

ANNEX 4

## RESOLUTION MEPC.5(XIII)

## SPECIFICATION FOR OIL/WATER INTERFACE DETECTORS

Adopted on 13 June 1980

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

NOTING Resolution A.297(VIII) by which the Assembly established the Committee and specified its functions and responsibilities,

RECALLING that Regulation 15(3)(b) of the International Convention for the Prevention of Pollution from Ships, 1973 specifies that oil tankers shall be provided with effective oil/water interface detectors approved by the Administration for a rapid and accurate determination of the oil/water interface in slop tanks and shall be available for use in other tanks where the separation of oil and water is effected and from which it is intended to discharge effluent direct to the sea,

REALIZING the desirability that interface detectors when being approved by Administrations meet internationally agreed performance standards,

ADOPTS the Specifications for such oil/water interface detectors the text of which is set out at the Annex to this Resolution,

RECOMMENDS Governments to use these specifications when considering interface detectors for approval and to report to the Organization on approved equipment for circulation to its Members.

## SPECIFICATION FOR OIL/WATER INTERFACE DETECTORS

### 1 Scope

1.1 The instrument should be capable of providing a rapid and accurate determination of the oil/water interface in slop tanks and/or other tanks where the separation of oil and water is effected and from which it is intended to discharge effluent direct to the sea.

### 2 General requirements

2.1 Interface detectors may be permanently installed or portable.

2.2 Interface detectors carried on board should be capable of detecting the vertical position of the interface at any level in the tank.

2.3 Interface detectors need not indicate the interface position continuously.

2.4 If permanently installed equipment based on stationary sensors only is provided the information obtained about the interface should be at least equivalent to that obtainable from portable equipment when used in a normal operating pattern.

2.5 The position of permanently installed equipment or the position of the access openings for portable equipment should be selected with due regard to the internal structure of the tank and reasonable ship movement.

2.6 The control and display unit of a permanently installed system should be located in the cargo control room or similar space.

2.7 Permanently installed equipment inside the tank should be able to withstand the impact from the jets of tank cleaning equipment.

2.8 Permanently installed and portable equipment should be arranged and used with due regard to relevant operational safety precautions.

### 3 Technical specifications

3.1 This specification relates to detectors, both portable and permanently installed, capable of detecting interfaces of liquids having a wide range of density differences. A detector, however, may be tested for one or several specified applications, e.g. interface between oils as defined in Annex I of the 1973 MARPOL Convention and salt water, brackish water or fresh water.

The approval document should clearly state the accepted applications and any relevant limitations.

3.2 The detector and its associated depth measuring equipment should be practical, reliable and constructed of materials suitable for use in the marine environment.

3.3 It should comply with the relevant statutory requirements for use in hazardous areas on oil tankers and should not interfere with radio communication.

3.4 The accuracy of the detector indication should be such that it will indicate within  $\pm 25$  mm the actual position of a sharply defined interface between oil and water.

3.5 The detector should respond promptly and in a distinctive manner to changes between oil and water.

3.6 The instrument should be capable of being checked on board for correct working.

#### 4 Test specification

4.1 The interface detector should be set up and used according to the manufacturer's operating instructions.

4.2 The test facility should consist of a container whereby the obtained oil/water interface can be made clearly visible. The depths of the oil and water layers should each be at least sufficient to completely immerse the detector probe.

4.3 The accuracy of the detector should be determined by comparing its indication against the position of the known interface between the oil and water.

4.4 The following oils, or their equivalents, should each be used in combination with fresh water (density 1.000), brackish water (density 1.012) and salt water (density 1.025) at ambient temperature:

Leaded Automotive Gasoline	- (Regular Grade)
Light Diesel Oil	- (No.2 fuel)
Arabian Light Crude Oil	- (Medium density and viscosity)
Residual Fuel	- (Bunker C or No.6 fuel)

4.5 Each test whereby the properties of either the oil or water has been changed should begin by establishing the position of the interface after sufficient time has been allowed for the oil to settle. Following each test, the detector should be cleaned.

4.6 If oil contamination has an effect on the accuracy or the responding time of the detector, it should be stated in the test report.

4.7 The effect of temperature on the detector response should be tested with Arabian Light Crude Oil, or equivalent, in combination with salt water (density 1.025) both at ambient temperature and at 50°C. Any effect of temperature on the responding time should be stated in the test report.

4.8 The satisfactory functioning of the permanently installed detector should not be affected by the movements and vibrations experienced on board ship. In particular, electrical or electronic detectors should be tested to show that they are at least capable of continued operation under vibration conditions as follows:

- .1 from 2 Hz - 13.2 Hz with an amplitude of  $\pm 1$  mm; and
- .2 from 13.2 Hz - 80 Hz with an acceleration amplitude of  $\pm 0.7$  g.

Additionally the equipment should be capable of reliable operation at angles up to 22.5° in any plane from the normal operational position.

4.9 The following information should be included with the test report:

- .1 the manufacturer's specification and operating instructions;
- .2 a diagrammatic description of the test rig;
- .3 types of oils used;
- .4 densities of water used;
- .5 details of all tests performed.

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