Main changes made to the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) for the 2011 edition

Prepared by Dr. J. J. Tobin, ChemHaz Solutions Limited

for the Health and Safety Authority

Chemicals Policy and Services Unit

INTRODUCTION

This report identifies what are judged to be the main changes made to the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) for the 2011 edition and provides background to the changes.

Many of the changes have initiated at UN level and have already been published in the United Nations (UN) Recommendations on the Transport of Dangerous Goods - Model Regulations - 16th Revised Edition. Thus these changes will also be incorporated into the next revisions of the International Maritime Dangerous Goods (IMDG) Code and the International Civil Aviation Organization (ICAO) Technical Instructions, meaning that industry will benefit from greater harmonisation when engaging in multimodal transport operations.

Some changes have been triggered by incidents and experience which highlighted limitations in the existing regulations. Others are prompted by updates to referenced standards or the desire to streamline and rationalise requirements and ensure greater consistency in application among the contracting parties to the agreement. In the latter context, there has been considerable change to some of the texts to make them clearer, without actually changing the requirements.

While this report follows the general sequence of the regulations, where appropriate, measures from different chapters are presented together under a heading for specific goods/topic, when the first significant changes relating to the goods/topic are encountered.

Some of the changes with widest potential impact relate to:

- Duties of unloader
- Type Approval of gas cartridges
- Type Approval Certificates for non-UN pressure receptacles and gas tanks, 10-year limitation
- Environmentally Hazardous Substance, revised classification criteria
- Toxic by inhalation review
- Limited Quantity, revised provisions
- Re-bottling of composite IBCs
- UN Portable Tanks, UN mark and plate layout
- Instructions in Writing, revision
- Driver's Training Certificate, new credit card format

CHAPTER 1

Exemptions - Chapter 1.1

1.1.3.1 (d) The exemption dealing with the emergency removal of dangerous goods to a safe place has been amended so that now such transport can only be conducted on behalf of or under the supervision of competent authorities, whereas previously emergency services in general had authority to conduct/supervise this.

Gases contained in sports balls and light bulbs have been added to the list of exemptions related to the carriage of gases in 1.1.3.2.

Text is inserted to make it clear that the exemption for gases in foodstuffs does not apply when packaged in aerosol dispensers.

S24 (supervision of vehicles containing more than 100 kg of a relevant substance) has been added to the list of provisions that still apply to the carriage of goods under load exemption thresholds.

Definitions - Chapter 1.2

The definition of a "Loader" has been expanded to cover enterprises that load packaged dangerous goods, small containers or portable tanks into or onto a vehicle or a container, or load a container, bulk-container, MEGC, tank-container or portable tank onto a vehicle. The loading of containers, MEGCs or tanks onto vehicles was not covered by the previous definition of a "loader".

Similarly a new definition of "unloader" has been added to cover all conceivable unloading operations. It is defined as an enterprise which

(a) Removes a container, bulk-container, MEGC, tank-container or portable tank from a vehicle; or

(b) Unloads packaged dangerous goods, small containers or portable tanks out of or from a vehicle or a container; or

(c) Discharges dangerous goods from a tank (tank-vehicle, demountable tank, portable tank or tank-container) or from a battery-vehicle, MEMU or MEGC or from a vehicle, large container or small container for carriage in bulk or a bulk-container

New definitions for "Cargo transport unit", "CIM", "CMR", have been introduced to reflect terminology found in other regulations relating to the international movement of goods and therefore should be familiar to those already engaged in such areas.

Definitions of "Fuel Cell", "Fuel Cell Engine" and "Metal hydride storage system" have been added to support the increasing use of alternative energy sources and technology.

Other new definitions include "Open cryogenic receptacle", "Conveyance", "Remanufactured large packaging", and "Reused large packaging". "Through or into" has been created as a new definition in relation to the transport of Class 7 materials, but has no impact as it was previously explained as part of the definition of "Multilateral approval".

There are also a number of adjustments to existing definitions that are either editorial in nature or are necessitated due to issue of new editions of referenced regulations, but are otherwise without impact.

Training - Chapter 1.3

The wording as regards training has been changed from “shall receive training” to “shall be trained”. This proved necessary to eliminate a legal loophole where a prosecution failed because a company successfully argued that they complied with the existing requirement by having a plan/intention to train their staff (in the future), even though staff handling dangerous goods, were not trained at the time of inspection. Now, until such time as they receive training, untrained personnel may only work with dangerous goods when under the direct supervision of a trained person. Training records must be kept by the employer for a period specified by the Competent Authority (guidance under consideration in Ireland may require training records to be kept by each employer for 1 year after the period of employment for relevant employees) and made available to the Competent Authorities and employees on request. The employee no longer has to keep a copy of the training record, unless they require it to show to a new employer.

Duties of participants – Chapter 1.4

The wording for the duties of the Carrier in relation to documentation on board the vehicle has been amended to facilitate the use of electronic data processing (EDP) or electronic data interchange (EDI) techniques in place of hard-copy documentation on the goods to be carried.

The wording for the duties of the Consignee has been amended as some of the duties have been transferred to a new Section 1.4.3.7 dealing with the duties of the Unloader. In practice this may have no impact as explained in a new note as a single enterprise may have duties under multiple roles. Typically, depending on practices, the unloader could be the carrier, the consignee or an intermediate in a transport chain.

- The duties of the unloader bring together under an identifiable entity requirements that already exist in the ADR. These duties can be summarised as:
- Comparing the documentation and containment labelling to ensure that the correct goods are unloaded
- Checking that containments / fittings are not damaged to an extent as to prevent safe unloading
- Complying with relevant unloading requirements
- Removing dangerous residues that may have adhered to the outside of tanks, vehicles or containers during unloading and ensuring that all valves and inspection openings are closed
- Ensuring that the prescribed cleaning and decontamination of the vehicles or containers is carried out and that once cleaned /decontaminated that all danger labels and marks are removed.

Transitional measures – Chapter 1.6

A number of transitional measures have been deleted as their transition period has now ended. The most significant is the two year transition that was introduced in 2009 to allow for the application of

environmentally hazardous classification criteria and, if appropriate, marking to substances other than UN 3077 and UN3082. Therefore, from 1st January 2011 the environmentally hazardous mark will have to be displayed on all containments holding more than 5 L/kg of any substance meeting the transport criteria for environmentally hazardous. This may impact enterprises that have not been diligent in completing an assessment of the environmental hazards of their products within the time allowed.

Other transitions that have ceased include the use of pre-2005 Class 7 labels, pre-2007 single colour Class 5.2 labels, and application of pre-existing National law restrictions to tunnels. Thus restrictions in the Dublin Port Tunnel will have to be consistent with the tunnel category assigned, which is not the case under the existing tunnel regulations.

The provision permitting the continued use of old orange plates has been amended to stipulate that these must meet the requirement for retaining plates and numbers in place irrespective of the orientation of the vehicle.

The provision allowing the continued use of fixed tanks, demountable tanks and battery-vehicles constructed before 1 January 2003 has been amended to require that the relevant tank code be assigned. Similarly old tank containers must be marked with the relevant tank codes.

New transitional measures have been added as necessary for the introduction of new requirements. These may be found in the relevant sections of the report dealing with such requirements.

Radioactive materials – Chapter 1.7

Sub-section 1.7.1.1 has been updated to take account of new versions of referenced regulations and guidance

The references in Section 1.7 dealing with excepted packages have been altered as a new section 5.4.1.4 has been created to bring together the requirements for marking and documentation of excepted packages. There is no actual change in requirements.

There are some other minor editorial changes of no consequence.

