

TABLE OF CONTENTS
VOLUME I

	Page
European Agreement concerning the international carriage of dangerous goods by road	xiii
Protocol of signature	xix
Annex A General provisions and provisions concerning dangerous substances and articles	1
Part 1 General provisions	3
Chapter 1.1 Scope and applicability	5
1.1.1 Structure	5
1.1.2 Scope	5
1.1.3 Exemptions	6
1.1.4 Applicability of other regulations	10
Chapter 1.2 Definitions and units of measurement	13
1.2.1 Definitions	13
1.2.2 Units of measurement	30
Chapter 1.3 Training of persons involved in the carriage of dangerous goods	33
1.3.1 Scope and applicability	33
1.3.2 Nature of the training	33
1.3.3 Documentation	34
Chapter 1.4 Safety obligations of the participants	35
1.4.1 General safety measures	35
1.4.2 Obligations of the main participants	35
1.4.3 Obligations of the other participants	37
Chapter 1.5 Derogations	39
1.5.1 Temporary derogations	39
1.5.2 (Reserved)	39
Chapter 1.6 Transitional measures	41
1.6.1 General	41
1.6.2 Receptacles for Class 2	42
1.6.3 Fixed tanks (tank-vehicles), demountable tanks and battery-vehicles	42
1.6.4 Tank-containers and MEGCs	44
1.6.5 Vehicles	46
1.6.6 Class 7	47

Table of contents (cont'd)

	Page
Chapter 1.7 General requirements concerning Class 7	49
1.7.1 General	49
1.7.2 Radiation protection programme	49
1.7.3 Quality assurance	50
1.7.4 Special arrangement	51
1.7.5 Radioactive material possessing other dangerous properties	51
1.7.6 Non-compliance	51
Chapter 1.8 Checks and other support measures to ensure compliance with safety requirements	53
1.8.1 Administrative controls of dangerous goods	53
1.8.2 Mutual administrative support	53
1.8.3 Safety adviser	54
1.8.4 List of competent authorities and bodies designated by them	60
1.8.5 Notifications of occurrences involving dangerous goods	60
Chapter 1.9 Transport restrictions by the competent authorities	67
Chapter 1.10 Security provisions.....	69
1.10.1 General provisions	69
1.10.2 Security training.....	69
1.10.3 Provisions for high consequence dangerous goods.....	69
Appendix to Part 1 - List of competent authorities	73
Part 2 Classification	81
Chapter 2.1 General provisions	83
2.1.1 Introduction.....	83
2.1.2 Principles of classification	84
2.1.3 Classification of substances, including solutions and mixtures (such as preparations and wastes), not mentioned by name.....	85
2.1.4 Classification of samples.....	90
Chapter 2.2 Class specific provisions	91
2.2.1 Class 1 Explosive substances and articles	91
2.2.2 Class 2 Gases.....	111
2.2.3 Class 3 Flammable liquids	120
2.2.41 Class 4.1 Flammable solids, self-reactive substances and solid desensitized explosives	125
2.2.42 Class 4.2 Substances liable to spontaneous combustion	136
2.2.43 Class 4.3 Substances which, in contact with water, emit flammable gases.....	140
2.2.51 Class 5.1 Oxidizing substances	144
2.2.52 Class 5.2 Organic peroxides.....	149

Table of contents (cont'd)

