Recognition procedure, required by Article 10.1 of EU Regulation 391/2009, and has been found in accordance with those requirements. The most demanding and rigorous standard from all EU ROs has been taken as a reference for the development of the Technical Requirement on which present certificate is based.

This certificate is issued to:

Manufacturer	**Advanced Materials Group Company Ltd.**
Address	,139-141 Hoi Bun Road, Unit 1701-03, 17/F, Seaview Centre,, Kwun Tong, Kwun Tong, -, Hong Kong S.A.R.
Product Type	Chocking Resins
Description	Two component filled epoxy
Trade Name	POLYPAD SUPER CHOCK
Application	Chocking resin approved for alignment of critical ship machinery but with the following limitations: 1) Each specific installation of cast resin chock shall normally to be carried out in compliance with installation drawings approved on a case-by-case basis, according to each specific EU RO's Rules. Such specific approval will normally take into account, as a minimum, the following: *a) Total deadweight of supported machinery;* *b) Installation on board ships within locations with environmental conditions not exceeding those for which the equipment has been type tested* *c) Number, size, arrangement and material of chocks and bolts, complete with relevant detailed (dimensioned) drawings;*

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Linda Starink

Non-Metallics & Coatings Team - Lead Specialist to Lloyd's Register EMEA
A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

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d) Bolts pre-load and /or elongation, complete with details of tightening procedure;

e) Locking arrangements for bolts and calculation of bolt elongation securing;

f) Longitudinal and lateral stopping arrangements;

g) Sealing arrangement (for installation in stern tube or shaft struts)

h) Anti-rotation devices (for shaft bearings and rudder stock bearing/ bushes);

i) Manufacturer's instructions (including instructions for special cases e.g. Thin small chock height or cracks in chocks

2) The chocks shall only be poured by companies authorised to do so by the cast chocking resin manufacturer, whilst maintaining the boundary conditions required by the process. Authorisation, of the training of personnel performing the cast resin process, by the chocking resin manufacturer, must be presented to the EU RO Surveyor upon request

Specified Standard **EU RO Mutual Recognition Technical Requirements, Resin Chock v0.5**

a) ASTM D 695-ISO 604 (elastic modulus/compressive strength);
b) ASTM D 638 - ISO 527-1,2,4,5 (all - as applicable) (tensile strength);
c) ASTM D 621 - (deformation under load)
d) ISO 75-2 (temperature of deflection under load);
e) ASTM D 256 - ISO 180 (impact testing);
f) EN 59 (Barcol Hardness as per ASTM D 2583 prior to bolt tightening and loading;
g) ASTM D 4065 (previously ASTM D 2236) - DIN 53445 - ISO 6721-1 (elastic shear modulus, logarithmic decrement);
h) ASTM D 790 - ISO14125 as applicable (flexural strength, maximum strain);
i) ISO 3521 (linear shrinkage during cure)
j) ASTM D 635 - FTP Code, Annex 1, Part V (flammability of self-supporting plastics, low flame spread);
k) DIN 50100 (pulsating compressive test);

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l) EN 1465 (tensile lap shear strength);
m) ASTM D 732 (shear strength);
n) DIN 53752 (coefficient of thermal expansion);
o) ISO 175 (resistance to media of the application range);
p) Coefficient of friction against steel, with machined or cast specimens, with or without separating agents (to be defined);
q) Other standards may be accepted, provided that they are not less effective. Tests shall be carried out in Laboratories recognized by the EU RO or in the presence of the EU RO Surveyor. In cases where the tests are conducted at Nationally Accredited Laboratories, the presence of the EO RO's surveyor may be omitted.(For further clarification of witnessing of tests and sampling the test specimen(s), refer to paragraphs 6, 7 and 8 of the EU RO "Design Evaluation Scheme" procedure; Appendix V of EU RO Framework Document for the Mutual Recognition of Type Approval)
r) Samples shall be taken from the production line or from stock held by the Supplier. Sample conditions shall be stated by Supplier.

Ratings

Approved for maximum loading of 5MPa at a maximum service temperature of 80°C, where the chocking compound is post cured to a minimum temperature of 70°C for 16 hours

The maximum static surface pressure at service temperature is as follows:

10MPa at 20°C
9.4MPa at 30°C
8.7MPa at 40°C
8.0MPa at 50°C
7.0MPa at 60°C
5.9MPa at 70°C
5.0MPa at 80°C
2.2Mpa at 90°C

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Individual measured minimum Barcol hardness shall be 40 or greater

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document No. Not applicable and its supplementary Type Approval Terms and Conditions form part of this Certificate.

All other details remain as the previous Certificate No. LR21172844MR-01 to which this extension should be attached.

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When a product is presented with this EU RO MR Type Approval Certificate for given application, its acceptability with regards to the limitations stated in the certificate conditions defined in 1b, 1c and 1d of the applied Technical Requirement will be evaluated by the EU RO in charge of classing the ship or being in charge of the unit/system certification.

In accordance with Article 10 of Regulation (EC) No 391/2009 of the European Parliament and of the Council of 23 April 2009 "on common rules and standards for ship inspection and survey organizations", the following organizations, recognized by the EU on this date, have agreed on the technical and procedural conditions under which they will mutually recognize this certificate:

- *American Bureau of Shipping (ABS);*
- *Bureau Veritas (BV);*
- *China Classification Society (CCS);*
- *Croatian Register of Shipping (CRS);*
- *DNV GL;*
- *Indian Register of Shipping (IRS);*
- *Korean Register (KR);*
- *Lloyd's Register Group Ltd. (LR);*
- *Nippon Kaiji Kyokai General Incorporated Foundation (ClassNK);*
- *Polish Register of Shipping (PRS);*
- *RINA Services S.p.A. (RINA).*

The scheme for the mutual recognition of class certificates for materials, equipment and components laid down by Article 10(1) of Regulation (EC) No 391/2009 is only enforceable within the Union in respect of ships flying the flag of a Member State. As far as foreign vessels are concerned, the acceptance of relevant certificates remains at the discretion of relevant non-EU flag States in the exercise of their exclusive jurisdiction, notably under the United Nations Convention on the Law of the Sea (UNCLOS). (In accordance with COMMISSION IMPLEMENTING REGULATION (EU) No 1355/2014 amending Regulation (EC) No 391/2009 - recital (25)).

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