Administrative controls for conformity assessment, periodic and intermediate inspections of transportable pressure equipment – Section 1.8.6

New sub-section texts have been added to clarify some of the detailed requirements relating to the operation of inspection bodies for conformity assessment, periodic inspection and exceptional checks of pressure receptacles (and tanks). This was necessary to ensure greater consistency in approach across each Contracting Party. New Subsection 1.8.6.2 advocates a balanced approach to inspections that should be commensurate to the size, the sector and the structure of the undertakings involved, the relative complexity of the technology and the serial character of production, while maintaining sufficient rigour to ensure an appropriate level of safety and confidence. Contracting Parties to ADR must publish their national procedures for the assessment, appointment and monitoring of inspection bodies. New Subsection 1.8.6.4 deals with the practice of delegation of tasks to subcontractors. Where an inspection body uses a subcontractor for specific tasks, they must be included in the accreditation of the inspection body, if not separately accredited,

and the inspection body must monitor the subcontractor and retain responsibility for any task performed by the subcontractor. Inspection bodies are obliged to inform Competent Authorities of any refusals, amendments or restrictions of approval certificates or other pertinent information relating to a type approval. There are consequential amendments to TA 04 and TT 09 in Chapter 6.8 which cross-reference this section.

Procedures for conformity assessment (transportable pressure equipment) – Section 1.8.7

New Subsection 1.8.7.1.5 imposes a requirement that the manufacturer (or applicant) and the inspection body retain copies of Design type approval certificates and certificates of conformity and the supporting technical documentation for a period of 20 years from the date of last manufacture of products according to that type. Should a manufacturer cease trading during that period, copies should be forwarded to the competent authority for retention for the remainder of the period. This should pose little difficulty as similar documentation retention periods apply to UN pressure receptacles.

A new subsection 1.8.7.2.4 limits the period of validity of a Type Approval Certificate to 10 years. Type approvals may be renewed for further 10-year periods following complete review and assessment for conformity with the provisions of ADR applicable at the date of renewal. Authorities shall withdraw approval certificates before its natural expiry should ADR requirements or referenced standards change to such an extent that the design type is no longer in conformity with them. Withdrawal of a type approval certificate, will not affect products manufactured before its termination. These can continue to be used provided they are compliant with the ADR or are covered by a transitional measure. Periodic inspections shall be carried out against the requirements of the type approval under which they were manufactured. A consequent amendment has been added to subsection 1.8.7.4.2 to require that as part of the initial inspection and test, the relevant body should check that the type approval certificate has not been invalidated by changes to ADR requirements or referenced standards.

A transitional measure has been added to require that Type Approval Certificates issued before 1st July 2011 be brought in conformity with the validity limitations by 1st January 2013.

A new subsection 1.8.7.5.2 has been created to require that periodic inspection reports for pressure receptacles are retained by the applicant until the next periodic inspection is completed. This is a common sense requirement that should be common practice.

A copy of they Type Approval Certificate has been added to the list of documents required for supervision of manufacture in 1.8.7.7.2.

Procedures for conformity assessment of gas cartridges – Section 1.8.8

A new section has been added establishing conformity assessment procedures for gas cartridges meeting the requirements of 6.2.6. An applicant must follow either the procedure in 1.8.7 for pressure receptacles, or the procedure detailed in 1.8.8

By following 1.8.8 an applicant can conduct their own assessment of conformity of the design to the requirements of 6.2.6 and then issue a Design Type Approval Certificate. They must operate an approved full quality system covering design, manufacture, inspection and testing. All technical

documentation and samples must be maintained available for inspection by the inspection body for a minimum of five years after the last unit was manufactured. As with the 1.8.7 process, Type Approval Certificates have a maximum validity of 10 years, after which they must be renewed by conducting another thorough review of the design. An Xa body must verify the design type evaluation conducted by the applicant and is responsible for monitoring the supervision of manufacture and the required testing - actual testing can be done by an in-house inspection service approved by the Xa body. Manufacturers from outside the ADR area will have to use the services of an Xa body established in one of the contracting states to the ADR. Each gas cartridge must be marked with the information on the type of cartridge, the applicant and the date of production or batch number, unless space prevents this in which case, a tag shall be affixed or placed in the inner packaging together with the receptacles. A new transitional measure will not make these requirements mandatory until 1 January 2013. Cartridges manufactured and prepared for transport before this date can continue to be used.

This may have significant impact on those who design, manufacture or fill gas cartridges. Under the previous requirements of 6.2.6 actors were required to operate a quality system for manufacture and test, but not necessarily design. Thus developers of cartridges will have to extend their quality systems to cover design control, if not already operating a full quality system. Of more widespread impact is the requirement that manufacture and test will have to be under the supervision of a body accredited to the ISO/IEC 17020: 2004 Type A (Xa body). At present there are no suitable Type A bodies accredited in Ireland by the Irish National Accreditation Board. If the notified body that manufacturer's currently use for certification of their quality systems are not accredited, then they will have to hope that the body will obtain accreditation or else find another accredited body for supervision of their manufacture and test.

Tunnel restrictions – Section 1.9.5

UN 1510 Tetranitromethane in tanks has been added to the table of dangerous goods restricted in a category B tunnel. This is just a correction to the tables as the actual entry in the dangerous goods list already showed a "B" tunnel restriction code.

A reference to new special provision has been inserted against the restriction of goods toxic by inhalation in a Category D tunnel, to ensure that goods toxic by inhalation, whose inhalation toxicity is not evident from their proper shipping name, are identified. The classification code TFW, has been added to take account of the new entries for toxic by inhalation with subsidiary flammable and water-reactive risks.

Reference is made to a General Guideline for the Calculation of Risks in the Transport of Dangerous Goods by Road, which may be found at http://www.unece.org/trans/danger/danger.htm.

Security – Chapter 1.10

New subsections 1.10.2.3 and 1.10.2.4 have been added to specifically require verification and maintenance of security training records.

Table 1.10.5 has been amended to exclude animal material shipped under UN2814 or UN2900 from the list of high consequence dangerous goods

CHAPTER 2

Classification general provisions – Chapter 2.1

Additional text has been added to more clearly explain how to classify and identify a named substance form the dangerous goods listed, when it contains technical impurities or additives. This has proved necessary because of an incident in which a cylinder of ethyl chloride exploded after coming off a flight from Manchester to Dubai. Investigation found that, because of the presence of a technical impurity (< 1%), the shipper had used a generic NOS shipping name rather than the named entry in the dangerous goods list. A consequence of this was that it allowed the shipper to use an aluminium cylinder, which would have been prohibited if the specific entry for Ethyl Chloride had been used.

The additional text clarifies that the presence (as impurities or additives) of traces of substances mentioned in the dangerous goods list should not detract from using the PSN of the predominant substance, unless they alter the substance's classification, packing group, physical state or emergency response provisions. The guidance on selection of a UN number and proper shipping name is repeated in the introduction to the dangerous goods list in Chapter 3.1. This new text has been introduced at UN level and thus will appear in updated regulations governing all modes of transport.

Explosives – Class 1

A definition of "Phlegmatized" has been inserted. There are also some minor editorial adjustments of no significance.

Gases – Class 2

The criteria for classifying a gas or gas mixture as oxidizing have been clarified, by requiring that oxidizing power be determined by one of the methods specified in ISO 10156:1996 or ISO 10156-2:2005 and defining an actual threshold value of 23.5% above which it must be classified as oxidizing. Consequently the note requiring classification of mixtures containing more than 21% oxygen as oxidising has been deleted. There are consequential amendments to special provisions.

Substances liable to spontaneous combustion – Class 4.2

The explanation of their properties has been reworded to make it clearer.

Substances which in contact with water emit flammable gases – Class 4.3

The list of collective entries has been amended as UN1390 may now only be used for alkaline earth metal dispersions without a flammability sub-risk since a separate entry "UN3482 ALKALI METAL DISPERSION, FLAMMABLE or ALKALINE EARTH METAL DISPERSION, FLAMMABLE" has been created for those that are flammable.