	Page	
Chapter 2.2	Class specific provisions (cont'd)	
2.2.61	Class 6.1 Toxic substances.....	163
2.2.62	Class 6.2 Infectious substances	176
2.2.7	Class 7 Radioactive material	182
2.2.8	Class 8 Corrosive substances	215
2.2.9	Class 9 Miscellaneous dangerous substances and articles.....	220
Chapter 2.3	Test methods	225
2.3.0	General	225
2.3.1	Exudation test for blasting explosives of Type A	225
2.3.2	Tests relating to nitrated cellulose mixtures of Class 4.1	227
2.3.3	Tests relating to flammable liquids of Classes 3, 6.1 and 8	228
2.3.4	Test for determining fluidity	230
2.3.5	Test for determining the ecotoxicity, persistence and bioaccumulation of substances in the aquatic environment for assignment to Class 9	232
Part 3	Dangerous goods list, special provisions and exemptions related to dangerous goods packed in limited quantities	237
Chapter 3.1	General	239
3.1.1	Introduction.....	239
3.1.2	Proper shipping name.....	239
Chapter 3.2	Dangerous goods list	243
3.2.1	Table A: Dangerous Goods List.....	243
3.2.2	Table B: Alphabetic index of substances and articles of ADR	544

TABLE OF CONTENTS

VOLUME II

		Page
Annex A (cont'd)	General provisions and provisions concerning dangerous substances and articles	1
Part 3 (cont'd)	Dangerous goods list, special provisions and exemptions related to dangerous goods packed in limited quantities	3
	Chapter 3.3 Special provisions applicable to certain articles or substances	5
	Chapter 3.4 Exemptions related to dangerous goods packed in limited quantities	31
	3.4.1 General requirements	31
	3.4.6 Table	33
Part 4	Packing and tank provisions	35
	Chapter 4.1 Use of packagings, including intermediate bulk containers (IBCs) and large packagings	37
	4.1.1 General provisions for the packing of dangerous goods in packagings, including IBCs and large packagings	37
	4.1.2 Additional general provisions for the use of IBCs	66
	4.1.3 General provisions concerning packing instructions	66
	4.1.4 List of packing instructions	69
	4.1.5 Special packing provisions for goods of Class 1	160
	4.1.6 Special packing provisions for goods of Class 2 and goods of other classes assigned to packing instruction P200	161
	4.1.7 Special packing provisions for organic peroxides (Class 5.2) and self-reactive substances of Class 4.1	164
	4.1.8 Special packing provisions for infectious substances (Class 6.2)	166
	4.1.9 Special packing provisions for Class 7	167
	4.1.10 Special provisions for mixed packing	168
	Chapter 4.2 Use of portable tanks and UN multiple-element gas containers (MEGCs)	175
	4.2.1 General provisions for the use of portable tanks for the carriage of substances of Class 1 and Classes 3 to 9	175
	4.2.2 General provisions for the use of portable tanks for the carriage of non-refrigerated liquefied gases	180
	4.2.3 General provisions for the use of portable tanks for the carriage of refrigerated liquefied gases	181
	4.2.4 General provisions for the use of UN multiple-element gas containers (MEGCs)	183
	4.2.5 Portable tank instructions and special provisions	184

Table of contents (cont'd)

	Page	
Chapter 4.3	Use of fixed tanks (tank-vehicles), demountable tanks, tank-containers and tank swap bodies with shells made of metallic materials, and battery-vehicles and multiple-element gas containers (MEGCs)	199
4.3.1	Scope	199
4.3.2	Provisions applicable to all classes	199
4.3.3	Special provisions applicable to Class 2	203
4.3.4	Special provisions applicable to Classes 3 to 9	212
4.3.5	Special provisions	219
Chapter 4.4	Use of fibre-reinforced plastics (FRP) tanks, fixed-tanks (tank-vehicles), demountable tanks, tank containers and tank swap bodies	223
4.4.1	General	223
4.4.2	Operation	223
Chapter 4.5	Use of vacuum operated waste tanks	225
4.5.1	Use	225
4.5.2	Operation	225
Part 5	Consignment procedures	227
Chapter 5.1	General provisions	229
5.1.1	Application and general provisions	229
5.1.2	Use of overpacks	229
5.1.3	Empty uncleared packagings (including IBCs and large packagings), tanks, vehicles and containers for carriage in bulk	229
5.1.4	Mixed packing	230
5.1.5	General provisions for Class 7	230
Chapter 5.2	Marking and labelling	237
5.2.1	Marking of packages	237
5.2.2	Labelling of packages	239
Chapter 5.3	Placarding and marking of containers, MEGCs, tank-containers, portable tanks and vehicles	247
5.3.1	Placarding	247
5.3.2	Orange-coloured plate marking	250
5.3.3	Mark for elevated temperature substances	255
Chapter 5.4	Documentation	257
5.4.1	Dangerous goods transport document and related information	257
5.4.2	Container packing certificate	264
5.4.3	Instructions in writing	265
5.4.4	Example of a multimodal dangerous goods form	268

