

TABLE OF CONTENTS

VOLUME I

Page

Part 1. GENERAL PROVISIONS, DEFINITIONS, TRAINING AND SECURITY	19
Chapter 1.1 - General provisions	21
1.1.1 Scope and application	21
1.1.2 Dangerous goods forbidden from transport	22
Chapter 1.2 - Definitions and units of measurement	23
1.2.1 Definitions	23
1.2.2 Units of measurement	32
Chapter 1.3 - Training	35
Chapter 1.4 Security provisions	37
1.4.1 General provisions	37
1.4.2 Security training	37
1.4.3 Provisions for high consequence dangerous goods	37
Chapter 1.5 General provisions concerning Class 7.....	41
1.5.1 Scope and application	41
1.5.2 Radiation protection programme	42
1.5.3 Quality assurance	43
1.5.4 Special arrangement	44
1.5.5 Radioactive material possessing other dangerous properties	44
1.5.6 Non-compliance	44
Part 2. CLASSIFICATION	45
Chapter 2.0 - Introduction	47
2.0.0 Responsibilities	47
2.0.1 Classes, divisions, packing groups	47
2.0.2 UN numbers and proper shipping names.....	48
2.0.3 Precedence of hazard characteristics	50
2.0.4 Transport of samples	52
Chapter 2.1 - Class 1 - Explosives.....	53
2.1.1 Definitions and general provisions	53
2.1.2 Compatibility groups	55
2.1.3 Classification procedure	57
Chapter 2.2 - Class 2 - Gases	69
2.2.1 Definitions and general provisions	69
2.2.2 Divisions	69
2.2.3 Mixtures of gases	70

TABLE OF CONTENTS (cont'd)

VOLUME I

	Page
Chapter 2.3 - Class 3 - Flammable liquids	73
2.3.1 Definition and general provisions.....	73
2.3.2 Assignment of packing groups	74
2.3.3 Determination of flash point.....	75
Chapter 2.4 - Class 4 - Flammable solids; substances liable to spontaneous combustion; substances which, in contact with water, emit flammable gases	77
2.4.1 Definitions and general provisions	77
2.4.2 Division 4.1 - Flammable solids, self-reactive substances and solid desensitized explosives	78
2.4.3 Division 4.2 - Substances liable to spontaneous combustion	89
2.4.4 Division 4.3 - Substances which in contact with water emit flammable gases	90
2.4.5 Classification of organometallic substances.....	91
Chapter 2.5 - Class 5 - Oxidizing substances and organic peroxides.....	93
2.5.1 Definitions and general provisions	93
2.5.2 Division 5.1 - Oxidizing substances	93
2.5.3 Division 5.2 - Organic peroxides.....	95
Chapter 2.6 - Class 6 -Toxic and infectious substances	113
2.6.1 Definitions	113
2.6.2 Division 6.1 - Toxic substances.....	113
2.6.3 Division 6.2 - Infectious substances	119
Chapter 2.7 - Class 7 - Radioactive material.....	125
2.7.1 Definitions	125
2.7.2 Classification	126
Chapter 2.8 - Class 8 - Corrosive substances	155
2.8.1 Definition	155
2.8.2 Assignment of packing groups	155
Chapter 2.9 - Class 9 - Miscellaneous dangerous substances and articles	157
2.9.1 Definitions	157
2.9.2 Assignment to Class 9	157
2.9.3 Environmentally hazardous substances (aquatic environment).....	157

TABLE OF CONTENTS (cont'd)

VOLUME I

	Page
Part 3. DANGEROUS GOODS LIST, SPECIAL PROVISIONS AND EXCEPTIONS	169
Chapter 3.1 - General	171
3.1.1 Scope and general provisions	171
3.1.2 Proper shipping name	171
3.1.3 Mixtures and solutions containing one dangerous substance	173
Chapter 3.2 - Dangerous goods list	175
3.2.1 Structure of the dangerous goods list	175
3.2.2 Abbreviations and symbols	176
Chapter 3.3 - Special provisions applicable to certain articles or substances.....	289
Chapter 3.4 - Dangerous goods packed in limited quantities	311
Chapter 3.5 - Dangerous goods packed in excepted quantities	313
3.5.1 Excepted quantities.....	313
3.5.2 Packagings	313
3.5.3 Tests for packages	314
3.5.4 Marking of packages	315
3.5.5 Maximum number of packages in any freight vehicle, railway freight wagon or multimodal freight container.....	315
3.5.6 Documentation	315
APPENDICES	317
Appendix A - List of generic and N.O.S. proper shipping names.....	319
Appendix B - Glossary of terms	339
ALPHABETICAL INDEX OF SUBSTANCES AND ARTICLES.....	351