Organic peroxides – Class 5.2

The following amendments have been made to the table of organic peroxides

It is no longer necessary to use a subsidiary explosives label with tert-AMYLPEROXY-3,5,5-TRIMETHYLHEXANOATE

The packing method for >90 – 100% 2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXANE has been changed to OP5. Consequently the existing row for >52 – 100% has been amended to >52 – 90% with >10% diluent type A.

Toxic substances – Class 6.1

The list of collective entries has been amended to take account of the introduction of new "Toxic by inhalation with two subsidiary risks" entries into the dangerous goods list.

Four new entries have been added to classification code TFC 4 and a new classification code of TFW (toxic, flammable, water reactive) has been created with two new entries.

Radioactive materials – Class 7

The definition of fissile material has bee amended to make it more technically precise and now includes the term "fissile nuclides" for the actual radioactive isotopes. There is no impact.

The text dealing with the shipment of fissile materials and excepted fissile packages in 2.2.7.2.3.5 has been reworded to make it clearer. There are no substantial changes other than specifying that excepted packages of plutonium must be shipped under exclusive use.

The A_2 value for Kr-79 has been changed from 1×10^0 to 2×10^0

The wording for the classification of Low Specific Activity (LSA) and Surface Contaminated Object (SCO) materials, in 2.2.7.2.4.2 and 2.2.7.2.4.3 respectively, have been amended for greater clarity by referencing their definitions and the requirement to comply with CV33 as regards loading, unloading and handling – there is no actual change in requirements.

Corrosive substances – class 8

The references to acceptable methods for determining skin corrosion have been updated to include the 2002 version of OECD method 404 or OECD Method 435 "In vitro membrane barrier test" for determining the packing group of a corrosive substance. There is acknowledgement that the in vitro tests; OECD Method 430 "Transcutaneous Electrical Resistance Test (TER)" or OECD Method 431 "Human Skin Model Test" may be used as evidence to show that a substance is not corrosive.

Environmentally hazardous substances

The test for the classification of environmentally hazardous substances has been extensively revised to harmonise with the classification criteria of the 3rd edition of the GHS, and which have already been implemented in the 16th edition of the UN model regulations on the transport of dangerous

goods. The main difference is the requirement to apply new classification criteria for long-term hazards when adequate chronic data are available. This requires the availability of data on rates of degradation and an indication of the levels at which any adverse effects may be observed in chronic studies – either the No Observed Effect Concentration (NOEC) or X percentage effect concentration. Separate NOEC thresholds are applied to substances that are not-rapidly degradable and those that are. If chronic toxicity data are not available, then classification as Chronic 1 or 2 can be based on the existing criteria that rely on a combination of acute toxicity data and bioaccumulation factors or Log octanol/water values. The decision tree chart is revised accordingly.

There are consequential changes to some of the rules governing the classification of mixtures according to the summation method. A new additivity formula based on chronic toxicity data has been inserted that takes into account the more severe NOEC threshold applied to non-rapidly degrading substances. The M factor table has also been revised to include NOEC M factors for both rapidly and non-rapidly degrading substances.

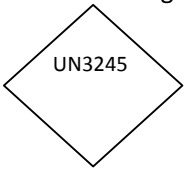
It is difficult to gage the impact of these changes as the required chronic toxicity data are not widely available for many substances. However, this may change as outputs from REACH registration activities filter through. One effect of the changed criteria may be to bring into the environmentally hazardous net for transport, substances that are not severe acute toxins and are rapidly degradable but display some adverse effects at levels ≤ 0.1 mg/L.

A transitional provision in the ADR allows until **31st December 2013** for application of the new criteria. These new criteria will also be mandatory in the IMDG Code from 2014 and there is a planned adaption of the CLP Regulation to introduce them into supply legislation so that eventually there should be across the board harmonisation. If data for transport classification according to the criteria contained in the ADR is not available, a transport classification can continue to be derived from a supply classification based on either the new CLP Regulation or previous Dangerous Substances and Dangerous Preparations directives.

GMO/GMMOs

The requirements for the transport of GMO/GMMOs have been relaxed further to reflect greater experience and knowledge surrounding their handling and use. These changes have already been incorporated into the UN model regulations and will thus be taken up by all modes. The basic change is to follow an approach similar to that used for UN3373 clinical samples. Special provision 219 has been modified to state that once GMO/GMMOs of Class 9 are packaged and marked according to P904, then no other ADR provisions apply.

Packing instruction P904 has been revised to change the marking requirement to just the UN number in a 100 x 100 mm diamond.



Packagings no longer have to be UN tested/marked but must meet the construction requirements for UN packaging as specified in chapter 6.1.4. The option for use of a three- layer packaging has been updated to bring it closer to the requirements for UN3373 packaging .

This relaxation can not apply to GMO/GMMOs that meet the criteria of either Class 6.1 or 6.2. To ensure that toxicity hazards are not ignored, a note has been added to section 2.2.61 to point out that Genetically Modified Organisms/microorganisms must be assigned to Class 6.1 if they display the properties of this class. Reference is also made to this in the Class 9 sub-section dealing with GMO/GMMOs. The definition of GMO/GMMO has been removed from the section dealing with Class 6.2 infectious substances, but the definition is still to be found under the class 9 sub-section. The note on the movement of live animals has been amended to allow for the movement of animals that have been genetically modified (as opposed to an animal hosting GMMOs) subject to terms and conditions of the competent authorities of the states of origin and destination.

Test methods – Chapter 2.3

The test methods for determination of flash point have been reorganised and updated with emphasis now on direct reference to standards rather than test apparatus.

A new sub-section has been inserted referencing standards for determination of initial boiling point. Consequently special provision 649, which provided a reference to a test method, has been deleted from Chapter 3.

CHAPTER 3

Dangerous goods list – Chapter 3.2

As usual there have been considerable changes to the dangerous goods list, including the addition of 16 new UN numbers and various changes to existing entries as detailed in the following paragraphs.

Toxic by inhalation

An extensive review of substances that are toxic by inhalation has resulted in numerous changes to the dangerous goods list. Six new UN numbers to cover substances that display multiple subsidiary risks have been added as follows:

3488 TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m³ and saturated vapour concentration greater than or equal to 500 LC_{50}

3489 TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC_{50}

3490 TOXIC BY INHALATION LIQUID, WATERREACTIVE, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m³ and saturated vapour concentration greater than or equal to 500 LC_{50}

3491 TOXIC BY INHALATION LIQUID, WATERREACTIVE, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC_{50}

3492 TOXIC BY INHALATION LIQUID, CORROSIVE, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m³ and saturated vapour concentration greater than or equal to 500 LC_{50}

3493 TOXIC BY INHALATION LIQUID, CORROSIVE, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC_{50}

Considerable changes have also been made to the existing dangerous goods list to ensure greater consistency in how such goods are handled.

A new special provision 354 has been created to clearly identify named substances that are toxic by inhalation. This has been added to the following named entries: 1092, 1098, 1135, 1143, 1163, 1182, 1185, 1238, 1239, 1244, 1251, 1510, 1541, 1580, 1595, 1605, 1647, 1670, 1695, 1752, 1809, 1810, 1834, 1838, 1892, 1994, 2232, 2334, 2337, 2382, 2407, 2474, 2477, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2521, 2605, 2606, 2644, 2646, 2668, 3023, 3079 and 3246.

Where necessary, the classification code has been adjusted to ensure that toxicity is shown as the primary hazard. (See also the assimilation list for plastics in table 4.1.1.19.6). In the case of UN Nos. 1810, 1834 and 1838, a toxicity hazard was not previously indicated.

