

# TABLE OF CONTENTS

|                                                                |           |
|----------------------------------------------------------------|-----------|
| Table of Figures .....                                         | vii       |
| Preface .....                                                  | 1         |
| <b>Chapter 1—Introduction .....</b>                            | <b>3</b>  |
| 1.1 BASIS .....                                                | 3         |
| 1.2 BACKGROUND .....                                           | 3         |
| 1.3 OBJECTIVE .....                                            | 4         |
| 1.4 CAUTION .....                                              | 4         |
| <b>Chapter 2—The Regulatory Overview .....</b>                 | <b>5</b>  |
| 2.1 INTRODUCTION .....                                         | 5         |
| 2.2 INTERNATIONAL LEGISLATION .....                            | 5         |
| 2.2.1 Multi-modal .....                                        | 5         |
| 2.2.2 Air .....                                                | 5         |
| 2.2.3 Marine .....                                             | 6         |
| 2.2.4 Road .....                                               | 6         |
| 2.2.5 Rail .....                                               | 6         |
| 2.2.6 Post .....                                               | 7         |
| 2.2.7 Health Authorities .....                                 | 7         |
| 2.3 POSTAL AUTHORITIES .....                                   | 7         |
| 2.3.1 Australia .....                                          | 8         |
| 2.3.2 Canada .....                                             | 8         |
| 2.3.3 Fiji .....                                               | 8         |
| 2.3.4 France .....                                             | 8         |
| 2.3.5 The Netherlands .....                                    | 8         |
| 2.3.6 Sri Lanka .....                                          | 8         |
| 2.3.7 United Kingdom .....                                     | 8         |
| 2.3.8 United States .....                                      | 8         |
| 2.4 SHIPPER'S RESPONSIBILITIES .....                           | 9         |
| 2.4.1 General .....                                            | 9         |
| 2.4.2 Air Mode Requirements .....                              | 10        |
| 2.5 PACKAGE SUPPLIER'S RESPONSIBILITIES .....                  | 10        |
| 2.6 CARRIER'S RESPONSIBILITIES .....                           | 10        |
| 2.6.1 General .....                                            | 10        |
| 2.7 STATE AND OPERATOR VARIATIONS .....                        | 11        |
| 2.7.0 General .....                                            | 11        |
| 2.7.1 State Variations .....                                   | 11        |
| 2.7.2 Operator Variations .....                                | 21        |
| <b>Chapter 3—Classification .....</b>                          | <b>59</b> |
| 3.1 GENERAL .....                                              | 59        |
| 3.2 UN NUMBERS .....                                           | 59        |
| 3.3 CLASSIFICATION CRITERIA .....                              | 60        |
| 3.3.1 Definitions .....                                        | 60        |
| 3.3.2 Classification of Infectious Substances .....            | 60        |
| 3.3.3 Biological Products .....                                | 63        |
| 3.3.4 Genetically Modified Micro-organisms and Organisms ..... | 63        |
| 3.3.5 Medical and Clinical Waste .....                         | 63        |
| 3.3.6 Infected Animals .....                                   | 64        |
| 3.3.7 Patient Specimens .....                                  | 64        |

