

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Adhesive**with type designation(s)
Teroson PU 8590

Issued to

Henkel AG & Co. KGaA
Düsseldorf, Germany

is found to comply with

DNV GL class programme DNVGL-CP-0086 – Type approval – Adhesive systems**Application :****Flexible adhesive Class A and Class B****Bonding of insulating glass, single-pane safety glass, rails for fastening seats, door frames, single-pane polymer glass, windbreakers****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Hamburg** on **2020-06-12**for **DNV GL**This Certificate is valid until **2025-05-27**.DNV GL local station: **Essen**Approval Engineer: **Joachim Rehbein****Thorsten Lohmann**
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Job Id: **262.1-032482-1**
Certificate No: **TAK00001WF**
Revision No: **1**

Product description

Teroson PU 8590: Single – component flexible adhesive based on polyurethan

Assessed production site:

Henkel AG & Co. KGaA
Henkel Teroson Straße 57
69123 Heidelberg
Germany

Application/Limitation

Bonding of insulating glass, single-pane safety glass, rails for fastening seats, door frames, single-pane polymer glass, windbreakers.

The adhesive follows the applicable requirements of DNV GL and recommendations of manufacturer and is compatible to the base materials.

Application which may affect the classification of the vessel is subject to approval by the Society. Corresponding drawings and calculations must be submitted for approval case prior to application.

The pre-treatment of the joining surfaces and the bonding of structural components shall only be performed by persons with adequate skills and professional knowledge.

Adhesive joints for load-bearing parts shall be verified by tests to be agreed on for each individual case, unless comparable experience or results are available.

For applications subject to dynamical loads additional testing may be required.

Any significant changes in design and / or quality of the material will render the approval invalid.

Material properties

Item	Test method	Unit	Value
Shore A	ISO 868	-	≥ 45
Fracture Strain at -20°C	DIN 53504	%	≥ 50
Tensile Strength at 60°C	DIN 53504	MPa	≥ 1,5
Resistance to Tear Propagation	DIN 53515	MPa	≥ 4,0
Tensile Lap Shear Strength 23°C / 50% RH	DIN EN 1465	MPa	≥ 0,25
Tensile Lap Shear Strength 23°C / 50% RH T= 0,25 MPa, (t=90d)	DIN EN 1465		≥ 0,15
Tensile Lap Shear Strength 60°C / 50% RH T= 0,15 MPa, (t=90d)	DIN EN 1465		≥ 0,6
Creep Test after 90 days conditioning (30%)	DIN EN 1465 and ISO 6270 – 2 AHT	-	pass

Tested adherent: EN AW 6082

Type Approval documentation

1. Renewal of WP 1640001 HH
2. Technical data sheet, Revision 2, March 2017;
3. Safety data sheet, Version 0.0, Revision Date 02.04.2019;
4. Test report WP-PB-NA-A319080-01-00 by Fraunhofer IFAM Bremen, 2020-02-21;
5. Inspection certificates EN 10204 3.1, dated 2020-02-18;
6. Type approval assessment report TA401, issued 2020-04-20.

Marking of product

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Product shall be marked with *manufacturer's name, place of production and type designation*.

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV GL Type Approval Certificate.

Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval are complied with and that no alterations are made to the product design or choice of materials.

Periodical assessments (for Certificate Retention and Certificate Renewal) shall be performed according to DNVGL-CP-0338.

A production site with a valid Approval of Manufacturer (AoM) certificate for material in question is exempted from the obligation concerning retention and renewal assessments.

This certificate is only valid if required Periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnvgl.com>

END OF CERTIFICATE