It has also been decided that substances that are toxic by inhalation can not be shipped as excepted quantities. Consequently, where necessary, the E-code in the existing dangerous goods list has been amended to E0 for the above entries and Toxic by inhalation collective entries.

Significant changes to packaging and tank codes have been introduced as necessary to achieve consistency across the group. Packaged goods must be packed according to either P601 or 602. As befits the nature of the hazard, only gas tight tanks with top openings are prescribed – L10CH or L15CH in the case of ADR tanks and T20 or T22 in the case of UN portable tanks. A new transitional measure 1.6.3.40 has been created to allow carriage in existing ADR tanks until **31st December 2016**. Similarly new tank provision TP37 has been created to allow the use of existing portable tank codes until this date. The list of permitted containment systems, with changes highlighted in bold is summarised in the following table. Also note that the ADR tank code has changed to L15CH for the collective entries 3381, 3383, 3385, 3387 and 3389.

Tunnel restriction codes have been changed where necessary to again achieve consistency – category D in the case of packaged goods and category C for tanks, except for UN 1510 which is restricted in tanks in a category B tunnel.

There are miscellaneous changes to other provisions for some entries. Therefore it is recommended to check the specific dangerous goods to establish the extent of the impact of any changes.

UN No & PSN	PI	ADR Tank	UN Tank	Dec 2016
1092, ACROLEIN, STABILIZED	P601	**L15CH**	T22	
1098, ALLYL ALCOHOL	P602	L10CH	T20	
1135, ETHYLENE CHLOROHYDRIN	**P602**	L10CH	**T20**	TP37
1143, CROTONALDEHYDE or CROTONALDEHYDE, STABILIZED	**P602**	L10CH	T20	
1163, DIMETHYLHYDRAZINE, UNSYMMETRICAL	P602	L10CH	T20	
1182, ETHYL CHLOROFORMATE	P602	L10CH	**T20**	TP37
1185, ETHYLENEIMINE, STABILIZED	P601	L15CH	T22	
1238, METHYL CHLOROFORMATE	P602	**L15CH**	T22	
1239, METHYL CHLOROMETHYL ETHER	P602	**L15CH**	T22	
1244, METHYLHYDRAZINE	P602	**L15CH**	T22	
1251, METHYL VINYL KETONE, STABILIZED	P601	**L15CH**	**T22**	TP37
1510, TETRANITROMETHANE	P602	**L10CH**	-	
1541, ACETONE CYANOHYDRIN, STABILIZED	P602	L10CH	**T20**	TP37
1580, CHLOROPICRIN	P601	**L15CH**	**T22**	TP37
1595, DIMETHYL SULPHATE	P602	L10CH	T20	
1605, ETHYLENE DIBROMIDE	P602	L10CH	**T20**	TP37
1647, METHYL BROMIDE AND ETHYLENE DIBROMIDE MIXTURE, LIQUID	P602	L10CH	T20	
1670, PERCHLOROMETHYL MERCAPTAN	P602	L10CH	**T20**	TP37
1695, CHLOROACETONE, STABILIZED	**P602**	L10CH	T20	
1752, CHLOROACETYL CHLORIDE	**P602**	L10CH	T20	
1809, PHOSPHORUS TRICHLORIDE	**P602**	L10CH	T20	
1810, PHOSPHORUS OXYCHLORIDE	**P602**	**L10CH**	**T20**	TP37
1834, SULPHURYL CHLORIDE	P602	**L10CH**	T20	
1838, TITANIUM TETRACHLORIDE	**P602**	L10CH	**T20**	TP37
1892, ETHYLDICHLOROARSINE	P602	L10CH	**T20**	TP37
1994, PHENYLMERCURIC HYDROXIDE	P601	L15CH	T22	
2232, 2-CHLOROETHANAL	**P602**	L10CH	**T20**	TP37
2334, ALLYLAMINE	P602	L10CH	T20	
2337, PHENYL MERCAPTAN	**P602**	L10CH	T20	
2382, DIMETHYLHYDRAZINE, SYMMETRICAL	**P602**	L10CH	**T20**	TP37
2407, ISOPROPYL CHLOROFORMATE	P602	-	-	
2474, THIOPHOSGENE	**P602**	**L10CH**	**T20**	TP37
2477, METHYL ISOTHIOCYANATE	**P602**	L10CH	**T20**	TP37
2480, METHYL ISOCYANATE	P601	L15CH	T22	
2481, ETHYL ISOCYANATE	P602	L15CH	**T20**	TP37
2482, n-PROPYL ISOCYANATE	**P602**	L10CH	**T20**	TP37
2483, ISOPROPYL ISOCYANATE	**P602**	L10CH	**T20**	TP37
2484, tert-BUTYL ISOCYANATE	**P602**	L10CH	**T20**	TP37
2485, n-BUTYL ISOCYANATE	**P602**	L10CH	**T20**	TP37
2486, ISOBUTYL ISOCYANATE	**P602**	**L10CH**	**T20**	TP37
2487, PHENYL ISOCYANATE	**P602**	L10CH	**T20**	TP37
2488, CYCLOHEXYL ISOCYANATE	**P602**	L10CH	**T20**	TP37
2521, DIKETENE, STABILIZED	**P602**	L10CH	**T20**	TP37
2605, METHOXYMETHYL ISOCYANATE	**P602**	L10CH	**T20**	TP37
2606, METHYL ORTHOSILICATE	**P602**	L10CH	**T20**	TP37
2644, METHYL IODIDE	**P602**	L10CH	**T20**	TP37
2646, HEXACHLOROCYCLOPENTADIENE	**P602**	L10CH	T20	
2668, CHLOROACETONITRILE	P602	**L10CH**	**T20**	TP37
3023, 2-METHYL-2-HEPTANETHIOL	**P602**	L10CH	T20	

3079 METHACRYLONITRILE, STABILIZED	**P602**	L10CH	**T20**	TP37
3246 METHANESULPHONYLCHLORIDE	**P602**	L10CH	**T20**	TP37

Calcium hypochlorites

Three new entries for calcium hypochlorite with subsidiary corrosive risk have been added as follows:

3485 CALCIUM HYPOCHLORITE, DRY, CORROSIVE or **CALCIUM HYPOCHLORITE MIXTURE, DRY, CORROSIVE with** more than 39% available chlorine (8.8% available oxygen)

3486 CALCIUM HYPOCHLORITE MIXTURE, DRY, CORROSIVE with more than 10% but not more than 39% available chlorine

3487 CALCIUM HYPOCHLORITE, HYDRATED, CORROSIVE or **CALCIUM HYPOCHLORITE, HYDRATED MIXTURE, CORROSIVE** with not less than 5.5% but not more than 16% water (PG II & III)

Special provision 313 has been deleted since, as a consequence of the introduction of the new entries, it is no longer required. UN 1748 calcium hypochlorite mixtures with less than 10% available chlorine are no longer exempt form the ADR as special provision 589 has been deleted. B13 is inserted against the PG III entry to indicate that it can not be shipped by sea in IBCs.

Alkali metal dispersions

A new entry for alkali metal dispersions with flammability sub risk has been introduced:

3482 ALKALI METAL DISPERSION, FLAMMABLE or **ALKALINE EARTH METAL DISPERSION, FLAMMABLE**

As a consequence, classification code WF1 has been deleted from the existing UN 1391 entry for alkali metal dispersions. Consequent amendments are also made to RR8 of packing instruction P402 and sub-sections 4.3.4.1.3 (c) to include the new UN number.

