



INTERPRETATION: IIAR SC 2025-1. For IIAR 2-2021. Relief piping for safety relief valves that discharge internally to the system.

FINALIZED: January 21, 2025

SUBJECT: Relief piping for safety relief valves discharging internally to the system

BACKGROUND:

- IIAR 2-2021, Section 15.3.10.2 allows for hydrostatic relief into another part of the closed-circuit system.
- IIAR 2-2021, Section 15.3.6.3 allows for pressure vessels of 10 ft³ or more internal gross volume to use a single pressure relief device and discharge internally to the system.
- IIAR 2-2021 15.5.1.1.1(1) and (2), the variable Pd does not appear to consider the possibility of internal vapor discharge from pressure relief devices. Instead, Pd is only considered to be equal to either atmospheric pressure or pressure at the bottom of a water tank.
- IIAR 2-2021 15.5.1.1.1(a), (b), and (c) do not appear to consider the possibility of internal vapor discharge from pressure relief devices, as evidenced by the use of Pa in lieu of Pd.
- IIAR 2-2021 15.3.7 explicitly allows the use of a pressure relief device to discharge internally to the system, but is ambiguous regarding whether this relief is intended to be liquid or vapor, as only hydrostatic relief is specifically allowed in section 15.3.10.2.

QUESTION 1: Does IIAR 2-2021 require all vapor reliefs to discharge to atmosphere?

ANSWER 1: No.

QUESTION 2: If IIAR 2-2021 does not require all vapor reliefs to discharge to atmosphere, is internal vapor relief discharge permitted?

ANSWER 2: Yes.



QUESTION 3: If internal vapor relief is permitted in IIAR 2-2021, are vessels with an internal volume of less than 10 ft³ (15.3.5) permitted to discharge internally to the system?

ANSWER 3: The standard neither requires nor prohibits this.

QUESTION 4: Does 15.5 apply to internal vapor relief discharge?

ANSWER 4: No.

QUESTION 5: If 15.5 applies to internal vapor relief discharge, can equations 15.5.1.1.1(1) and (2) be applied by using $P_d = P_a + P_{\text{down stream vessel set pressure}}$.

ANSWER 5: It does not currently apply. The IIAR 2 subcommittee will be examining this section and the formulae within it for application to internally relieved valves.

QUESTION 6: If 15.5 applies to internal vapor relief discharge, can equations 15.5.1.1.1(a), (b), and (c) be applied to the use of internal reliefs by substituting P_d for P_a in these equations?

ANSWER 6: It does not currently apply.

COMMITTEE
ACTION:

The IIAR Standards Committee and the IIAR 2 Subcommittee will reorganize and refine the chapter on overpressure protection. It will examine whether the formulae in the current Section 15.5 are appropriate for use with internally relieved safety relief valves.