

ISO/TR 15916:2004-02 (E)

Basic considerations for the safety of hydrogen systems

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Overview of hydrogen applications	1
4.1	Basic hydrogen infrastructure	1
4.2	Typical hydrogen system components	3
4.3	Hydrogen fuel	5
4.4	Environmental effects	5
5	Safety considerations for the use of gaseous and liquid hydrogen	5
5.1	General	5
5.2	Hazards involved as a consequence of the properties of hydrogen	6
5.3	Factors involved in combustion hazards	7
5.4	Factors involved in pressure hazards	8
5.5	Factors involved in temperature hazards	9
5.6	Factors involved in hydrogen embrittlement hazards	9
5.7	Health hazards	10
5.8	Team approach and training needed for the safe use of hydrogen	10
6	Basic properties of hydrogen	10
6.1	General properties	10
6.2	Selected thermophysical properties	11
6.3	Basic combustion properties	12
7	Mitigation and control of risks	14
7.1	General mitigation and control of risk	14
7.2	Mitigation of design risks	16
7.3	Mitigation of flammability and explosion risks	21
7.4	Detection considerations	23
7.5	Considerations for facilities	24
7.6	Considerations for operations	29
7.7	Recommended practices for organizations	33
Annex A (informative)	Hydrogen properties	35
Annex B (informative)	Hydrogen combustion data	39
Annex C (informative)	Material data	42
Annex D (informative)	Hydrogen-storing compounds	47
Annex E (informative)	Terms and definitions	48
Bibliography		61