Other new entries

Other new entries have been added as follows

0509 POWDER, SMOKELESS

1471 LITHIUM HYPOCHLORITE, DRY or **LITHIUM HYPOCHLORITE MIXTURE** (PG III)

3483 MOTOR FUEL ANTIKNOCK MIXTURE, FLAMMABLE

3484 HYDRAZINE AQUEOUS SOLUTION, FLAMMABLE with more than 37% hydrazine, by mass

3494 PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC (PG I, II & III)

3495 IODINE

3496 Batteries, nickel-metal hydride – not subject to ADR

There are some consequential changes to existing entries.

UN 2030 classification code CFT has been deleted due to the new entry for Hydrazine aqueous solution, flammable and UN1649 classification code TF1 due to the new entry for motor fuel antiknock mixture with a flammability sub risk.

Special provision 357 has been inserted against UN 1267 to alert to the use of the new entry for crude petroleum with an inhalation toxicity hazard, where applicable. New special provision 343 has been added to the new UN3494 entry to explain its applicability.

Note also, that while the new entry for nickel-metal hydride batteries is not subject to the ADR, such batteries will be regulated by the IMDG Code. Thus, an impact on the impact on the battery recycling industry in Ireland is anticipated, as waste batteries are usually exported for material recovery.

Changes to proper shipping names

The proper shipping name of UN 3474 has been amended to read "1-HYDROXYBENZOTRIAZOLE MONOHYDRATE" – previously the more contradictory "1-HYDROXYBENZOTRIAZOLE ANHYDROUS, WETTED"

The proper shipping name of UN 3166 engines has been expanded to include fuel cell engines etc. – no significance as not subject to ADR.

The proper shipping name of UN3359 has been changed from "FUMIGATED UNIT" to "FUMIGATED CARGO TRANSPORT UNIT". Special provision 302 has been reworded accordingly.

Asphalt has been deleted from the descriptive text of UN1999 TARS, LIQUID as the term can have different meanings – bitumen-aggregate mix in Europe, bitumen in US

Technical names – SP274

The requirement to use technical names as part of the proper shipping name has been dropped by removal of SP274 from the entries shown below. This harmonises with the UN model and other modal regulations.

Fibres: UN Nos. 1353 & 1373.
Alkali metal alloys, dispersions, etc.: UN Nos. 1389, 1390, 1391, 1392, 1393, 1421, 3401 and 3402.
Nitrates: UN Nos. 1477 & 3218
Perchlorates: UN Nos. 1481 & 3211
Peroxides: UN No. 1483
Hydrogen fluorides: UN No. 1740
Medicines: UN Nos. 1851, 3248 & 3249
Alkyl phenols: UN Nos. 2430 & 3145
Alkyl/Aryl sulphonic acids: UN Nos. 2583, 2584, 2585 & 2586
Bisulphates: UN No. 2837
Chlorosilanes: UN Nos. 2985, 2986, 2987 & 2988,
Metal powder, flammable: UN No. 3089
Gas samples, non-pressurised: UN Nos. 3167, 3168 & 3169
Persulphates: UN Nos. 3215 & 3216

Miscellaneous Changes

Provision V12 requiring the use of closed containers/vehicles is now aligned with IBC instructions IBC03 and IBC100

An AT vehicle code has been inserted against UN Nos. 1373 (fibres or fabrics), 1442 (ammonium perchlorate) and 3175 (solids containing flammable liquid).

Corrections have been made to the entry for UN 1704 tetraethyl dithiopyrophosphate. The classification code of has been changed from T2 for solids to T1 for liquids. Consequent changes include replacement of MP10 by MP15 and deletion of ADR tank code for solids and V11.

Special provisions – Chapter 3.3

Explosives - classification code 1.4S

New special provision 347 has been added to the 1.4S explosives entries listed below. This requires that any hazardous effects arising from functioning must be confined within the package as demonstrated via new UN Manual of Test Criteria Test series 6(d). This is a universal change that was triggered by an incident in which a detonation of what are generally regarded as "safe" explosives resulted in damage outside the package with implications for aircraft safety in particular.

UN0323 Cartridges, power device
UN0366 Detonators for ammunition
UN0441 Charges, shaped
UN0445 Charges, explosive, commercial
UN0455 Detonators, non-electric
UN0456 Detonators, electric
UN0460 Charges bursting, plastics bonded
UN0500 Detonator assemblies, non-electric

Lithium batteries

New special provision 348 has been created to require that the Watt-hour rating must be marked on the outer case of all UN3480 and UN3481 lithium ion batteries manufactured after the **31 December 2011**.

Special provision 188 was previously introduced to exempt the carriage of "small" lithium batteries from most of the provisions of all transport regulations once conditions specified in the provision were complied with. New ADR-specific special provision 656 has been inserted against the entries for lithium batteries to permit the carriage of batteries intentionally active during transport according to SP188 exemption. It also allows that lithium ion batteries manufactured before 1st January 2009 without the Watt-hour marking on the outside case may continue to be shipped under the provisions of SP188. The previous transitional arrangement to 31 December 2010 has been deleted from SP188. There is some further minor adjustment to the wording of SP188 to make it clear that it includes button cells on circuit boards.

Perfumery products containing nitrocellulose

Special provision 163 has been inserted against UN1266 Perfumery products. This specifies the conditions under which an entry other than that for nitrocellulose solutions may be used for solutions containing nitrocellulose. Consequently the text of special provision 198, which is used against the entries for nitrocellulose solutions, has been amended to add perfumery products to the group of collective entries (paints & printing inks) that can contain up to 20% nitrocellulose and be shipped under these collective entries (subject to special provision 163).

Compressed air /gas

As a result of relying on oxidising power for classification of oxidising properties, special provision 292 has been deleted and removed from the entries for UN 1002 compressed air and UN 1956 compressed gas. This specified a 23.5 % oxygen threshold above which the gas would have to be declared/labelled as oxidising. Similarly special provision 567, which specified a 21% oxygen threshold, has been deleted and removed from UN 1956.

Re-numbering of Special Provisions

There is a re-numbering of some special provisions due to incorporation of existing mode specific (ADR) provisions into the UN Model Regulations. Thus there is no impact.

New SP349 = old SP559
New SP350 = old SP604
New SP351 = old SP605
New SP352 = old SP606
New SP353 = old SP608

Miscellaneous Special Provision Changes

Special provision 344 has been added to UN1950 aerosols and UN2037 small gas receptacles to make it clear that they must conform to the construction requirements of 6.2.6.

Special provision 325 has been added against UN Nos. 2910, 2916, 2917, 2919 and 3323 to make it clear that UN2978 should be used for non-fissile or excepted packages of uranium hexafluoride and special provision 326 against UN Nos. 3328, 3329, 3330 and 3331, to stipulate the use of UN2977 for fissile uranium hexafluoride packages.

Special provision 655 has been inserted against UN1002 to allow the continued use of older cylinders for breathing apparatus.

New special provisions 345 and 346 have been inserted against UN1977 liquid nitrogen specifying conditions under which the gas, carried in open cryogenic receptacles, is exempt from the ADR.

New special provision 342 has been added to UN1040 to allow small ethylene oxide ampoules/cartridges for sterilisation devices to be transported in excepted packages.

By insertion of special provision 653 against UN1066 the existing ADR exemption for small packaged carbon dioxide cylinders has been extended to small packaged nitrogen cylinders. The capacity

limitation has been changed from a straight volumetric measure to a product of pressure by volume (150 bar.litre).

Special provision 355 has been added to UN1072 to permit the transport of oxygen cylinders for emergency use that are fitted with explosive actuating devices without the need to apply Class 1 requirements.

Special provision 304 has been reworded to make it clear that the entry "UN3028 BATTERIES DRY, CONTAINING POTASSIUM HYDROXIDE, SOLID" may only be used for batteries before the addition of water.

A correction is made to special provision 503 which refers to "UN 2447 PHOSPHOROUS WHITE, MOLTEN" by deletion of the word "yellow".

