

CONTAINMENT OF CO₂ REFRIGERATION INSTALLATIONS

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ABSTRACT

A project has been carried out on the containment, and more specifically the leak tightness, of installations using CO₂.

The objectives are to define a test procedure for the qualification, regarding containment, of components used on installations working with CO₂.

The three stages of the project are : a) to define a test procedure in collaboration with a group of refrigeration companies, b) to test the sealing ability of components following the newly built procedure, and c) to detect and measure leaks on installations in service in order to observe the feasibility of the detection method and to measure the real leaks.

This article describes the test procedure for CO₂ components, the results of the lab tests and the results and observations of the on-site detections.

1. CONTEXT

Certain refrigeration applications come back with the use of CO₂ as a refrigeration fluid. The components have to be specifically adapted to this fluid and particularly prove to be tight enough for security reasons and to avoid loss of energetic performance of the system at these high pressures.

2. AIMS OF THE STUDY

The first aim of this study is to set a procedure for testing the components that are most commonly used in refrigeration installations using CO₂. The selection of components, as well as the definition of the testing parameters, are carried out with the collaboration of some of the industry players so as to insure a better representation of real use conditions. Tests include CO₂ and helium leak measurements. Helium is chosen as it is a reference gas for leak testing.

The second aim is to perform tests on different components (e.g. valves, hoses, filters) following this new procedure and to determine their leakage rate at their maximum service pressure.

On-site leakage measurements are also performed to collect data in operating conditions.

3. IN-LAB TESTS

3.1. Testing procedure

The procedure is based on work done for the elaboration of the XP E35424-1 and -2 standards.

Study Guide For Refrigeration Containment Test

Rex Miller, Mark R. Miller



Study Guide For Refrigeration Containment Test:

Refrigerant Containment Technician Certification Test National Learning Corporation, 2014 The Refrigerant Containment Certification Test administered by the Environmental Protection Agency examines candidates and certifies them in the proper handling of CFC and HCFC refrigerants as required by federal law It tests for knowledge skills and or abilities in such areas as environmental impact of CFCs and HCFCs laws and regulations changing industry outlook leak detection recovery techniques safety shipping and disposal **REFRIGERANT CONTAINMENT TECHNICIAN CERTIFICATION TEST**

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Subject Guide to Books in Print, 1991 **Refrigeration and Air Conditioning** Air-Conditioning and Refrigeration Institute, 1998 For courses in Basic Refrigeration Commercial Refrigeration Residential Air Conditioning Commercial Air Conditioning Warm Air Heating Hydronic Heating HVAC Control Systems and Servicing HVAC Systems Suitable for a full range of courses this text covers information essential for all the courses outlined in the ARI Curriculum Guide for training entry level heating ventilating air conditioning and refrigeration HVACR technicians Exceptionally comprehensive authoritative up to date and well illustrated in full color it focuses on accepted and expected industry practices applicable to a wide variety of HVACR jobs

Certification and Accreditation Programs Directory Michael A. Paré, 1996 Providing detailed profiles on certification and accreditation programmes in the US this book includes information on certification and accreditation programmes that denote skill level professionalism accomplishment and excellence

Companion Guide to the ASME Boiler & Pressure Vessel Code K. R. Rao, 2002 This comprehensive new guide available in two volumes addresses Sections I through XI of the ASME Boiler and Pressure Vessel Code and Codes B31 1 and B31 3 for Pressure Piping Contributors also provide examples and explanatory text graphics references and annotated bibliographic notes As a result engineers can immediately refer to the material requirements to find acceptance criteria Its indepth treatment of each of the Code sections makes this the definitive companion book to the ASME Boiler and Pressure Vessel Code Volume 1 covers Code Sections I II III IV VI and VII as well as Codes B31 1 and B31 3 for Piping Volume 2 includes Sections V VII IX X and XI as well as special topics relating to the Code Each volume contains full introductory

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