



16711  
CG-CVC Policy Letter  
16-02  
FEB 04 2016

  
From: Kyle P. McAvoy, CAPT  
COMDT (CG-CVC)

To: Distribution

Subj: SEA STRAINERS CONSTRUCTED OF NONMETALLIC MATERIALS FOR USE  
ON SMALL PASSENGER VESSELS

Ref: (a) Title 46, Code of Federal Regulations (46 CFR), Section 114.550  
(b) Title 46, Code of Federal Regulations (46 CFR), Section 175.550  
(c) Title 46, Code of Federal Regulations (46 CFR), Section 119.710(c)  
(d) Title 46, Code of Federal Regulations (46 CFR), Section 182.710(c)

1. **PURPOSE.** This policy letter provides guidance to Officers in Charge Marine Inspection (OCMIs) who seek to exercise the discretion afforded by references (a) and (b) with regard to the use of nonmetallic sea strainers, in lieu of the requirements set forth in references (c) and (d).
2. **DIRECTIVES AFFECTED.** None.
3. **BACKGROUND.** Sea strainers containing nonmetallic components have been installed on small passenger vessels for several decades without incident. Prior to the publishing of the Interim Final Rule for Small Passenger Vessel Inspection and Certification on January 10, 1996, nonmetallic sea strainers were acceptable for installation on most piping systems on board small passenger vessels. However, the regulations were amended to require vital piping systems to be made of a ferrous material on board "new" small passenger vessels as defined by the regulations (i.e., after March 11, 1996). The intent of the post-1996 regulations was documented within the Preamble of the corresponding Subchapter T Special Notice to Proposed Rulemaking (SNPRM; 59 FR 1994): "It is the Coast Guard's intention to make the construction material requirements for vital system piping consistent for all vessels regardless of size or passenger capacity." However, this general requirement had unintended consequences, including requiring metallic sea strainers in all applications, substantially increasing the cost without a commensurate increase in safety.
4. **DISCUSSION.** Marine inspectors continue to discover nonmetallic sea strainers on "new" small passenger vessels. These strainers are typically found in raw water cooling systems but may also be installed within other systems. The notion that they represent a potential "weak link" in a piping system due to the possibility of failure from mechanical or fire damage, which would result in the loss of the affected vital system and potentially result in uncontrollable flooding, simply hasn't materialized for small passenger vessels. In fact, vessel operators have emphasized that these types of strainers have been successfully used

for many years without the occurrence of significant mechanical failures, even when vessels have had major fires. To that end, a search of the MISLE database confirms a lack of historical casualty incidents related to these types of installed strainers. Furthermore, there are benefits to the use of nonmetallic or acrylic sea strainers; they provide improved safety by serving as a sight glass to check for adequate cooling water flow which in turn help prevent main engine overheating and propulsion casualties while underway. Through the employment of alternative standards and robust operational practices, the risk posed from the installation of nonmetallic strainers can be sufficiently mitigated to permit the use of the authorities allowed by references (a) and (b).

5. **ACTION.** The Coast Guard Marine Safety Center (MSC) and/or the cognizant OCMI may apply the enclosure to small passenger vessels regulated under 46 CFR Subchapter K and T, or the MSC and/or OCMI may accept existing or new sea strainer installations constructed with nonmetallic materials used in new or rebuilt sea service piping systems, if the sea strainer meets any of the standards in paragraphs (a) and (b) below:
  - a. The standards for nonmetallic components in 46 CFR 56.60-25 (fire test as required by IMO Res. A.753(18)) are acceptable for any vessel; or
  - b. Strainers that successfully pass a fire test and subsequent pressure test as defined in any of the following standards would demonstrate sufficient resistance to fire and mechanical damage:
    1. ASTM F1201
    2. SAE J1942
    3. IMO Resolution A.753(18)
    4. ISO 15540

In the case where the MSC or OCMI chooses to use the discretion afforded by references (a) or (b) to accept nonmetallic sea strainers that do not meet the requirements of references (c) and (d) or the standards mentioned above, the following factors in paragraphs (c) and (d) should be considered for acceptance:

- c. Nonmetallic strainers for vital water systems are:
  1. Designed to a marine filter/strainer standard such as UL 1193;
  2. Limited to piping nominal diameter of not greater than 3 inches;
  3. Reasonably protected from mechanical damage;
  4. Readily accessible for inspection; and
  5. Installed within a space that is equipped with:
    - (a) an approved fire detection system;
    - (b) an approved fixed fire extinguishing system; and
    - (c) a bilge high level alarm system.
- d. The vital water system's through-hull valve or upstream isolation valve should be readily accessible and marked. If not accessible, the valve should be provided with a reach rod operable from an easily accessible location.