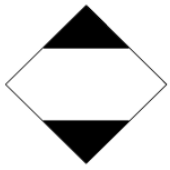
Special provision 645 concerning the approval by a Competent Authority of a classification code for fireworks, has been amended to now require that this approval be provided in the form of a formal approval certificate, containing a reference number which must then be shown on the transport document.

A packaging reference has been added to special provision 172 to ensure that radioactive materials with subsidiary risk are packed so as to meet any additional requirements attributable to the subsidiary risk.

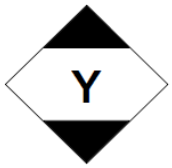
The text of special provision 290 dealing with excepted packages of radioactive materials with subsidiary risk has been extensively revised to provide greater detail on how to package and identify the material depending on whether it also qualifies for the excepted quantities provisions of Chapter 3.5.

Limited Quantities – Chapter 3.4

The requirements for limited quantities have been completely overhauled to harmonise with UN model regulations, version 16. The text has been revised to provide clear positive statements as to requirements and applicable sections of the regulations. The limited quantity codes and tables have been dispensed with. Instead the maximum quantity per inner receptacle is to be found directly by looking up column 7a of the dangerous goods list where you will find a value of either 0, 25 ml, 100 ml, 120 ml, 125 ml, 500 ml/g, 1 L/kg, 2 kg or 5 L/kg. This means that there is no longer any difference between inner quantities for shrink wrapped trays and packages. Since the quantities are harmonised with the UN model regulations differences with other surface modes will disappear, but it does involve some changes from existing quantities permitted under ADR – both increases and decreases. A new limited quantity mark is being introduced, which is common to all UN numbers. A variation of the mark with a "Y" is used to signify a package that meet the additional requirements for limited quantities by air – more restrictive quantity limitations, pressure differential test and application of class hazard labels.



LQ Mark surface mode compliance



LQ Mark air compliance

The standard dimensions shall be the same as for hazard diamonds (100 x 100 mm) unless package size requires the use of a smaller 50 x 50 mm dimension. If relevant, overpacks must also display this mark.

Transport units with a mass in excess of 12 tons carrying more than 8 ton of limited quantity packages must display the mark in the form of a placard (250 x 250 mm) at the front and rear of the vehicle, unless it is also carrying other dangerous goods requiring the display of orange plates. Similarly containers with more than 8 ton of limited quantity packages must display this mark as a placard on all four sides of the container, unless it is required to display hazard class placards because of the presence of other dangerous goods not in limited quantities. To facilitate this, the consignor must inform the carrier in advance of the quantity of limited quantity goods that are to be picked up. This must be in a traceable form – email, fax, text, etc.

New transitional measure 1.6.1.20 allows the continued use of existing limited quantity provisions and marking up until **30th June 2015**. These will be maintained on the UN website for reference. A hybrid of new and old volumes/marking is not allowed on packages. However, the new placard markings may be used in conjunction with old packages to avoid implementing the rectangular "Ltd Qty" mark on vehicles. Consequently transitional measure 1.6.1.17 has been deleted.

There is also a consequential amendment to special provision 251 to replace LQ0 with 0.

Excepted Quantities – Chapter 3.5

The excepted quantity mark has been re-drawn to show the correct square shape as opposed to the previous rectangular shape.

CHAPTER 4

Packing provisions - Chapter 4.1

General Packaging Requirements

An additional clause, addressing permeation, has been added to the general requirements for packaging materials in direct contact with dangerous goods in subsection 4.1.1.2. This clause states that the packaging materials "(c) shall not allow permeation of the dangerous goods that could constitute a danger under normal conditions of carriage."

Packaging provision PP48 associated with packing instruction P114 (b) has been amended to additionally prevent the use of metal packagings for the new entry for 0509 POWDER, SMOKELESS.

Packing Instruction P200

Wording in relation to gas tight plugs has been adjusted to make it clearer and to require that the threads on the plug and the opening should match.

A new paragraph 12 has been inserted specifying new detailed conditions under which periodic inspections can be extended to 15 years for refillable welded steel cylinders for UN Nos. 1011 Butane, 1075 petroleum gases liquefied, 1965 hydrocarbon gas mixtures liquefied, 1969 Isobutane or 1978 Propane. These include requirements that the Competent Authority (not a delegate), as well as approving the extension, must monitor the owner for compliance at least every three years and that the cylinders must bear a removable "P15Y" mark to signify that an extended inspection period has been granted under these provisions. Transitional provision 1.6.2.9 allows extensions to be granted under the existing conditions for cylinders manufactured before **1st January 2015** and transitional provision 1.6.2.10 permits their extended inspection periods to continue.

Cryogenic Receptacles - Packing Instruction P203

The requirement for periodic inspection of closed cryogenic receptacles in accordance with 6.2.3.5.2 has been deleted. The section dealing with open cryogenic receptacles has been revised to provide greater detail on the construction and marking requirements. These include a maximum capacity of 450 L, measures to ensure that cylinders remain upright (low centre of gravity or mounting on gimbals) and marking with the manufacturers name and address, model number or name, serial/batch number, UN number and proper shipping name of gases to be carried and capacity.

Organic Peroxides P520

The reference to the list of organic peroxides and assigned packing methods is corrected in P520.

Infectious substances – P620

An additional requirement has been inserted to prevent packaging other dangerous goods with UN2814 or UN2900, unless they are required for specific functions relating to the infectious substance. In such circumstances, up to 30 ml of class 3, 8, or 9 dangerous goods may be contained in each primary receptacle without triggering any additional ADR requirements. E.g. subsidiary class labels not required.

Clinical waste - P621 & IBC620

By exclusion of 4.1.1.15, the general requirement that plastic drums, jerricans and rigid IBCs can not be used for more than 5 years without authorisation form the Competent Authority has been removed from containers used in accordance with P621 or IBC620 for clinical waste. The is a practical beneficial change as it eliminates an existing non-compliance where many IBC-type clinical waste wheelie bins in use in Ireland are more than 5 years old but lack an authorisation for their continued use.

Chemical kits – P901

Packing instruction P901 for UN3316 chemical kits has been amended to address the transport of kits that require dry ice for refrigeration. The weight of dry ice does not have to be taken into account when complying with the weight restriction for the packages. The packages must not permit a pressure build up due to the release of carbon dioxide.

Metal hydride storage systems – P205

New packaging instruction P205 has been created for metal hydride storage systems transported under UN3468. This means that there is no longer a requirement for packaging to be approved by the Competent Authority, with a copy of the approval accompanying the goods, as mandated under the previously applicable P099. However, new special provision 356 has been added to UN3468 to require that metal hydride storage systems installed in or intended for conveyances (vehicles) must be approved by the Competent Authority of the state of manufacture before carriage, and referenced in the transport document. ISO 16111:2008 "Transportable gas storage devices – Hydrogen absorbed in reversible metal hydride" has been added to the list of mandated standards in 4.1.6.15.

IBC Packaging Instructions – miscellaneous changes

IBC codes for liquids have been deleted form IBC 04, IBC05, IBC06, IBC07 and IBC08 as these IBC packing instructions are used for solids.

Reference to addition requirements for solids that may become liquid during carriage, as found in 4.1.3.4, have been inserted for IBC06, IBC07 and IBC08.

The requirement that "Liners of wooden IBCs shall be siftproof" has been inserted in IBC07.

The new UN numbers 3485, 3486 and 3487 have been added to special provision B13 in IBC08.

IBC code 31H2 has been added to the list of IBCs which may be used to transport ≤ 17% peroxyacetic acid, stabilized according to IBC instruction IBC520.

Special class-specific packaging provisions

New sub-section 4.1.6.14 put an onus on the owners of pressure receptacles to provide evidence of conformity in a language understood by the Competent Authority, if requested to do so.