TABLE OF CONTENTS

VOLUME II

Page

ANNEX: MODEL REGULATIONS ON THE TRANSPORT OF DANGEROUS GOODS..... (cont'd)	1
Part 4. PACKING AND TANK PROVISIONS	3
Chapter 4.1 - Use of packagings, including intermediate bulk containers (IBCs) and large packagings	5
4.1.1 General provisions for the packing of dangerous goods in packagings, including IBCs and large packagings	5
4.1.2 Additional general provisions for the use of IBCs	9
4.1.3 General provisions concerning packing instructions	10
4.1.4 List of packing instructions	14
4.1.5 Special packing provisions for goods of Class 1	87
4.1.6 Special packing provisions for goods of Class 2	89
4.1.7 Special packing provisions for organic peroxides (Division 5.2) and self-reactive substances of Division 4.1	91
4.1.8 Special packing provisions for infectious substances of Category A (Division 6.2, UN 2814 and UN 2900)	93
4.1.9 Special packing provisions for Class 7	93
Chapter 4.2 - Use of portable tanks and multiple-element gas containers (MEGCs).....	99
4.2.1 General provisions for the use of portable tanks for the transport of substances of Class 1 and Classes 3 to 9	99
4.2.2 General provisions for the use of portable tanks for the transport of non-refrigerated liquefied gases	104
4.2.3 General provisions for the use of portable tanks for the transport of refrigerated liquefied gases	105
4.2.4 General provisions for the use of multiple-element gas containers (MEGCs)	106
4.2.5 Portable tank instructions and special provisions	107
Chapter 4.3 Use of bulk containers	123
4.3.1 General provisions	123
4.3.2 Additional provisions applicable to bulk goods of Divisions 4.2, 4.3, 5.1, 6.2 and Classes 7 and 8	125
Part 5. CONSIGNMENT PROCEDURES	127
Chapter 5.1 - General provisions	129
5.1.1 Application and general provisions	129
5.1.2 Use of overpacks	129
5.1.3 Empty packagings	129
5.1.4 Mixed packing	129
5.1.5 General provisions for class 7	130

TABLE OF CONTENTS (cont'd)

VOLUME II

Page

Chapter 5.2 - Marking and labelling	135
5.2.1 Marking	135
5.2.2 Labelling	138
Chapter 5.3 - Placarding and marking of transport units.....	147
5.3.1 Placarding	147
5.3.2 Marking	149
Chapter 5.4 - Documentation	151
5.4.1 Dangerous goods transport documentation	151
5.4.2 Container/vehicle packing certificate	156
5.4.3 Emergency response information	157
Chapter 5.5 - Special provisions	161
5.5.1 Special provisions applicable to the consignment of infectious substances....	161
5.5.2 Documentation and identification of fumigated units	161
Part 6. REQUIREMENTS FOR THE CONSTRUCTION AND TESTING OF PACKAGINGS, INTERMEDIATE BULK CONTAINERS (IBCs), LARGE PACKAGINGS, PORTABLE TANKS, MULTIPLE-ELEMENT GAS CONTAINERS (MEGCs) AND BULK CONTAINERS	163
Chapter 6.1 - Requirements for the construction and testing of packagings (other than for Division 6.2 substances).....	165
6.1.1 General	165
6.1.2 Code for designating types of packagings	166
6.1.3 Marking	168
6.1.4 Requirements for packagings	171
6.1.5 Test requirements for packagings.....	182
Chapter 6.2 - Requirements for the construction and testing of pressure receptacles, aerosol dispensers, small receptacles containing gas (gas cartridges) and fuel cell cartridges containing liquefied flammable gas.	189
6.2.1 General requirements	189
6.2.2 Requirements for UN pressure receptacles.....	194
6.2.3 Requirements for non-UN pressure receptacles	208
6.2.4 Requirements for aerosol dispensers, small receptacles containing gas (gas cartridges) and fuel cell cartridges containing liquefied flammable gas	208
Chapter 6.3 - Requirements for the construction and testing of packagings for Division 6.2 infectious substances of Category A.....	211
6.3.1 General	211
6.3.2 Requirements for packagings	211

TABLE OF CONTENTS (cont'd)

