

DIN EN 378-1:2021-06 (E)

Refrigerating systems and heat pumps - Safety and environmental requirements - Part 1: Basic requirements, definitions, classification and selection criteria (includes Amendment A1:2020)

| Contents | | Page |
|--|--|-------------|
| European foreword | | 4 |
| Introduction | | 6 |
| 1 | Scope | 7 |
| 2 | Normative references | 7 |
| 3 | Terms and definitions | 8 |
| 3.1 | Refrigerating systems | 8 |
| 3.2 | Occupancies, locations | 10 |
| 3.3 | Pressures | 11 |
| 3.4 | Components of refrigerating systems | 12 |
| 3.5 | Piping and joints | 14 |
| 3.6 | Safety accessories | 15 |
| 3.7 | Fluids | 17 |
| 3.8 | Miscellaneous | 20 |
| 4 | Symbols and abbreviated terms | 20 |
| 5 | Classification | 22 |
| 5.1 | Access categories | 22 |
| 5.1.1 | General | 22 |
| 5.1.2 | More than one access category | 23 |
| 5.2 | Designation and classification of refrigerants | 23 |
| 5.3 | Location classification of refrigerating systems | 23 |
| 5.4 | Refrigerating system classification | 24 |
| 5.4.1 | General | 24 |
| 5.4.2 | Direct releasable systems | 24 |
| 5.4.3 | Indirect systems | 24 |
| 5.5 | Examples of systems | 24 |
| 5.5.1 | Direct releasable systems | 24 |
| 5.5.2 | Indirect systems | 26 |
| 5.6 | Special requirements for ice rinks | 29 |
| 6 | Quantity of refrigerant | 29 |
| 7 | Space volume calculations | 29 |
| Annex A(informative) Equivalent terms in English, French and German | | 31 |
| Annex B(informative) Total equivalent warming impact (TEWI) | | 36 |
| Annex C(normative) Refrigerant charge limit requirements | | 39 |
| C.1 | Charge limits requirements for refrigerating systems | 39 |
| C.2 | Charge limitations due to flammability for air conditioning systems or heat pumps for human comfort | 48 |
| C.2.1 | Refrigerant-containing parts in a occupied space | 48 |

| | | |
|---|---|----|
| C.2.2 | Special requirements for non fixed factory sealed single package air conditioning systems or heat pumps with a limited charge | 48 |
| C.3 | Alternative for risk management of refrigerating systems in occupied spaces | 49 |
| C.3.1 | General | 49 |
| C.3.2 | Allowable charge | 50 |
| Annex D(informative) Protection for people who are inside cold rooms | | 53 |
| D.1 | General | 53 |
| D.2 | Operation of doors and emergency exit doors | 53 |
| D.3 | Emergency switch or signal | 53 |
| D.4 | Cold rooms with a controlled atmosphere | 54 |
| Annex E(normative) Safety classification and information about refrigerants | | 55 |
| Annex F(normative) Special requirements for ice rinks | | 71 |
| F.1 | Indoor ice rinks | 71 |
| F.2 | Outdoor ice rinks and installations for similar sporting activities | 71 |
| Annex G(informative) Potential hazards for refrigerating systems | | 72 |
| Annex H(informative) Calculation examples related to C.2 and C.3 | | 74 |
| H.1 | Example 1 for C.2.1 | 74 |
| H.2 | Example 2 for C.2.1 | 74 |
| H.3 | Example 3 for C.3 | 74 |
| H.4 | Example 4 for C.3 | 74 |
| Bibliography | | 76 |