



INTERPRETATION: IIAR SC 2024-2. For IIAR 2-2021. Plate and Shell HXR strength and testing requirements.

FINALIZED: Jan 10, 2024

SUBJECT: Plate and shell heat exchanger strength and testing requirements.

BACKGROUND: A plate and shell heat exchanger has ammonia on the shell side, and brine on the plate side. It is stamped as an ASME VIII-1 pressure vessel with a single chamber rating. Yet, the brine must be kept separate from the refrigerant for safety and functionality.

QUESTION 1: If the plate pack withstands a proof test following the ASME VIII-1 UG-101 procedure, does this prove compliance with 5.13.2.1 (5)?

ANSWER 1: This section of the Standard calls for the design to be in compliance with ASME Sec VIII. This question asks for an interpretation of ASME code – IIAR cannot do that.

It is intended that this provision include design, construction, testing, and assembly in accordance with ASME B&PVC, Sec VIII, Div 1. This will be addressed in IIAR 2’s future revision consideration.

QUESTION 2: If the plate pack withstands a proof test equivalent to a minimum of 150 psig or 3x the design pressure (following ASME VIII-1 UG-101 procedure), does this prove compliance with the ultimate strength requirement as listed in 5.13.2.2?

ANSWER 2: Yes. Provided it meets all the requirements of Section 5.13.2.2.

COMMITTEE ACTION: Discuss additional requirements for 5.13.2.1 (5) when the standard is reviewed for periodic maintenance.