|                                                                  |                                                    |            |
|------------------------------------------------------------------|----------------------------------------------------|------------|
| 3.3.8                                                            | Used Medical Devices .....                         | 65         |
| 3.3.9                                                            | Carbon Dioxide, Solid (Dry Ice) .....              | 65         |
| 3.3.10                                                           | Other Dangerous Goods .....                        | 65         |
| 3.4                                                              | CLASSIFICATION SCENARIOS .....                     | 66         |
| <b>Chapter 4—Identification.....</b>                             |                                                    | <b>69</b>  |
| 4.1                                                              | GENERAL .....                                      | 69         |
| 4.1.1                                                            | Column A .....                                     | 69         |
| 4.1.2                                                            | Column B .....                                     | 69         |
| 4.1.3                                                            | Column C .....                                     | 70         |
| 4.1.4                                                            | Column D .....                                     | 70         |
| 4.1.5                                                            | Column E .....                                     | 70         |
| 4.1.6                                                            | Column F .....                                     | 70         |
| 4.1.7                                                            | Column G .....                                     | 71         |
| 4.1.8                                                            | Column H .....                                     | 71         |
| 4.1.9                                                            | Column I .....                                     | 71         |
| 4.1.10                                                           | Column J .....                                     | 71         |
| 4.1.11                                                           | Column K .....                                     | 71         |
| 4.1.12                                                           | Column L .....                                     | 72         |
| 4.1.13                                                           | Column M .....                                     | 72         |
| 4.1.14                                                           | Column N .....                                     | 72         |
| 4.2                                                              | LIST OF DANGEROUS GOODS .....                      | 72         |
| 4.3                                                              | SPECIAL PROVISIONS .....                           | 74         |
| <b>Chapter 5—Packing .....</b>                                   |                                                    | <b>77</b>  |
| 5.1                                                              | GENERAL .....                                      | 77         |
| 5.2                                                              | BASIC TRIPLE PACKAGING SYSTEM .....                | 78         |
| 5.2.1                                                            | Primary Receptacles .....                          | 79         |
| 5.2.2                                                            | Secondary Packaging .....                          | 79         |
| 5.2.3                                                            | Outer Packaging .....                              | 80         |
| 5.3                                                              | QUANTITY LIMITS.....                               | 80         |
| 5.3.1                                                            | Category A Infectious Substances .....             | 80         |
| 5.3.2                                                            | Category B Infectious Substances .....             | 80         |
| 5.3.3                                                            | Exempt Human or Animal Specimens .....             | 80         |
| 5.4                                                              | FREEZING OR COOLING THE PACKAGE .....              | 81         |
| 5.4.1                                                            | Wet Ice and Dry Ice (Solid Carbon Dioxide) .....   | 81         |
| 5.4.2                                                            | Liquid Nitrogen .....                              | 81         |
| 5.5                                                              | CERTIFIED PACKAGING .....                          | 82         |
| 5.6                                                              | OVERPACKS .....                                    | 82         |
| 5.7                                                              | PACKING INSTRUCTIONS .....                         | 83         |
| <b>Chapter 6—Specification Packaging Performance Tests .....</b> |                                                    | <b>97</b>  |
| 6.1                                                              | PERFORMANCE TESTS .....                            | 97         |
| 6.1.0                                                            | General .....                                      | 97         |
| 6.1.1                                                            | Tests .....                                        | 98         |
| 6.1.2                                                            | Special Packaging .....                            | 100        |
| 6.1.3                                                            | Test Report .....                                  | 101        |
| 6.2                                                              | FINDING THE RIGHT PACKAGING .....                  | 101        |
| <b>Chapter 7—Marking and Labelling .....</b>                     |                                                    | <b>103</b> |
| 7.0                                                              | GENERAL .....                                      | 103        |
| 7.1                                                              | PACKAGE USE MARKING (PACKAGES AND OVERPACKS) ..... | 103        |
| 7.1.1                                                            | General .....                                      | 103        |
| 7.1.2                                                            | Category A Infectious Substances .....             | 103        |
| 7.1.3                                                            | Category B Infectious Substances .....             | 104        |

