



Confirmation of Product Type Approval 06/JUN/2011

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This is to certify that, pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 09/NOV/2011. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until 06/MAR/2016 subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

ITW PLEXUS

Model Name(s): MA530, MA560-1, MA 590, Methyl Methacrylate Adhesive

Presented to:

ITW PLEXUS
30 ENDICOTT STREET
Danvers
United States

Intended Service:

The Plexus methyl methacrylate adhesive is intended to be used to bond structural components on fiber reinforced plastic vessels.

Description:

Two part structural methyl methacrylate adhesive.

Ratings:

Contact manufacture

Service Restrictions:

Unit Certification is not required for this product. For the adhesive material to be acceptable for use in structural applications, it is to comply with the following requirements: 1. Material to be stored, handled, and used in accordance with the manufacturer's recommendations. 2. Particular attention is to be given to the surface preparation and cleanliness of the surfaces to be bonded. 3. Where excessive unevenness of the faying surfaces exists, suitable gap-filling adhesive is to be used or local undulations removed by the application of additional reinforcements. 4. Where the adhesive is used to bond structural stiffeners to the plating, the members are to be effectively bonded in place for a minimum distance of 1/10 the length of the member at each end by a conventional secondary bond. 5. The elastic modulus of the adhesive is to be considerably less than that of the FRP skin to which it is being adhered. 6. The strain of failure ratio of the adhesive is to be much larger than the surrounding structure. 7. The mechanical properties of the adhesive are to be achieved rapidly, such that the use of screws or bolts will not be necessary to hold the substrates together while the adhesive cures. 8. The adhesive is to be compatible with the lamination resin. 9. Special consideration is to be used when the adhesive is proposed to be used in areas where the average temperature is in excess of 110 degrees F. 10. Adhesive not to be used in areas exposed to petroleum based products, proposed use of adhesive in tanks

containing other products will need to be specially considered.

Comments:

The approval of this material is based on an equivalence to a conventional secondary bond between two fiber reinforced plastic substrates and the following comments: 1. The process for application of the adhesive is to be submitted for review and is to include the maximum bondline thickness, nondestructive testing methods and maximum creep, which are to be in accordance with manufacturer's recommendations. 2. Specific joints, extent of use, and substrates are to be reviewed on a case-by-case basis. 3. Details of the structural adhesive are to be specified on the Material Data Sheet and on the construction plans submitted. 4. Details concerning the handling, mixing and application of the adhesive are to form part of the Builders Process Instruction. 5. The Builders Process Description is to identify the level of training required for personnel involved in the application of structural adhesives

Notes / Documentation:

Supporting Documentation: Technical Data Sheets.

Term of Validity:

This Product Design Assessment (PDA) Certificate 05-NO126774-2-PDA, dated 07/Mar/2011 remains valid until 06/Mar/2016 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

ABS Rules:

2011 Steel Vessels Rules 1-1-4/7.7, 1-1-Appendix 3; 2006 Materials and Welding Rules, Part 2 Aluminum and FRP 2-6-1/9 and 2-6-2/3.7; 1978 Reinforced Plastic Vessel Rules 5.3.3 and 6.8.1; 2000 Motor Pleasure Yacht Guide 5.3.2.d and 7B.3.4; 2001 High Speed Craft Guide 3/14.1.2.k(1); 2003 High Speed Naval Craft Guide 3/2.

National Standards:

ASTM D1002-94, ASTM D3165-95, ASTM D3166-73(79), D5868-01

International Standards:**Government Authority:****EUMED:****Others:****Model Certificate****Model Certificate No****Issue Date****Expiry Date**

PDA

05-NO126774-2-PDA

07/MAR/2011

06/MAR/2016



ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.



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Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

ITW PLEXUS

Model Name(s): MA425, MA550, MA2045, MA2090, Methyl Methacrylate
Adhesive

Presented to:

ITW PLEXUS
30 ENDICOTT STREET
Danvers
United States

Intended Service:

The Plexus methyl methacrylate adhesive is intended to be used to bond structural components on fiber reinforced plastic vessels.

Description:

Two part structural methyl methacrylate adhesive.

Ratings:

Contact manufacture

Service Restrictions:

Unit Certification is not required for this product. For the adhesive material to be acceptable for use in structural applications, it is to comply with the following requirements: 1. Material to be stored, handled, and used in accordance with the manufacturer's recommendations. 2. Particular attention is to be given to the surface preparation and cleanliness of the surfaces to be bonded. 3. Where excessive unevenness of the faying surfaces exists, suitable gap-filling adhesive is to be used or local undulations removed by the application of additional reinforcements. 4. Where the adhesive is used to bond structural stiffeners to the plating, the members are to be effectively bonded in place for a minimum distance of 1/10 the length of the member at each end by a conventional secondary bond. 5. The elastic modulus of the adhesive is to be considerably less than that of the FRP skin to which it is being adhered. 6. The strain of failure ratio of the adhesive is to be much larger than the surrounding structure. 7. The mechanical properties of the adhesive are to be achieved rapidly, such that the use of screws or bolts will not be necessary to hold the substrates together while the adhesive cures. 8. The adhesive is to be compatible with the lamination resin. 9. Special consideration is to be used when the adhesive is proposed to be used in areas where the average

temperature is in excess of 110 degrees F. 10. Adhesive not to be used in areas exposed to petroleum based products, proposed use of adhesive in tanks containing other products will need to be specially considered.

Comments:

The approval of this material is based on an equivalence to a conventional secondary bond between two fiber reinforced plastic substrates. 1. The process for application of the adhesive is to be submitted for review and is to include the maximum bondline thickness, nondestructive testing methods and maximum creep, which are to be in accordance with manufacturer's recommendations. 2. Specific joints, extent of use, and substrates are to be reviewed on a case-by-case basis. 3. Details of the structural adhesive are to be specified on the Material Data Sheet and on the construction plans submitted. 4. Details concerning the handling, mixing and application of the adhesive are to form part of the Builders Process Instruction. 5. The Builders Process Description is to identify the level of training required for personnel involved in the application of structural adhesives

Notes / Documentation:

Supporting Documentation: Technical Data Sheets.

Term of Validity:

This Product Design Assessment (PDA) Certificate 05-NO123752-3-PDA, dated 07/Mar/2011 remains valid until 06/Mar/2016 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

ABS Rules:

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National Standards:

ASTM D1002-94, ASTM D3163-96, ASTM D3807-98

International Standards:**Government Authority:****EUMED:****Others:****Model Certificate****Model Certificate No****Issue Date****Expiry Date**

PDA

05-NO123752-3-PDA

07/MAR/2011

06/MAR/2016



ABS Programs

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