Table of contents (cont'd)

		Page
Chapter 5.5	Special provisions	271
5.5.1	Special provisions for the consignment of infectious substances.....	271
5.5.2	Special provisions for fumigated vehicles, containers and tanks	271
Part 6	Requirements for the construction and testing of packagings, intermediate bulk containers (IBCs), large packagings, tanks and bulk containers	273
Chapter 6.1	Requirements for the construction and testing of packagings	275
6.1.1	General	275
6.1.2	Code for designating types of packagings	276
6.1.3	Marking	279
6.1.4	Requirements for packagings	283
6.1.5	Test requirements for packagings	295
6.1.6	Standard liquids for verifying the chemical compatibility testing of high or medium molecular mass polyethylene packagings, including IBCs, in accordance with 6.1.5.2.6 and 6.5.4.3.5, respectively	306
Chapter 6.2	Requirements for the construction and testing of pressure receptacles, aerosol dispensers and small receptacles containing gas (gas cartridges)	309
6.2.1	General requirements	309
6.2.2	Pressure receptacles designed, constructed and tested according to standards	320
6.2.3	Requirements for pressure receptacles not designed, constructed and tested according to standards	323
6.2.4	General requirements for aerosol dispensers and small receptacles containing gas (gas cartridges)	326
6.2.5	Requirements for UN pressure receptacles	327
Chapter 6.3	Requirements for the construction and testing of packagings for Class 6.2 substances	343
6.3.1	General	343
6.3.2	Test requirements for packagings	343
6.3.3	Test report	347
Chapter 6.4	Requirements for the construction, testing and approval of packages and material of Class 7	349
6.4.1	(Reserved)	349
6.4.2	General requirements	349
6.4.3	(Reserved)	350
6.4.4	Requirements for excepted packages	350
6.4.5	Requirements for Industrial packages	350
6.4.6	Requirements for packages containing uranium hexafluoride	351
6.4.7	Requirements for Type A packages	352

Table of contents (cont'd)

	Page
6.4.8 Requirements for Type B(U) packages	354
6.4.9 Requirements for Type B(M) packages	356
6.4.10 Requirements for Type C packages	356
6.4.11 Requirements for packages containing fissile material	356
6.4.12 Test procedures and demonstration of compliance	360
6.4.13 Testing the integrity of the containment system and shielding and evaluating criticality safety	361
6.4.14 Target for drop tests	361
6.4.15 Tests for demonstrating ability to withstand normal conditions of carriage	361
6.4.16 Additional tests for Type A packages designed for liquids and gases	362
6.4.17 Tests for demonstrating ability to withstand accident conditions in carriage	363
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	364
6.4.19 Water leakage test for packages containing fissile material	364
6.4.20 Tests for Type C packages	364
6.4.21 Inspections for packagings designed to contain 0.1 kg or more of uranium hexafluoride	365
6.4.22 Approvals of package designs and materials	366
6.4.23 Applications and approvals for radioactive material carriage	367
Chapter 6.5 Requirements for the construction and testing of intermediate bulk containers (IBCs)	377
6.5.1 General requirements applicable to all types of IBCs	377
6.5.2 Marking	381
6.5.3 Specific requirements for IBCs	384
6.5.4 Test requirements for IBCs	391
Chapter 6.6 Requirements for the construction and testing of large packagings	403
6.6.1 General	403
6.6.2 Code for designating types of large packagings	403
6.6.3 Marking	404
6.6.4 Specific requirements for large packagings	405
6.6.5 Test requirements for large packagings	408
Chapter 6.7 Requirements for the design, construction, inspection and testing of portable tanks and UN multiple-element gas containers (MEGCs)	413
6.7.1 Application and general requirements	413
6.7.2 Requirements for the design, construction, inspection and testing of portable tanks intended for the carriage of substances of Class 1 and Classes 3 to 9	413
6.7.3 Requirements for the design, construction, inspection and testing of portable tanks intended for the carriage of non-refrigerated liquefied gases	431

