



## **Sample Engineering Specification**

### **OceanTUFF® CPVC Marine Drainage Systems**

The OceanTUFF® CPVC Marine Drainage System (a.k.a. LabWaste®) for use in non-essential marine drainage applications shall be manufactured in the U.S.A. from CPVC Type IV, minimum ASTM Cell Classification 23447 per D1784 in sizes 1-1/2" through 12". OceanTUFF® shall be suitable for use in applications including black water, gray water, vacuum flush sanitary piping (1-1/2' through 6"), vent and drains in service requiring no fire endurance testing or electrical conductivity testing. Note: Spears® EverTUFF® marine schedule 80 pipe & fittings in sizes 1/2" through 1-1/4" are suitable for use in combination with Spears® OceanTUFF® CPVC Drainage System in sizes 1-1/2" through 12" if required, for vacuum flush sanitary piping, Black & Gray water systems, drains, sanitary and vent applications. OceanTUFF® system pipe and fittings shall be manufactured in accordance with ASTM F2618 and certified by NSF International for use in corrosive waste drainage systems.

OceanTUFF® Marine Drainage System shall be approved by the United States Coast Guard, meet the low flame spread requirements and smoke and toxicity requirements of the IMO 2010 FTP Code Annex 1, Parts 2 and 5, and may be installed in accommodation, service and control spaces without meeting the additional requirements of Title 46 CFR 56.60-25(a) (2) as manufactured by Spears® Manufacturing Company.

OceanTUFF® Marine Drainage System shall be Type Approved by the American Bureau of Shipping (ABS) and meet IMO 2010 FTP Code Annex 1, Parts 2 for Smoke & Toxicity and Part 5 for Surface Flammability.

OceanTUFF® Marine Drainage System shall meet the Transport Canada Vessel Fire Safety Regulations. Products meet the requirements of Annex I of the IMO 2010 FTP Code (Part 2 Smoke and Toxicity, and Part 5 Surface Flammability) required by the Vessel Fire Safety Regulations, Section 114 (Smoke Generation Potential and Toxicity) and Section 226 (Plastic Piping).

All pipe shall have a yellow stripe for identification as CPVC marine drainage system. Applicable CPVC drainage pattern fittings shall be designed in accordance with ASTM D3311 or the manufacturer's specifications. Joining method for pipe and fittings shall be solvent cement welding. Solvent cement shall be a "one-step" primerless type CPVC cement specially formulated and manufactured in accordance with ASTM F2618 and F493. All pipe, fittings, and cement shall be supplied together as a complete system with a Limited Lifetime Warranty, as Spears® OceanTUFF® CPVC Marine Drainage System manufactured by Spears® Manufacturing Company.

All OceanTUFF® CPVC marine pipe and solvent cement (OT-5) shall be GREENGUARD GOLD certified to UL 2818 by Underwriters Laboratories.