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**UNIFIED INTERPRETATION OF PROVISIONS OF IMO SAFETY, SECURITY AND  
ENVIRONMENT-RELATED CONVENTIONS**

**Draft unified interpretation on the secondary means of venting cargo tanks**

**Submitted by IACS**

**SUMMARY**

*Executive summary:* This document proposes a unified interpretation on the secondary means of venting cargo tanks required by SOLAS regulation II-2/4.5.3.2.2, as amended by resolution MSC.392(95), and SOLAS regulation II-2/11.6.3.2 to achieve a unified understanding and implementation on board.

*Strategic direction, if applicable:* 7

*Output:* 7.1

*Action to be taken:* Paragraph 9

*Related documents:* None

**Introduction**

1 Normally, for tankers built before 1 January 2017, when an inert gas system was fitted it was always used as the primary means of cargo tanks venting arrangement with a P/V breaker fitted in the common main pipe, as required by SOLAS regulations II-2/4.5.3.2.2 and II-2/11.6.3.2.

2 SOLAS regulation II-2/4.5.3.2.2 was amended by resolution MSC.392(95), as follows (amendment is indicated in *italics*):

"5.3.2.2 Where the arrangements are combined with other cargo tanks, either stop valves or other acceptable means shall be provided to isolate each cargo tank. Where stop valves are fitted, they shall be provided with locking arrangements which shall be under the control of the responsible ship's officer. There shall be a clear visual indication of the operational status of the valves or other acceptable means. Where tanks have been isolated, it shall be ensured that relevant isolating valves are opened before cargo loading or ballasting or discharging of those tanks is commenced. Any isolation must continue to permit the flow caused by thermal variations in a cargo tank in accordance with regulation 11.6.1.1.

*For tankers constructed on or after 1 January 2017, any isolation shall also continue to permit the passage of large volumes of vapour, air or inert gas mixtures during cargo loading and ballasting, or during discharging in accordance with regulation 11.6.1.2."*

3 SOLAS regulation II-2/11.6.3.2 reads as follows:

"6.3.2 A secondary means of allowing full flow relief of vapour, air or inert gas mixtures to prevent over-pressure or under-pressure in the event of failure of the arrangements in paragraph 6.1.2. Alternatively, pressure sensors may be fitted in each tank protected by the arrangement required in paragraph 6.1.2, with a monitoring system in the ship's cargo control room or the position from which cargo operations are normally carried out. Such monitoring equipment shall also provide an alarm facility which is activated by detection of over-pressure or under-pressure conditions within a tank."

## Discussion

4 Considering that SOLAS regulation II-2/4.5.3.2.2, as amended by resolution MSC.392(95), requires that "any isolation shall also continue to permit the passage of large volumes of vapour, air or inert gas mixture during cargo loading and ballasting, or during discharging...", which is different from the previous requirement of "flow caused by thermal variations ... in accordance with regulation 11.6.1.1", IACS discussed a possible impact on the secondary means of venting cargo tanks.

5 In that discussion, the focus was whether the P/V breaker in the inert gas main line could still be used as the primary or secondary means of venting, such arrangement being common on board tankers built before 1 January 2017.

6 IACS understands that SOLAS regulation II-2/4.5.3.2.2, as amended by resolution MSC.392(95), requires the passage of large volumes of vapour after any isolation, so if P/V breaker is to be used as the secondary means of venting, its installation shall follow other requirements in SOLAS regulation II-2/4.5.3.4.1, such as:

- .1 the outlet for free flow shall be not less than 6 m above the cargo tank deck or fore and aft gangway if situated within 4 m of the gangway and located not less than 10 m measured horizontally from the nearest air intakes and openings to enclosed spaces containing a source of ignition and from deck machinery; and
- .2 the outlet for high-velocity discharge shall be located at a height not less than 2 m above the cargo tank deck and not less than 10 m measured horizontally from the nearest air intakes and openings to enclosed spaces containing a source of ignition and from deck machinery.

7 Further, IACS understands that the P/V breaker fitted in the inert gas main line is no longer accepted by the relevant SOLAS requirements, as amended by resolution MSC.392(95), but it can serve as an additional safeguard, which is an extremely reliable device.

## Proposal

8 Based on the above discussion, IACS developed a draft unified interpretation clarifying the secondary means of venting cargo tanks. A copy of this draft unified interpretation is provided in the annex for the consideration of the Sub-Committee.

**Action requested of the Sub-Committee**

9 The Sub-Committee is invited to consider the above, the proposal in paragraph 8 and the draft unified interpretation, as set out in the annex; and take action, as appropriate.

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## ANNEX

### UNIFIED INTERPRETATION ON THE SECONDARY MEANS OF VENTING CARGO TANKS

**SOLAS regulation II-2/4.5.3.2.2, as amended by resolution MSC.392(95), reads as follows:**

"5.3.2.2 Where the arrangements are combined with other cargo tanks, either stop valves or other acceptable means shall be provided to isolate each cargo tank. Where stop valves are fitted, they shall be provided with locking arrangements which shall be under the control of the responsible ship's officer. There shall be a clear visual indication of the operational status of the valves or other acceptable means. Where tanks have been isolated, it shall be ensured that relevant isolating valves are opened before cargo loading or ballasting or discharging of those tanks is commenced. Any isolation must continue to permit the flow caused by thermal variations in a cargo tank in accordance with regulation 11.6.1.1.

For tankers constructed on or after 1 January 2017, any isolation shall also continue to permit the passage of large volumes of vapour, air or inert gas mixtures during cargo loading and ballasting, or during discharging in accordance with regulation 11.6.1.2."

**SOLAS regulation II-2/11.6.3.2 reads as follows:**

"6.3.2 A secondary means of allowing full flow relief of vapour, air or inert gas mixtures to prevent over-pressure or under-pressure in the event of failure of the arrangements in paragraph 6.1.2. Alternatively, pressure sensors may be fitted in each tank protected by the arrangement required in paragraph 6.1.2, with a monitoring system in the ship's cargo control room or the position from which cargo operations are normally carried out. Such monitoring equipment shall also provide an alarm facility which is activated by detection of over-pressure or under-pressure conditions within a tank."

#### Interpretation

For ships that apply pressure sensors in each tank as an alternative secondary means of venting as per SOLAS regulation II-2/11.6.3.2, the setting of the over-pressure alarm should be above the pressure setting of the P/V valve and the setting of the under-pressure alarm should be below the vacuum setting of the P/V valve. The alarm settings should be within the design pressures of the cargo tanks. The settings should be fixed and should not be arranged for blocking or adjustment in operation.

An exception should be permitted for ships that carry different types of cargo and use P/V valves with different settings, one setting for each type of cargo. The settings may be adjusted to account for the different types of cargo.