



# LINING INSPECTION

49 CFR, 180.407(f)

Manufacturer: \_\_\_\_\_ Year: \_\_\_\_\_ DOT Spec: \_\_\_\_\_

Co.#: \_\_\_\_\_ Serial #: \_\_\_\_\_ Test Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Lining Material: \_\_\_\_\_ Were Test Tools Used?:  YES  NO

REMARKS

Cargo tank returned to service: \_\_\_\_/\_\_\_\_/\_\_\_\_ Cargo tank withdrawn from service: \_\_\_\_/\_\_\_\_/\_\_\_\_

Inspector's Name: \_\_\_\_\_ CT#: \_\_\_\_\_

Inspector's Address: \_\_\_\_\_

I CERTIFY THAT THE INSPECTION NOTED ON THIS FORM WAS PERFORMED BY ME AND ALL REQUIRED ENTRIES WERE MADE CONCERNING OBSERVATIONS MADE DURING THIS INSPECTION.	
_____ Inspector's Signature	_____ Date
_____ Owner or Authorized Representative's Signature	_____ Date

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## (f) Lining Inspection

The integrity of the lining on all lined cargo tanks, when lining is required by this subchapter, must be verified at least once each year as follows:

- (1) Rubber (elastomeric) lining must be tested for holes as follows:
  - (i) Equipment must consist of:
    - (A) A high frequency spark tester capable of producing sufficient voltage to ensure proper calibration;
    - (B) A probe with an "L" shaped 2.4mm (0.09 inch) diameter wire with up to a 30.5 cm (12 inch) bottom leg (end bent to a 12.7 mm (0.5 inch) radius), or equally sensitive probe; and
    - (C) A steel calibration coupon 30.5 cm x 30.5 cm (12 inches x 12 inches) covered with the same material and thickness as that to be tested. The material on the coupon shall have a test hole to the metal substrate made by puncturing the material with a 22 gauge hypodermic needle or comparable piercing tool.
  - (ii) The probe must be passed over the surface of the calibration coupon in a constant uninterrupted manner until the hole is found. The hole is detected by the white or light blue spark formed. (A sound lining causes a dark blue or purple spark.) The voltage must be adjusted to the lowest setting that will produce the minimum of 12.7 mm (0.5 inch) spark measured from the top of the lining to the probe. To assure that the setting on the probe has not changed, the spark tester must be calibrated periodically using the test calibration coupon, and the same power source, probe, and cable length.
  - (iii) After calibration, the probe must be passed over the lining in an uninterrupted stroke.
  - (iv) Holes that are found must be repaired using equipment and procedures prescribed by the lining manufacturer or lining installer.
- (2) Linings made of other than rubber (elastomeric material) must be tested using the equipment and procedures prescribed by the lining manufacturer or lining installer.
- (3) Degraded or defective areas of the cargo tank liner must be removed and the cargo tank wall below the defect must be inspected. Corroded areas of the tank wall must be thickness tested in accordance with paragraphs (i)(2), (i)(3), (i)(5), and (i)(6) of this section.
- (4) The inspector must record the results of the lining inspection as specified in § 180.417(b).

### ACCEPTABLE RESULTS of TEST and INSPECTIONS

49 CFR, 180.411

- (a) **Corroded or abraded areas.**

The minimum thickness may not be less than that prescribed in the applicable specifications.
- (b) **Dents, cuts, digs, and gouges.**

(See CGA Pamphlet C-6 for evaluation procedures.)

  - (1) For dents at welds or that include a weld, the maximum allowable depth is ½ inch. For dents away from the welds, the maximum allowable depth is 1/10 of the greatest dimension of the dent, but in no case may the depth exceed one inch.
  - (2) The minimum thickness remaining beneath a cut, dig, or gouge may not be less than that prescribed in the applicable specification.
- (c) **Weld or structural defects.**

Any cargo tank with a weld defect such as a crack, pinhole, or incomplete fusion, or a structural defect must be taken out of hazardous materials service until repaired.
- (d) **Leakage**

All sources of leakage must be properly repaired prior to returning a tank to hazardous materials service.
- (e) **Relief valves.**

Any pressure relief valve that fails to open and re-close at the prescribed pressure must be repaired or replaced.
- (f) **Liner integrity.**

Any defect shown by the test must be properly repaired.
- (g) **Pressure test.**

Any tank that fails to meet the acceptance criteria found in the individual specification that applies must be properly repaired.

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