|                                            |                                                                                                                               |     |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-----|
| 7.1.4                                      | Marks of Other Regulations .....                                                                                              | 105 |
| 7.1.5                                      | Size .....                                                                                                                    | 105 |
| 7.1.6                                      | Prohibited Marks .....                                                                                                        | 105 |
| 7.2                                        | <b>LABELLING</b> .....                                                                                                        | 105 |
| 7.2.1                                      | Shipper's Specific Responsibilities .....                                                                                     | 105 |
| 7.2.2                                      | Quality and Specification of Labels .....                                                                                     | 105 |
| 7.2.3                                      | Applicability of Hazard Labels .....                                                                                          | 106 |
| 7.2.4                                      | Handling Labels .....                                                                                                         | 109 |
| 7.2.5                                      | Affixing of Labels .....                                                                                                      | 112 |
| <b>Chapter 8—Documentation</b> .....       |                                                                                                                               | 113 |
| 8.1                                        | <b>GENERAL</b> .....                                                                                                          | 113 |
| 8.1.1                                      | Shipper's Responsibility .....                                                                                                | 113 |
| 8.1.2                                      | General Principles for Completion of Declaration Form .....                                                                   | 113 |
| 8.1.3                                      | Alterations and Amendments .....                                                                                              | 113 |
| 8.2                                        | <b>DETAILED INSTRUCTIONS FOR COMPLETING THE DECLARATION FORM</b> .....                                                        | 114 |
| 8.3                                        | <b>AIR WAYBILL</b> .....                                                                                                      | 119 |
| 8.4                                        | <b>EXAMPLES OF DOCUMENTATION FOR DIFFERENT TYPES OF MATERIALS</b> .....                                                       | 120 |
| 8.4.1                                      | Sample Documentation and Labelling for a Shipment of Infectious Substances in Category A .....                                | 120 |
| 8.4.2                                      | Sample Documentation and Labelling for a Shipment of Infectious Substances in Category A<br>with Dry Ice .....                | 121 |
| 8.4.3                                      | Sample Documentation and Labelling for a Shipment of Infectious Substances in Category A<br>with Dry Ice in an Overpack ..... | 123 |
| 8.4.4                                      | Sample Documentation and Labelling for a Shipment of Infectious Substances in Category B .....                                | 125 |
| 8.4.5                                      | Sample Documentation and Labelling for a Shipment of Infectious Substances in Category B<br>with Dry Ice .....                | 126 |
| 8.4.6                                      | Sample Documentation and Labelling for a Shipment of Exempt Specimens .....                                                   | 128 |
| <b>Chapter 9—Handling</b> .....            |                                                                                                                               | 131 |
| 9.1                                        | <b>ACCEPTANCE OF INFECTIOUS SUBSTANCES</b> .....                                                                              | 131 |
| 9.2                                        | <b>CHECKLISTS</b> .....                                                                                                       | 131 |
| 9.3                                        | <b>REFUSALS</b> .....                                                                                                         | 131 |
| <b>Chapter 10—Emergency Response</b> ..... |                                                                                                                               | 133 |
| 10.1                                       | <b>GENERAL</b> .....                                                                                                          | 133 |
| 10.1.0                                     | Emergency Telephone Number .....                                                                                              | 133 |
| 10.1.1                                     | Location .....                                                                                                                | 133 |
| 10.1.2                                     | Responsibilities .....                                                                                                        | 133 |
| 10.1.3                                     | Reporting .....                                                                                                               | 133 |
| 10.1.4                                     | Procedures .....                                                                                                              | 134 |
| 10.2                                       | <b>EMERGENCY RESPONSE</b> .....                                                                                               | 134 |
| 10.2.1                                     | Spills or Leaks .....                                                                                                         | 134 |
| 10.2.2                                     | First Aid .....                                                                                                               | 135 |
| <b>Chapter 11—Training</b> .....           |                                                                                                                               | 137 |
| 11.1                                       | <b>GENERAL</b> .....                                                                                                          | 137 |
| 11.1.1                                     | Familiarisation Training .....                                                                                                | 137 |
| 11.1.2                                     | Job Specific Training .....                                                                                                   | 138 |
| 11.1.3                                     | Safety Training .....                                                                                                         | 139 |
| 11.1.4                                     | Responsibility for Training .....                                                                                             | 139 |
| 11.1.5                                     | Record of Training .....                                                                                                      | 139 |
| 11.1.6                                     | Instructor Qualifications .....                                                                                               | 139 |
| 11.1.7                                     | Competency-Based Training and Assessment .....                                                                                | 139 |
| 11.2                                       | <b>NATIONAL REQUIREMENTS</b> .....                                                                                            | 140 |
| 11.3                                       | <b>TRAINING SCHOOLS</b> .....                                                                                                 | 140 |