Table of contents (cont'd)

	Page
6.7.4 Requirements for the design, construction, inspection and testing of portable tanks intended for the carriage of refrigerated liquefied gases	446
6.7.5 Requirements for the design, construction, inspection and testing of UN multiple-element gas containers (MEGCs) intended for the carriage of non-refrigerated gases	458
Chapter 6.8 Requirements for the construction, equipment, type approval, inspections and tests, and marking of fixed tanks (tank-vehicles), demountable tanks and tank-containers and tank swap bodies, with shells made of metallic materials, and battery-vehicles and multiple element gas containers (MEGCs)	467
6.8.1 Scope	467
6.8.2 Requirements applicable to all classes	467
6.8.3 Special requirements applicable to Class 2	486
6.8.4 Special provisions	496
6.8.5 Requirements concerning the materials and construction of fixed welded tanks, demountable welded tanks, and welded shells of tank-containers for which a test pressure of not less than 1 MPa (10 bar) is required, and of fixed welded tanks, demountable welded tanks and welded shells of tank-containers intended for the carriage of refrigerated liquefied gases of Class 2	502
Chapter 6.9 Requirements for the design, construction, equipment, type approval, testing and marking of fibre-reinforced plastics (FRP) fixed tanks (tank-vehicles), demountable tanks, tank-containers and tank swap bodies	507
6.9.1 General	507
6.9.2 Construction	507
6.9.3 Items of equipment	512
6.9.4 Type testing and approval	512
6.9.5 Inspections	514
6.9.6 Marking	514
Chapter 6.10 Requirements for the construction, equipment, type approval, inspection and marking of vacuum-operated waste tanks	515
6.10.1 General	515
6.10.2 Construction	515
6.10.3 Items of equipment	516
6.10.4 Inspection	518
Chapter 6.11 Requirements for the design, construction, inspection and testing of bulk containers	519
6.11.1 Definitions.....	519
6.11.2 Application and general requirements	519

Table of contents (cont'd)

	Page
6.11.3 Requirements for the design, construction, inspection and testing of containers conforming to the CSC used as bulk containers	519
6.11.4 Requirements for the design, construction and approval of bulk containers other than containers conforming to the CSC.....	521
Part 7 Provisions concerning the conditions of carriage, loading, unloading and handling	523
Chapter 7.1 General provisions	525
Chapter 7.2 Provisions concerning carriage in packages	527
Chapter 7.3 Provisions concerning carriage in bulk	531
7.3.1 General provisions	531
7.3.2 Additional provisions for the carriage in bulk of goods of Classes 4.2, 4.3, 5.1, 6.2, 7 and 8 when the provisions of 7.3.1.1 (a) are applied	533
7.3.3 Special provisions for the carriage in bulk when the provisions of 7.3.1.1 (b) are applied	534
Chapter 7.4 Provisions concerning carriage in tanks	537
Chapter 7.5 Provisions concerning loading, unloading and handling	539
7.5.1 General provisions concerning loading, unloading and handling	539
7.5.2 Mixed loading prohibition	539
7.5.3 (Reserved)	542
7.5.4 Precautions with respect to foodstuffs, other articles of consumption and animal feeds	542
7.5.5 Limitation of the quantities carried	542
7.5.6 (Reserved)	543
7.5.7 Handling and stowage	543
7.5.8 Cleaning after unloading	544
7.5.9 Prohibition of smoking	544
7.5.10 Precautions against electrostatic charges	544
7.5.11 Additional provisions applicable to certain classes or specific goods	544
Annex B Provisions concerning transport equipment and transport operations	553
Part 8 Requirements for vehicle crews, equipment, operation and documentation	555
Chapter 8.1 General requirements concerning transport units and equipment on board	557