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6. If any future incidents show failure of the nonmetallic sea strainers, this policy will be re-examined.
7. Questions concerning this policy guidance should be directed to the Office of Commercial Vessel Compliance at [CG-CVC-1@uscg.mil](mailto:CG-CVC-1@uscg.mil) or (202) 372-1251.

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Enclosure: Commandant (CG-ENG) Memorandum with subject Sea Strainers Constructed of Nonmetallic Materials for Use on Small Passenger Vessels dated Sept 23, 2014



16715  
September 23, 2014

## MEMORANDUM

From: J. W. MAUGER, CAPT  
COMDT (CG-ENG)

A handwritten signature in black ink, appearing to read "J. W. Mauger", written over the typed name in the "From" field.

Reply to CG-ENG-3  
Attn of:

To: CG-CVC  
Marine Safety Center (MSC)

Subj: SEA STRAINERS CONSTRUCTED OF NONMETALLIC MATERIALS FOR USE  
ON SMALL PASSENGER (46 CFR SUBCHAPTER T) VESSELS

1. Purpose. This memo provides recommended construction standards for your consideration with regard to the acceptance of nonmetallic sea strainers as equivalent to the applicable regulations based on a combination construction and operational considerations. You may also wish to use these alternative standards, in combination with operational considerations (i.e., limited service, limited routes, increased inspection frequency, etc.), if you pursue the development of guidance to OCMIs who desire to use their discretion to accept nonmetallic sea strainers in lieu of the requirements in 46 CFR Subchapter T.

2. Directives Affected. None.

3. Action. Sea strainers constructed of nonmetallic materials may be accepted by the Coast Guard Marine Safety Center if the strainers meet one of the alternate standards listed in Paragraph 5.b below for both mechanical integrity and fire endurance. In cases where nonmetallic sea strainers do not meet one of these alternate standards, Paragraph 5.c provides factors that should be considered when evaluating these strainers.

4. Background. Sea strainers containing nonmetallic components have been installed on small passenger vessels for several decades. Prior to the Small Passenger Vessel Act of 1996, nonmetallic sea strainers were acceptable for installation on most piping systems on board small passenger vessels. However, the regulations were amended to require vital piping systems to be made of a ferrous material on board "new" small passenger vessels (46 CFR 182.710(c)). The intent of the post-1996 regulations was documented within the corresponding Subchapter T SNPRM (59 FR 2059): "It is the Coast Guard's intention to make the construction material requirements for vital system piping consistent for all vessels regardless of size or passenger capacity."

5. Discussion.

- a. Marine inspectors continue to discover nonmetallic sea strainers on "new" small passenger vessels, and it is likely that they are installed on other types of vessels. These nonmetallic strainers are typically in raw water cooling systems, but may also be installed within other systems. These strainers represent a potential "weak link" in a piping

system due to the potential for failure from mechanical or fire damage. Failure of these strainers could result in the loss of the affected vital system and potentially uncontrollable flooding. However, vessel operators have emphasized that these types of strainers have been successfully used for many years without significant casualties related to materials. A search of the MISLE database confirms a lack of historical casualty data related to these types of strainers. Additionally, through the use of alternative standards, robust operational practices (including limited routes, increased inspection, accessibility, and fire detection/suppression), the risk posed from nonmetallic strainers can be mitigated.

- b. The MSC should consider the following standards in determining if a strainer product demonstrates a level of safety equivalent to that of 46 CFR 182.710(c):
  - i. The standards for nonmetallic components in 46 CFR 56.60-25 (fire test as required by IMO Res. A.753(18)), are acceptable for any vessel, or;
  - ii. Strainers that successfully pass a fire test and subsequent pressure test as defined in any of the following standards would demonstrate sufficient resistant to fire and mechanical damage:
    - a. ASTM F1201
    - b. SAE J1942
    - c. IMO Resolution A.753(18)
    - d. ISO 15540
- c. In cases where the OCMI chooses to use the discretion afforded by 46 CFR 175.550 to accept nonmetallic sea strainers that do not meet the requirements of 46 CFR 182.710(c) or Paragraph 5.b above, the following factors should be considered:
  - i. Nonmetallic strainers for vital water systems should be:
    - a. Designed to a marine filter/strainer standard such as UL 1193;
    - b. Limited to piping not greater than 3 inches;
    - c. Reasonably protected from mechanical damage;
    - d. Accessible for regular inspection;
    - e. Installed within a space that is equipped with:
      - an approved fire detection system;
      - an approved fixed fire extinguishing system; and
      - a bilge high level alarm system
  - ii. The vital water system's through-hull valve or upstream isolation valve should be readily accessible and marked. If not accessible, the valve should be provided with a reach rod operable from an easily accessible location.

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