|                                                                             |     |
|-----------------------------------------------------------------------------|-----|
| <b>Chapter 12—Dangerous Goods Security</b>                                  | 141 |
| 12.0 GENERAL                                                                | 141 |
| 12.1 GENERAL SECURITY PROVISIONS                                            | 141 |
| 12.2 DANGEROUS GOODS SECURITY TRAINING                                      | 141 |
| 12.3 PROVISIONS FOR HIGH CONSEQUENCE DANGEROUS GOODS                        | 142 |
| 12.3.1 Definition of High Consequence Dangerous Goods                       | 142 |
| 12.4 SECURITY PLANS                                                         | 142 |
| 12.4.1 Applicability                                                        | 142 |
| 12.4.2 Elements of a Security Plan                                          | 142 |
| 12.4.3 List of High Consequence Dangerous Goods                             | 143 |
| <b>Appendix A—Glossary</b>                                                  | 145 |
| <b>Appendix B—Nomenclature</b>                                              | 149 |
| B.0 General                                                                 | 149 |
| B.1 Units of Measurement                                                    | 149 |
| B.1.1 Use of SI Units                                                       | 149 |
| B.1.2 Non-SI Equivalent                                                     | 149 |
| B.1.3 Conversion Factors and Authorized Equivalents                         | 149 |
| B.1.4 Number Format                                                         | 149 |
| B.1.5 Pressure                                                              | 150 |
| B.2 Abbreviations                                                           | 150 |
| B.2.1 General Abbreviations                                                 | 150 |
| B.2.2 Technical Abbreviations                                               | 151 |
| B.3 Conversion Factors                                                      | 152 |
| <b>Appendix C—Competent Authorities</b>                                     | 155 |
| C.1 Competent Authorities for Dangerous Goods                               | 155 |
| C.2 Postal Authorities                                                      | 178 |
| C.3 Health Authorities                                                      | 182 |
| <b>Appendix D—Packaging Testing Facilities, Manufacturers and Suppliers</b> | 185 |
| D.0 General                                                                 | 185 |
| D.1 UN Specification Packaging Suppliers                                    | 186 |
| <b>Appendix E—IATA Safety Standards Programmes</b>                          | 193 |
| E.0 General                                                                 | 193 |
| E.1 IATA Dangerous Goods Board                                              | 193 |
| E.2 Dangerous Goods Training Working Group                                  | 195 |
| E.3 IATA Airline/Operator Dangerous Goods Training Validation Programme     | 196 |
| <b>Appendix F—Related Services</b>                                          | 199 |
| F.1 IATA Dangerous Goods Accredited Training Schools                        | 199 |
| F.2 IATA Dangerous Goods Accredited Training Schools—Infectious Substances  | 218 |
| <b>Appendix G—Shipper's Checklist</b>                                       | 219 |
| G.0 General Provisions for Preparing a Shipment                             | 219 |
| <b>Appendix H—Carrier's Checklist</b>                                       | 221 |
| <b>INDEX</b>                                                                | 225 |

# TABLE OF FIGURES

|                                                                           |     |
|---------------------------------------------------------------------------|-----|
| Figure 3.4.A—Classification Flowchart .....                               | 67  |
| Figure 5.2.A—Basic Primary and Secondary Packaging System .....           | 78  |
| Figure 5.2.B—Triple Packaging System .....                                | 79  |
| Figure 7.2.A—Template for Hazard Labels .....                             | 106 |
| Figure 7.2.B—Class 6—Infectious Substances (Division 6.2) .....           | 107 |
| Figure 7.2.C—Class 9—Miscellaneous Dangerous Goods .....                  | 108 |
| Figure 7.2.D—Class 2—Gases: Non-flammable, non-toxic (Division 2.2) ..... | 109 |
| Figure 7.2.E—Cargo Aircraft Only .....                                    | 110 |
| Figure 7.2.F—Cryogenic Liquids .....                                      | 110 |
| Figure 7.2.G—Package Orientation .....                                    | 111 |
| Figure 7.2.H—Package Orientation Alternate Design .....                   | 111 |
| Figure 8.2.A—Shipper's Declaration for Dangerous Goods .....              | 117 |
| Figure 8.2.B—Shipper's Declaration Completion—Example .....               | 118 |
| Figure 8.4.1.A—Shipper's Declaration .....                                | 120 |
| Figure 8.4.1.B—Air Waybill .....                                          | 120 |
| Figure 8.4.1.C—Sample Packaging & Labelling .....                         | 121 |
| Figure 8.4.2.A—Shipper's Declaration .....                                | 121 |
| Figure 8.4.2.B—Air Waybill .....                                          | 122 |
| Figure 8.4.2.C—Sample Packaging & Labelling .....                         | 122 |
| Figure 8.4.3.A—Shipper's Declaration .....                                | 123 |
| Figure 8.4.3.B—Air Waybill .....                                          | 123 |
| Figure 8.4.3.C—Sample Packaging & Labelling .....                         | 124 |
| Figure 8.4.4.A—Shipper's Declaration .....                                | 125 |
| Figure 8.4.4.B—Air Waybill .....                                          | 125 |
| Figure 8.4.4.C—Sample Packaging & Labelling .....                         | 126 |
| Figure 8.4.5.A—Shipper's Declaration .....                                | 126 |
| Figure 8.4.5.B—Air Waybill .....                                          | 127 |
| Figure 8.4.5.C—Sample Packaging & Labelling .....                         | 127 |



|                                                  |     |
|--------------------------------------------------|-----|
| Figure 8.4.6.A—Shipper's Declaration .....       | 128 |
| Figure 8.4.6.B—Air Waybill .....                 | 128 |
| Figure 8.4.6.C—Sample Packaging & Labelling..... | 129 |