DIN EN ISO 11114-1:2024-01 (E)

Gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 1: Metallic materials (ISO 11114-1:2020 + Amd 1:2023) (includes Amendment A1:2023)

Contents

Page

European foreword ... **3**

A1 European foreword to Amendment A1 A1 ... **4**

Foreword ... **5**

A1 Foreword to Amendment A1 A1 ... **6**

Introduction ... **7**

1 Scope ... **8**

2 Normative references ... **8**

3 Terms and definitions ... **8**

4 Materials ... **9**
4.1 General ... 9
4.2 Cylinder materials ... 9
4.3 Valve materials ... 10
4.3.1 General ... 10
4.3.2 Particular considerations ... 10

5 Compatibility criteria ... **10**
5.1 General ... 10
5.2 Corrosion ... 11
5.2.1 General ... 11
5.2.2 Corrosion in dry conditions ... 11
5.2.3 Corrosion in wet conditions ... 11
5.2.4 Corrosion by impurities ... 11
5.3 Hydrogen embrittlement phenomenon ... 12
5.4 Generation of dangerous products ... 12
5.5 Violent reactions (e.g. ignition) ... 12
5.6 Stress corrosion cracking ... 12

6 Material compatibility ... **12**
6.1 Table of compatibility for single gases ... 12
6.2 Compatibility for gas mixtures ... 12
6.3 Using Table 1 ... 13
6.3.1 Conventions and numbers ... 13
6.3.2 Abbreviations for materials ... 13

Annex A (informative) **Gas/materials NQSAB compatibility code** ... **44**

Bibliography ... **55**