

DIN EN 13445-2:2013-12 (E)

Unfired pressure vessels - Part 2: Materials

| Contents | | Page |
|--|---|-------------|
| Foreword | | 3 |
| 1 | Scope | 3 |
| 2 | Normative references | 4 |
| 3 | Terms, definitions, symbols and units | 6 |
| 3.1 | Terms and definitions | 6 |
| 3.2 | Symbols and units | 7 |
| 4 | Requirements for materials to be used for pressure-bearing parts | 9 |
| 4.1 | General | 9 |
| 4.2 | Special provisions | 11 |
| 4.2.1 | Special properties | 11 |
| 4.2.2 | Design temperature above 20 °C | 11 |
| 4.2.3 | Prevention of brittle fracture | 12 |
| 4.2.4 | Design properties in the creep range | 12 |
| 4.2.5 | Specific requirements for steels for fasteners | 12 |
| 4.3 | Technical delivery conditions | 13 |
| 4.3.1 | European Standards | 13 |
| 4.3.2 | European Approval for Materials | 13 |
| 4.3.3 | Particular material appraisals | 13 |
| 4.3.4 | Clad products | 13 |
| 4.3.5 | Welding consumables | 13 |
| 4.4 | Marking | 13 |
| 5 | Requirements for materials to be used for non-pressure parts | 14 |
| Annex A (normative) Grouping system for steels for pressure equipment | | 15 |
| Annex B (normative) Requirements for prevention of brittle fracture at low temperatures | | 17 |
| Annex C (informative) Procedure for determination of the weld creep strength reduction factor (WCSRF) | | 50 |
| Annex D (informative) Technical delivery conditions for clad products for pressure purposes | | 51 |
| Annex E (informative) European steels for pressure purposes | | 55 |
| Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of the EU Pressure Equipment Directive 97/23/EC | | 80 |
| Bibliography | | 81 |