VOLUME II

	Page
6.3.3 Code for designating types of packagings	211
6.3.4 Marking	211
6.3.5 Test requirements for packagings	212
Chapter 6.4 - Requirements for the construction, testing and approval of packages and material for Class 7	217
6.4.1 (Reserved)	217
6.4.2 General requirements	217
6.4.3 Additional requirements for packages transported by air	218
6.4.4 Requirements for excepted packages	218
6.4.5 Requirements for industrial packages	218
6.4.6 Requirements for packages containing uranium hexafluoride	219
6.4.7 Requirements for Type A packages	220
6.4.8 Requirements for Type B(U) packages	222
6.4.9 Requirements for Type B(M) packages	224
6.4.10 Requirements for Type C packages	224
6.4.11 Requirements for packages containing fissile material	224
6.4.12 Test procedures and demonstration of compliance	227
6.4.13 Testing the integrity of the containment system and shielding and evaluating criticality safety	228
6.4.14 Target for drop tests	228
6.4.15 Test for demonstrating ability to withstand normal conditions of transport	228
6.4.16 Additional tests for Type A packages designed for liquids and gases	229
6.4.17 Tests for demonstrating ability to withstand accident conditions in transport	229
6.4.18 Enhanced water immersion test for Type B(U) and Type B(M) packages containing more than 10^5 A ₂ and Type C packages	231
6.4.19 Water leakage test for packages containing fissile material	231
6.4.20 Tests for Type C packages	231
6.4.21 Tests for packagings designed to contain uranium hexafluoride	232
6.4.22 Approvals of package designs and materials	232
6.4.23 Applications and approvals for radioactive material transport	232
6.4.24 Transitional measures for Class 7	241
Chapter 6.5 - Requirements for the construction and testing of intermediate bulk containers	243
6.5.1 General requirements	243
6.5.2 Marking	246
6.5.3 Construction requirements	248
6.5.4 Testing, certification and inspection	249
6.5.5 Specific requirements for IBCs	251
6.5.6 Test requirements for IBCs	258
Chapter 6.6 - Requirements for the construction and testing of large packagings	267
6.6.1 General	267
6.6.2 Code for designating types of large packagings	267
6.6.3 Marking	268

TABLE OF CONTENTS (cont'd)

VOLUME II

Page

6.6.4	Specific requirements for large packagings.....	269
6.6.5	Test requirements for large packagings.....	271
Chapter 6.7	Requirements for the design, construction, inspection and testing of portable tanks and multiple-element gas containers (MEGCs)	277
6.7.1	Application and general requirements	277
6.7.2	Requirements for the design, construction, inspection and testing of portable tanks intended for the transport of substances of Class 1 and Classes 3 to 9	277
6.7.3	Requirements for the design, construction, inspection and testing of portable tanks intended for the transport of non-refrigerated liquefied gases	294
6.7.4	Requirements for the design, construction, inspection and testing of portable tanks intended for the transport of refrigerated liquefied gases	308
6.7.5	Requirements for the design, construction, inspection and testing of multiple-element gas containers (MEGCs) intended for the transport of non-refrigerated gases	319
Chapter 6.8	Requirements for the design, construction, inspection and testing of bulk containers	327
6.8.1	Definitions	327
6.8.2	Application and general requirements	327
6.8.3	Requirements for the design, construction, inspection and testing of freight containers used as bulk containers.....	327
6.8.4	Requirements for the design, construction and approval of bulk containers other than freight containers	328
Part 7. PROVISIONS CONCERNING TRANSPORT OPERATIONS.....		331
Chapter 7.1	Provisions concerning transport operations by all modes of transport.....	333
7.1.1	Application, general provisions and loading requirements	333
7.1.2	Segregation of dangerous goods.....	334
7.1.3	Special provisions applicable to the transport of explosives	334
7.1.4	Special provisions applicable to the transport of gases	336
7.1.5	Special provisions applicable to the transport of self-reactive substances of Division 4.1 and organic peroxides of Division 5.2.....	336
7.1.6	Special provisions applicable to the transport of substances stabilized by temperature control (other than self-reactive substances and organic peroxides)	339
7.1.7	Special provisions applicable to the transport of Division 6.1 (toxic) and Division 6.2 (infectious) substances	339
7.1.8	Special provisions applicable to the transport of radioactive material	340
7.1.9	Reporting of accidents or incidents involving dangerous goods in transport	344

TABLE OF CONTENTS (cont'd)

VOLUME II

	Page
Chapter 7.2 - Modal provisions	345
7.2.1 Application and general provisions	345
7.2.2 Special provisions applicable to the transport of portable tanks on vehicles	345
7.2.3 Special provisions applicable to the transport of radioactive material	345
7.2.4 Security provisions for transport by road, rail and inland waterway	346
TABLE OF CORRESPONDENCE between paragraph numbers in the IAEA Regulations for the Safe Transport of Radioactive Material (2005 Edition) and the fifteenth revised edition of the Recommendations on the Transport of Dangerous Goods (including the Model Regulations)	347