



Confirmation of Product Type Approval

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product. This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

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 21/AUG/2018. 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 17/FEB/2019 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.

Product Name: Thermoplastic Pipe, Fittings and Joints

Model Name(s): IPEX CORZAN Schedule 80 Pipe, Fittings and Joints

Presented to:

IPEX INC.
11 BERMONDSEY RD.
TORONTO
Canada

Intended Service: Marine & Offshore Applications - for Non-essential Systems including Fresh Water, Seawater, Potable Water, Drains, Sanitary, Vents, and Brine in services requiring No Fire Endurance Testing or Electrical Conductivity.

Description: CPVC Schedule 40 and Schedule 80 Pipe, Fittings and Joints Sizes: 1/4" through 16"

Tier: 2

Ratings: Pressure ratings at 73°F vary with pipe size and schedule. Temperature range 32°F to 200°F. As temperature increases, system pressure must be de-rated as follows: 73-80 °F - de-rating factor 1.0; 90°F - de-rating factor 0.91; 100°F - de-rating factor 0.82; 120°F - de-rating factor 0.65; 140°F - de-rating factor 0.50; 160°F - de-rating factor 0.40; 180°F - de-rating factor 0.25; 200°F - de-rating factor 0.20 See vendor table for pipe sizes versus maximum allowable pressure.

Service Restrictions: 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. a) Use restricted to open decks and within tanks, cofferdams, void spaces, pipe tunnels and ducts, in accordance with 4-6-3/5.13.1 of the Rules. b) Not to be used in fire main or areas classified as "hazardous" in accordance with 4-8-4/27 of the Steel Vessels Rules and 4/1.4 of the MODU Rules. 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 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 3. This collapse pressure may be verified experimentally or determined by a combination of testing and calculation methods. These details are to be submitted to ABS before installation of the pipe, for ABS approval on a case by case basis. c) Schedule 80 pipe operating above 130°F shall NOT be threaded.

Comments:

PDA resides with IPEX USA, LLC - PINEVILLE. i) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. ii) Approval for Corzan CPVC compound resides with Lubrizol Inc. (see certificate 08-HS363736-PDA). Piping made from this compound has passed ASTM D635 testing for flame spread. Acceptability of the flame spread test in accordance with ASTM D635 is subject to approval by the Administration of the vessel's registry.

Notes / Documentation:

Supporting Data: ECO-022558, Grade SP-0180.

Term of Validity:

This Product Design Assessment (PDA) Certificate 09-HS424323-2-PDA-DUP, dated 18/Feb/2014 remains valid until 17/Feb/2019 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:

2014 Steel Vessels Rules 1-1-4/7.7, 1-1-Appendix 3, 4-6-3/5.1, 5.3, 5.7, 5.9, 5.13.1, 7.7, 9, & 11.3.1, 4-6-3/Table 1

National Standards:

NSF/ANSI STD 14 & 61; ASTM D1784, ASTM F441, F441M, ASTM E84

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

PDA-DUP

09-HS424323-2-PDA-DUP

18/FEB/2014

17/FEB/2019



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.