

## § 154.1360

(o) Each flammable gas detection system must not have common sampling lines, except sampling lines may be manifolded at the gas detector location if each line has an automatic valve that prevents cross-communication between sampling points.

(p) Each flammable gas detection system must have at least one connection for injecting zero gas and span gas into the system for testing and calibration.

(q) Each flammable gas detection system must have span gas for testing and calibration that is of known concentration.

(r) The calibration test procedure and type and concentration of span gas under paragraph (q) of this section must be on or in each gas analyzer cabinet.

(s) Each flammable gas detection system must have at least one flow meter capable of measuring the flow to the gas analyzer, and must provide a means for ensuring that there is a positive flow in the right direction in each sampling line at all times.

(t) Each flammable gas detection system must measure gas concentrations that:

(1) Are at least 0% through 200% of the alarm concentration; and

(2) Allow calibration of the equipment with span gas.

(u) In each hold and each interbarrier space that contains tanks other than independent tanks type A, B, or C, the flammable gas detection system must measure cargo concentrations of 0 to 100% by volume with:

(1) An analyzer other than the one under paragraph (t) of this section; or

(2) The analyzer under paragraph (t) of this section with a scale switch that automatically returns the analyzer to the concentration range under paragraph (t) of this section when released.

### § 154.1360 Oxygen analyzer.

The vessel must have a portable analyzer that measures oxygen levels in an inert atmosphere.

### § 154.1365 Audible and visual alarms.

(a) Each audible alarm must have an arrangement that allows it to be turned off after sounding. For remote group alarms this arrangement must

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not interrupt the alarm's actuation by other faults.

(b) Each visual alarm must be one that can be turned off only after the fault that actuated it is corrected.

(c) Each visual alarm must be marked to show the type and, except for remote group alarms, the location of each fault that actuates it.

(d) Each vessel must have means for testing each alarm.

### § 154.1370 Pressure gauge and vacuum gauge marking.

Each pressure gauge and vacuum gauge under §154.1335(a) must be marked with the maximum and minimum pressures that are specified on the vessel's certificate for the cargo carried.

### § 154.1375 Readout for temperature measuring device: Marking.

Each readout under §154.1340 for a device that measures temperature in a cargo tank must be marked with the design temperature specified for the cargo tank on the vessel's certificate.

## SAFETY EQUIPMENT

### § 154.1400 Safety equipment: All vessels.

(a) Instead of the equipment under §35.30–20 of this chapter, a vessel of less than 25,000 m<sup>3</sup> cargo capacity must have the following personnel safety equipment:

(1) Six self-contained, pressure-demand-type, air-breathing apparatus approved by the Mining Enforcement and Safety Administration (MESA) or the National Institute for Occupational Safety and Health (NIOSH), each having at least a 30 minute capacity.

(2) Nine spare bottles of air for the self-contained air-breathing apparatus, each having at least a 30 minute capacity.

(3) Six steel-cored lifelines.

(4) Six Type II or Type III flashlights constructed and marked in accordance with ASTM F 1014 (incorporated by reference, see §154.1).

(5) Three fire axes.

(6) Six helmets that meet ANSI Safety Requirements for Industrial Head Protection, Z–89.1 (1969).