The prohibition on the use of packing group I metal packagings for explosives and organic peroxides has been deleted by amendment of 4.1.5.5 and 4.1.7.1.1.

Sub-section 4.1.7.2.1 has been amended to require that IBCs for organic peroxides meet packing group II test requirements.

Sub-section 4.1.9.1.5, which address additional requirements for radioactive materials with subsidiary risks, has been reworded to make it clearer.

Portable Tank Instructions – Chapter 4.2

A note has been inserted into the table of portable tank instructions in 4.2.5.2.6 to point out that the prohibition on bottom openings for certain tank codes, does not apply if the goods carried remain solid during the normal conditions of transport.

New tank provision TP36, allowing fusible elements in the vapour space, has been inserted against the entries for organometalic substances UN Nos. 3391 to 3399.

ADR Tank Instructions – Chapter 4.3

Classification code T5 (PGI) and the new classification code TFW I (PG I) have been added to the categories of substances that may be carried in L10CH tanks according to the tank selection table. However, notes have been added to the L10CH and L15CH rows to point out that substances toxic by inhalation with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50} must be assigned to tank code L15CH. Consequently classification codes T1, T4, TW1, TO1, TC1, TC3, TFC and TFW have been added to tank code L15CH.

CHAPTER 5

General Provisions Radioactive materials - Chapter 5.1

Sub-sections 5.1.5.1.4 (a) and (b) have been amended to ensure that the country of origin is included in the notification process required for radioactive shipments – this was an unintentional omission from the previous wording.

Sub-section 5.1.5.1.4 (d)(v) has been amended to require that the quantity of each individual fissile nucleotide in a mixture be shown, if reporting in grams rather than activity. A similar adjustment has been made to the explanatory text of activity for labelling purposes in 5.2.2.1.11.2 (b) and documentation in 5.4.1.2.5.1 (c).

New sub-section 5.1.5.3.5 has been inserted to make it clear that, where there are variations between different countries, the categorisation of packages shown on the notification shall be according to the certificate of the country of origin of design (applicable to Type B(U), B(M) and C packages requiring Competent Authority approval). There is a consequential change to the references of the preceding sub-sections. See also 5.4.1.2.5.3

New section 5.1.5.4 has been created to bring together the provisions for marking and documentation of excepted packages of radioactive material. There are no actual changes.

Marking – Chapter 5.2

The environmentally hazardous mark has been cleaned up to remove any suggestion of the presence of a fin on the back of the fish!

Reference to the ISO standard for orientation marks is updated to a newer 1997-version.

A further exemption from the requirement for orientation marks has been added to cover hermetically sealed inner packagings of not more than 500 ml in combination packages.

Plates – Chapter 5.3

The wording of 5.3.2.1.4 has been amended to make it clear that the requirement for orange plates on the side of the vehicle only applies when the regulations stipulate that the radioactive materials have to be carried under exclusive use.

X668 has been added to the list of danger codes to signify a highly toxic substance, corrosive, which reacts dangerously with water. This code is to be used with UN Nos. 1810, 1834 and 1838.

Documentation – Chapter 5.4

Information on the use of EDP/EDI is now presented as a sub-section rather than a note. When information is supplied to a carrier via EDP/EDI, the consignor must still be capable of producing a hard copy version with information in the required sequence, if requested.

A note has been inserted to point out that the number, type and capacity of each inner packaging within the outer packaging of a combination packaging is not required to be indicated when providing a description of the number and type of packages on a transport document

The position of the qualifying word “waste” on the transport document for a waste shipment has been moved from before the UN number to before the proper shipping name. This aligns it with other modes of transport. There is a consequential change to the wording in special provision 650.

The words “Environmentally Hazardous” must be added to the transport document for all goods classified as environmentally hazardous, except for UN Nos 3077 and 3082 or for packages not required to bear the environmentally hazardous mark because the primary receptacles contain ≤ 5 L/kg. The words “marine pollutant” may be used instead, if the journey involves a sea leg.

The requirement for the inscription associated with the carriage of fireworks has been changed to read “Classification of fireworks by the competent authority of XX with the firework reference XX/YYZZZZ”. This is a consequence to the change to special provision 645, noted earlier.

Subsection 5.4.1.2.5.1 (j) has been amended to point out that the product of A_2 values for radioactive material with an unlimited A_2 value shall be shown as zero on the transport document.

Subsection 5.4.2.2, in the footnote relating to IMDG documentation requirements, has been amended to show that electronic signatures may be use in electronic documents. Subsection 5.4.2.3 requires that if there is a change from electronic to paper documentation over a transport chain, the paper document must indicate "Original received electronically" with the name of the signatory shown in capital letters.

Instructions in Writing

Amendments have been made to the Instructions in Writing meaning that existing copies will have to be replaced. The environmentally hazardous and elevated temperature marks have been added to page 4, with explanations/guidance. The footnote on the applicability of the requirement for a shovel, drain seal and collecting container (no longer has to be plastic) has been amended so that it only applies to solids or liquids. This corrects an anomaly created by the previous wording which

meant that this equipment was required when carrying gases such as chlorine or ammonia even though it could have no practical use in an emergency. A corresponding change is made to miscellaneous equipment on board the vehicle in section 8.1.5. There are also some amendments to the guidance given on pages two and three. The new version can be easily recognised by the title which now reads “INSTRUCTIONS IN WRITING ACCORDING TO ADR” instead of the previous “INSTRUCTIONS IN WRITING”.

New section 5.4.4 requires retention of the transport documentation for a minimum of three months and if stored electronically, the computer system must be capable of reproducing a printed copy.

Fumigated cargo transport units

Section 5.5.2 has been revised to enable it to become a self-contained free-standing section that can be applied without reference to other parts of the regulations. This revision has been adopted at UN level to simplify its application to fumigated CTUs containing non-hazardous goods. In such circumstances there is no longer a need to apply a class 9 label to the CTU. All that is required is that the fumigation label is applied, that those involved have appropriate training, and that the transport documentations shows “UN 3359, fumigated cargo transport unit, 9", the date and time of fumigation and the type and quantity of fumigant used.

CHAPTER 6

Packaging Construction –Chapter 6.1

A new general requirement has been inserted stipulating that any permeation of the substance contained in the packaging shall not constitute a danger under normal conditions of carriage. This matches the general packaging requirements in Chapter 4.1.

The requirement that Inner receptacles, inner packagings, or articles shall remain completely within the outer packaging is now specifically stipulated as a criterion for passing the drop test for combination packages.

Subsection 6.2.2.7.9 has been inserted to make it clear that for bundles of cylinders, the marking shall only be applied to the individual cylinders in the bundle, not the assembly.

Pressure Receptacle Construction – Chapter 6.2

References have been included for acceptable ISO standards for acoustic emission and ultrasonic examination methods that can be applied instead of hydraulic pressure testing for periodic inspection of pressure receptacles.

Three new ISO standards have been added to the table for design construction and initial inspection and test of UN pressure receptacles in 6.2.2.1.1.

Metal Hydride storage systems

New text has been inserted as necessary to address the requirements for metal hydride storage systems;

- 6.2.1.5.3 initial inspection and test requirements
- reference to ISO 16111:2008 standard for design, construction, and initial inspection and test in 6.2.2.1.5, closures in 6.2.2.3 and periodic inspection in 6.2.2.4
- Marking in 6.2.2.9 (consequently old 6.2.2.9 is renumbered as 6.2.2.10)

Non-UN receptacles constructed according to standards – Section 6.2.4.

The table of relevant standards (6.2.4), which are mandatory for design construction and testing of non-UN pressure receptacles, has been revised. The design and construction standards have been split off from the periodic inspection standards. Column five now shows, where relevant, the date by which a type approval based on a no longer applicable standard must be withdrawn in accordance with section 1.8.7.