Table of contents (cont'd)

	Page
8.1.1 Transport units	557
8.1.2 Documents to be carried on the transport unit	557
8.1.3 Placarding and marking	557
8.1.4 Fire-fighting equipment	558
8.1.5 Miscellaneous equipment	559
Chapter 8.2 Requirements concerning the training of the vehicle crew	561
8.2.1 General requirements concerning the training of drivers	561
8.2.2 Special requirements concerning the training of drivers	562
8.2.3 Training of persons, other than the drivers holding a certificate in accordance with 8.2.1, involved in the carriage of dangerous goods by road	567
Chapter 8.3 Miscellaneous requirements to be complied with by the vehicle crew	569
8.3.1 Passengers	569
8.3.2 Use of fire-fighting appliances	569
8.3.3 Prohibition on opening packages	569
8.3.4 Portable lighting apparatus	569
8.3.5 Prohibition on smoking	569
8.3.6 Running the engine during loading or unloading	569
8.3.7 Use of the parking brake	569
Chapter 8.4 Requirements concerning the supervision of vehicles.....	571
Chapter 8.5 Additional requirements relating to particular classes or substances	573
Part 9 Requirements concerning the construction and approval of vehicles	579
Chapter 9.1 Scope, definitions and requirements for the approval of vehicles	581
9.1.1 Scope and definitions	581
9.1.2 Approval of EX/II, EX/III, FL, OX and AT vehicles	582
9.1.3 Certificate of approval.....	583
Chapter 9.2 Requirements concerning the construction of vehicles	587
9.2.2 Electrical equipment	591
9.2.3 Braking equipment	594
9.2.4 Prevention of fire risks	594
9.2.5 Speed limitation device	596
9.2.6 Coupling devices of trailers	596

Table of contents (cont'd)

	Page
Chapter 9.3 Additional requirements concerning complete or completed EX/II or EX/III vehicles	597
9.3.1 Materials to be used in the construction of vehicle bodies	597
9.3.2 Combustion heaters	597
9.3.3 EX/II vehicles	597
9.3.4 EX/III vehicles	597
9.3.5 Engine and load compartment.....	598
9.3.6 External heat sources and load compartment	598
9.3.7 Electrical equipment	598
Chapter 9.4 Additional requirements concerning the construction of the bodies of complete or completed vehicles intended for the carriage of dangerous goods in packages (other than EX/II and EX/III vehicles)	599
Chapter 9.5 Additional requirements concerning the construction of the bodies of complete or completed vehicles intended for the carriage of dangerous solids in bulk	601
Chapter 9.6 Additional requirements concerning complete or completed vehicles intended for the carriage of temperature controlled substances	603
Chapter 9.7 Additional requirements concerning fixed tanks (tank-vehicles), battery-vehicles and complete or completed vehicles used for the carriage of dangerous goods in demountable tanks with a capacity greater than 1 m³ or in tank-containers, portable tanks or MEGCs of a capacity greater than 3 m³ (FL, OX and AT vehicles)	605
9.7.1 General provisions	605
9.7.2 Requirements concerning tanks	605
9.7.3 Fastenings	605
9.7.4 Earthing of FL vehicles	605
9.7.5 Stability of tank-vehicles	606
9.7.6 Rear protection of vehicles	606
9.7.7 Combustion heaters	606
9.7.8 Electrical equipment	607