CERTIFICATE NUMBER 21-2079720-PDA-EUMR-DE
EFFECTIVE DATE 15-Jan-2021
EXPIRATION DATE 14-Jan-2026
ABS TECHNICAL OFFICE Houston ESD Piping

CERTIFICATE OF

European Union Recognized Organization (EU RO) Mutual Recognition Design Evaluation

(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 Recognized Organization Mutual Recognition procedure, required by Article 10.1 of EU Regulation 391/2009, and has been found in accordance with those requirements.

GEORG FISCHER HARVEL

who maintains a plant at

7777 SLOANE DRIVE, LITTLE ROCK, UNITED STATES, AR-72206

Product **Thermoplastic Pipe, Fittings and Joints**

Model **SeaCor**

This certificate, by itself does not reflect that the product is Type Approved. The scope and limitations of this evaluation are detailed on the pages attached to this certificate.

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;

NOTE: This certificate evidences compliance with one or more of the ABS Rules and the EU Regulations 391/2009. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product or manufacturing process without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules and Conditions of the request for EU Product Type Approval and Agreement.

- 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);
- Russian Maritime Register of Shipping (RS).

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)).

This EU RO Mutual Recognition Design Evaluation Certificate remains valid until 14-Jan-2026 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

American Bureau of Shipping

Yongjin Lee

Yongjin Lee, Engineer/Consultant

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Product: Thermoplastic Pipe, Fittings and Joints

Model: SeaCor

Intended Service: Marine & Offshore Application - Non-essential systems including fresh water, seawater, potable water, gray water, black water, vacuum flush sanitary piping, vents, drains, and brine services where no fire endurance testing or electrical conductivity is required.

Description:
SeaCor CPVC Schedule 80 pipe and fittings diameters ½" to 12"

Ratings:
Temperature range 32°F (0°C) to 210°F (99°C)
Max pressure rating for Schedule 80 CPVC Pipe at 73°F (23°C):
1/2" - 680 psi (46.9 bar);
3/4" - 550 psi (37.9 bar);
1" - 505 psi (34.8 bar);
1 1/4" - 415 psi (28.6 bar);
1 1/2" - 378 psi (26.0 bar);
2" - 323 psi (22.3 bar);
2 1/2" - 340 psi (23.4 bar);
3" - 300 psi (20.6 bar);
4" - 260 psi (17.9 bar);
6" – 223 psi (15.3 bar).
8" – 198 psi (13.6 bar);
10" – 188 psi (13.0 bar);
12" – 183 psi (12.6 bar).
Please refer to attached table for derated pressures.

Restrictions:

1. Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
2. This material has not been tested for Fire Endurance and therefore can only be used in Services/Locations indicated as "0" (no Fire Endurance testing required) in IACS P4 Table 1.
3. This material is not considered electrically conductive and therefore cannot be used in hazardous areas, or with non-conductive fluids in accordance with IACS P4 4.6.5.2
4. Joining techniques are to be in accordance with the manufacturer's installation guidelines as per EU MR TR - Plastic Piping Systems (Components) 1.d (a).
5. Pipes are to be permanently marked with manufacturer's name, type designation, size, pressure ratings, design standards, date of fabrication, and serial number as per EU MR TR - Plastic Piping Systems (Components) section 4.
6. Where plastic pipes are to be utilized for any installation within tanks or other locations which may be subject to a vacuum condition inside the pipe or a head of liquid on the outside of the pipe, external pressure is to be considered. The pipe is to be designed for an external pressure of not less than the sum of the pressure imposed by the maximum potential head of liquid outside the pipe plus full vacuum of 14.5 psi (1 bar) inside the pipe. The maximum external pressure for a pipe is to be determined by dividing the

collapse test pressure by a safety factor of three (3). The collapse test pressure for 6" and below is 349 psi (24 bar). Sizes above 6" were not collapse tested; therefore, for sizes above 6" details for collapse pressure such as experimental tests or calculations are to be submitted before installation of the pipe as per EU MR TR - Plastic Piping Systems (Components) 2.a.i.2(b) and 2.b.i(c).

7. Piping made from this marine compound has passed IMO Res. A.753 (18) and IMO FTP Code Annex 1, Part 2 for Low Smoke and Toxicity and Part 5 test for surface flammability meeting the flame spread testing requirements and may therefore be used in spaces other than open decks and within tanks, voids, cofferdams, pipe tunnels, and ducts that are subject to fire endurance and electrical conductivity restrictions.
8. Installers are required to be ASME B31.3 qualified.
9. To be used with SeaCor Marine Cement and Primer.

Supporting Documentation:
Identifying Data: SwRI Test Report Project Nos. 01.16052.01.647c (10 sheets) and 01.16052.01.647d (11 sheets) dated 26 October 2011 and 28 December 2011;
Follow-up Procedure Document No. 01.025000.02.198 Rev. 1 dated January 2012;
USCG Certificates 16714/164.141/36 & 37 dated 26 February 2020 (Expires: 12 November 2024);
Test Reports: SwRI Product No. 01.19579.02.038a Dated 13 June 2014 and SwRI Product No. 01.19579.02.038b Dated 13 June 2014 – Fire Performance evaluation in accordance with part 5, test for surface flammability, test for surface materials, and primary deck coverings, of Annex 1 of the 2010 IMO FTP Code;
SwRI Product No. 01.17791.04.030a Dated 11 Sep 2013 – ASTM D635 Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position;
Georg Fischer Harvel Lab Report No. TR1505 dated 23 Nov 2015.

Rules & Standards

Technical Requirement: EU Mutual Recognition Technical Requirements (TR) for Plastic Piping Systems (Components) Version 0.3 dated 01 April 2016