

Code of practice for

Supplementary checking of metallic materials of construction in pressurized systems

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Pressure Vessels Standards Policy Committee (PVE/-) to sub committee PVE/-/7, upon which the following bodies were represented:

- Associated Offices Technical Committee
- British Chemical Engineering Contractors Association
- British Gas plc
- Electricity Supply Industry in England and Wales
- Engineering Equipment and Materials Users' Association
- Health and Safety Executive
- Independent Engineering Insurers Committee
- Institute of Quality Assurance
- Institution of Gas Engineers
- Institution of Plant Engineers
- Liquefied Petroleum Gas Industry Technical Association (UK)
- Lloyds Register of Shipping
- Power Generation Contractors Association (BEAMA Ltd.)
- Process Plant Association
- Welding Institute

This British Standard, having been prepared under the direction of the Pressure Vessels Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 31 August 1990

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The following BSI references relate to the work on this standard:
Committee reference PVE/-
Draft for comment 89/72561 DC

ISBN 0 580 18749 7

Amendments issued since publication

Amd. No.	Date	Comments

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Foreword

This British Standard has been prepared under the direction of the Pressure Vessels Standards Policy Committee.

The purpose of this British Standard is to supplement traditional methods of material identification which incorporate hard stamping and review of material certificates. It outlines further measures to be taken to minimize the likelihood of failure in service of any pressurized system, due to the use of incorrect material, where the consequences of such a failure would be unacceptable. It is not intended to ensure the complete conformity of materials to any given specification; where such guarantees are considered necessary, more rigorous measures may be needed.

Many pressurized systems require a range of ferritic steels, austenitic steels and non-ferrous materials in addition to plain carbon steel to withstand safely the operating conditions. Such materials may be required for enhanced strength, increased strength at high temperatures, enhanced ductility at low temperatures, resistance to attack by hot hydrogen, resistance to corrosion, etc.

It is not possible by visual means alone to distinguish between different metallic materials. Potential exists for material of different specifications to become mixed up unless a rigorous system of segregation, marking and control exists.

Major failures have occurred in pressurized systems when the wrong material has been accidentally fabricated or introduced. Such errors invariably survive the final hydrostatic acceptance test (which is not intended to identify rogue materials) only to reveal themselves in service when the material has been weakened by the operating conditions to the point of failure.

Since special materials are usually needed for the more aggressive, hostile or demanding process conditions, the consequences of the use of the wrong material are at their greatest in such systems. There are also cases in which alloy material is built into carbon steel systems, again in error. In these circumstances the consequences can still be potentially damaging.

Experience shows that by far the greatest number of errors occur in piping systems, in particular the systems which are fabricated and assembled on construction sites from bulk issue materials.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.