

TYPE APPROVAL

Certificate No.:
TA-DNVGL-CP-0086-05158-0

Issued:
2019-10-11

Valid until:
2024-10-10

Issued for:

Epoxy resin adhesive system

with type designation(s)

LAPOX[®] ARA-32 | AH-735

Issued to:

Atul Ltd.

Polymers Division

Dist. Valsad – 396 020, Gujarat, India

According to:

DNVGL-SE-0436:2018-04 Shop approval in renewable energy

and

DNVGL-CP-0086:2016-03 Type approval – Adhesive systems

Applying:

DNVGL-SE-0441:2016-06 Type and component certification of wind turbines

Based on the documents listed in Annex 1.

This Type Approval consists of this page and Annex 1 which is integral part of the approval.

Any significant change in design and / or quality of the material will render this Type Approval invalid.

Hellerup, 2019-10-11

Hamburg, 2019-10-11

For DNV GL Renewables Certification
Bente Vestergaard
Service Line Leader

For DNV GL Renewables Certification
Bernhard Krüger
Project Manager

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Application

Two component epoxy resin adhesive for application in wind turbine generators (rotor blades, nacelle covers, spinners)

Description

LAPOX® adhesive ARA-32 with the hardener AH-735

Type Approval documentation

Technical data sheet	LAPOX® ARA-32 AH-735, Two component slow curing structural epoxy system for blade joining, August 2019
Safety data sheets	Safety Data Sheet according to 1907/2006/EC, Article 31, Lapox®AH-735, version 2, dated 11/03/2017 Safety Data Sheet according to 1907/2006/EC, Article 31, Lapox®ARA-32, version 2, dated 11/03/2017
Test report	Test Report, Adhesive Resin-ARA-32, Adhesive Hardener-AH-735, plus supplement, no. 20170623E, dated 14/08/2017 and 05/09/2019, Testing Center of Shanghai FRP Research Institute Co., Ltd. Test report, no. ATUL/NABL/02, 11/08/2018, ATUL Ltd. Test report, no. ATUL/NABL/03, 11/08/2018, ATUL Ltd. Test report, no. ATUL/NABL/04, 24/09/2018, ATUL Ltd. Test report, no. ATUL/NABL/05, 25/09/2018, ATUL Ltd.
Inspection report	Workshop Inspection Report, dated 03/05/2017 issued by DNVGL Shanghai Energy plus email "RE: Adhesives initial Qualification & LAB GL approval Activities", dated 31/07/2019
Quality control documentation	Several Certificates of Analysis, ISO9001 certificate no. IND17.5893U/Q, version 1, Bureau Veritas Certification, dated 30/10/2017

Material properties	Test Method	ARA-32 Mean Value	AH-735 Mean Value	Unit
Density at 23°C	ISO 1675: 1985	1.22	1.09	g/cm ³
Viscosity at 23°C	ISO 3219: 1993	733	540	Pa·s

The test specimens for this Type Approval were cured for 24 hrs at RT plus 8 hrs at 75°C.

Deviations from the class programme

The measurement of pH is not required for the above described application and was not carried out.

Manufacturing Sites covered by evaluation

Atul Ltd.

Polymers Division
Dist. Valsad – 396 020
Gujarat
India

Last workshop inspection: 03/05/2017

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Periodical assessment

2.5 years after the last workshop inspection, i.e. until November 2019, the client shall inform DNV GL about any modifications in production. An intermediate inspection might be needed based on the implemented changes.

END OF CERTIFICATE