Pressure receptacles not constructed according to standards – Section 6.2.5

The text has been amended with the following changes. The competent authority must specify the procedure for periodic inspection as part of the type approval if none of the existing referenced methods are suitable. They do not have to inform the UNECE if they adopt a standard which will become a referenced standard in a future edition of the ADR.

The exemption from water bath testing of aerosols and small receptacles containing pharmaceutical products in 6.2.6.3.3 has been amended to now also include other substances used in the production of pharmaceuticals.

Class 6.2 Packaging – Chapter 6.3

A diagram of the steel rod used for the puncture test has been included to illustrate the meaning of the impact edge dimension.

Class 7 Packaging – Chapter 6.4

References have been amended to take account of updates to the standards for General Cargo Containers (ISO1496-1) and Packaging of uranium hexafluoride (UF_6) for transport (ISO 7195).

The requirements for packaging of fissile material in 6.4.11.5 have been amended to include a requirement that the package should stay within 10 cm of its original dimension after testing (spray test, drop test, stacking test, penetration test).

The performance of water barriers in 6.4.11.7 (a) has been amended to require the functioning of at least two such barriers, whereas previously each barrier had to perform.

IBCs –Chapter 6.5

The requirements for marking of the rigid inner receptacles of composite IBCs have been changed by amendment of 6.5.2.2.4. This states that the inner receptacles of IBCs manufactured after 1st

January 2011 must be marked with the IBC code, the packing group designation, the month and year of manufacture of the inner receptacle, the identifier of the State authorising the mark and the name/identifier of the manufacturer. Note: A transitional measure allows the continued use of inner receptacles manufactured/marked before **1st July 2011** according to the old requirements, so that in effect it is only receptacles manufactured from July 2011 that have to show the new marking.

The purpose of this is to enable stricter control of practices surrounding the replacement of inner receptacles to prevent the use of combinations of receptacle and outer frame that have not been design tested together. The definition of a "repaired IBC" has been adjusted to only allow replacement with an inner receptacle conforming to the original design type form the same manufacturer to be considered as a repair. If a similar receptacle from another manufacturer is used, then it is a remanufacture operation. New section 6.5.2.4 requires that all the old marking of a remanufactured IBC shall be removed or obliterated and replaced by new marking in accordance with the design tests that the remanufactured IBC has been subjected to.

The requirement for a quality assurance programme has been extended to the repair and remanufacture of IBCs.

Large Packagings – Chapter 6.6

There is some re-arrangement of text without any significant change. Re-manufactured large packagings are also included.

UN Portable Tanks & MEGCs – Chapter 6.7

The requirements for plate marking have been revised.

The UN packaging symbol must now be shown on the plate 

The country of manufacture is included in addition to the country of approval

The required information has been reorganised into logical groups and sample layouts have been included.

A transitional measure has been created to allow the continued use of the "old" marking on tanks constructed before **1st January 2012**.

The portable tank instruction must be shown on the operator's plate in place of the name of the goods being carried. A transitional measure has been added to allow continued use of the "goods carried" marking on tanks constructed before **1st January 2014** up until the next periodic inspection and test.

ADR Tanks – Chapter 6.8

The note on the definition of "mild steel" has been amended to include mild steel as referenced in EN standards with minimum tensile strength between 360 and 490 N/mm^2.

The text in 6.8.2.2.3 dealing with flame traps or flame arresters on vacuum relief valves for tanks containing flammable liquids, has been amended to require that such devices must be positioned as close as possible to the shell. In the case of multi-compartment tanks, there must be one for each

compartment. A transitional measure has been added to allow the continued use of tanks, constructed before **1 July 2011**, that do not meet this requirement.

A new subsection 6.8.2.3.3 has been added to limit the period of validity of Type Approval Certificate for all tanks to 10 years. As with pressure receptacles, certificates must be withdrawn if standards are no longer applicable and renewal at the end of a 10-year period requires a complete assessment of conformity with the provisions of the ADR applicable at the time of renewal. The same transition period of up to **1st January 2013** is allowed to bring existing certificates into compliance.

The tables of referenced standards for design and testing in 6.8.2.6 have been updated and re-organised. Where applicable, the latest date for withdrawal of a type approval certificate based on an obsolete standard is shown in column 5. Application of EN 12972:2007 "Tanks for transport of dangerous goods – Testing, inspection and marking of metallic tanks" is now mandatory for inspection and test of all tanks.

Subsection 6.8.3.2.3 has been modified to allow use of an internal non-return valve instead of a self-actuating internal stop-valve with remote control for tanks intended for carriage of liquefied non-toxic flammable gases.

The section on referenced standards for battery vehicles & MEGCs in 6.8.3.6 has been re-organised similarly to that for tanks without any change in requirements.

Tanks, battery vehicles or MEGCs not according to referenced standards

The texts of 6.8.2.7 and 6.8.3.7 have been standardised and amended as necessary to require that the Competent Authority inform the UNECE of any standard/technical measure that they adopt unless such standard will become a referenced standard in a future edition of the ADR.

TT8 has been amended to require that should the substance identification marking be removed from an UN 1005 AMMONIA, ANHYDROUS tank (stop using for anhydrous ammonia), the tank must be subjected to a magnetic particle inspection and these actions recorded in the inspection certificate attached to the tank record.

CHAPTER 7

Segregation Table –Chapter 7.5

Note D on the mixed loading of Class 1 and Class 5.1 has been revised to give more comprehensive examples of alkali metal nitrates (caesium, lithium, potassium, rubidium sodium) and alkaline earth metal nitrates (barium, beryllium, calcium, magnesium and strontium). There is no change, just greater clarity for non-chemists. Rubidium Nitrate is also added to the alphabetical list of dangerous goods to enable identification of the appropriate generic UN entry.

The reference standard for portable fire extinguishers has been updated to EN 3 Portable fire extinguishers, Part 7 (EN 3-7:2004 + A1:2007).

CHAPTER 8

Driver Training – Chapter 8.2

The requirements for driver training have been amended to allow Competent Authorities approve basic and specialized training courses limited to specific dangerous goods or classes of dangerous goods. This option is not available for drivers that require explosives or radioactivity specialization courses. The basic courses must now include an element on security awareness, and instructions in writing must be covered as part of the element on accident response.

The format of the Driver Training Cert has been changed to a credit card style license incorporating a photograph of the driver and security features. This is to counter problems with forged licenses and to facilitate greater security in the movement of dangerous goods. Certificates may no longer be issued by a delegate authority, only by the Competent Authority. A transitional measure allows old style certificates to be issued up until **31 December 2012**, although it is the intention of the Irish authorities to start using the new certificates from the **1st January 2011**. Existing certificates remain valid until their natural expiry. If, within a validity period, a driver adds specialization courses to his basic certificate, the period of validity of the new certificate will remain that of previous certificate.

CHAPTER 9

Vehicle construction – Chapter 9.2

By revision of the wording of 9.2.3.1 notes, the requirement for a category 1 antilock and Type IIA endurance braking system applies to all vehicles having a maximum mass of more than 16 ton or that are designed to draw trailers of more than 10 ton. Trailers of more than 10 ton must be equipped with category A antilock braking systems, except that a new transitional provision allows the continued use of trailers equipped with antilock brakes according to ECE regulation No 13 06 series amendments. Thus vehicles, which because of their age, were exempted from the braking requirements, may no longer be used for international transport. However, they can continue to be used for national transport under the exemptions provided for in Irish law.

ISO standards 12098:2004 and ISO 7638:2003 are now mandatory to prevent disconnection of the electrical connections between vehicles and trailers. EX/III and Fl vehicles that entered service before **1 April 2012** may continue to be used without complying with these standards.