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The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. We use some essential cookies to make this website work. We'd like to set additional cookies to understand how you use GOV.UK, remember your settings and improve government services. We also use cookies set by other sites to help us deliver content from their services. You have accepted additional cookies. You can change your cookie settings at any time. You have rejected additional cookies. You can change your cookie settings at any time. Dangerous Goods which are classed as Radioactive Material are defined by the dangerous goods regulations as any material containing radionuclides where both the activity concentration and the total activity exceeds certain pre-defined values. A radionuclide is an atom with an unstable nucleus and which consequently is subject to radioactive decay. Sub-Divisions There are no subdivisions within Class 7, Radioactive Material. Reason for Regulation Whilst undergoing radioactive decay radionuclides emit ionizing radiation, which presents potentially severe risks to human health. Commonly Transported Radioactive Material Radioactive ores Medical isotopes Yellowcake Density gauges Mixed fission products Surface contaminated objects Caesium radionuclides / isotopes Iridium radionuclides / isotopes Americium radionuclides / isotopes Plutonium radionuclides / isotopes Radium radionuclides / isotopes Thorium radionuclides / isotopes Uranium radionuclides / isotopes Depleted uranium / depleted uranium products Uranium hexafluoride Enriched Uranium 1. ADR is available on line. 2. ADR is highly prescriptive but structured logically. 3. The structure of ADR is that each part is subdivided into chapters and each chapter into sections and paragraphs and sub paragraphs. So for example, 2.1 is the introduction to classification, 2.2 is the class specific provisions, 2.2.1 relates to class 1 (explosives), 2.2.2 to class 2 (gases) and so on. 4 Part 1 is the introductory part setting out high level aims and duties, together with exemptions. This includes the need for a Dangerous goods safety adviser (DGSA) at chapter 1.8.3. 5 It then goes logically through the process as follows: Part 2, Classification Part 3, The dangerous goods list (including special provisions and exemptions related to limited quantities, Part 4, Packing and tank provisions Part 5, Consignment procedures, including documentation and vehicle marking Part 6, Construction and testing of packagings, intermediate bulk containers (IBC), large packagings and tanks Part 7, Carriage, loading, unloading and handling Part 8, Vehicle crews, equipment, operation and documentation (including driver training) Part 9, Construction and approval of vehicles 6 It follows that, if care and time are taken, the answer to most problems can be found, and for that reason there is little or no need for explanatory literature or guidance. 7 ADR itself contains general exemptions (at 1.1.3). CDG Regs provides that exemptions allowed by the EU Dangerous Goods Directive and UK derogations apply in GB. These are discussed in detail in the Main Exemptions part of this manual. 8 Many duty holders are required to have a Dangerous Goods Safety Adviser (DGSA) who should have the training and knowledge to deal with the matter. GB exemptions are discussed below. The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG Regs) is discussed in detail in the Main Exemptions part of this manual. 9 The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG Regs) is discussed in detail in the Main Exemptions part of this manual. 10 ADR at 1.8.3 requires many of those involved in carriage of dangerous goods to appoint a DGSA. 11 It applies to carriers, packers, fillers, loaders and unloaders, subject to some exemptions discussed below. The exemptions arise from ADR 1.8.3.2 and have been implemented by CDG Regulation 3 (j). The GB exemptions do not apply to international carriage. The two exemptions are alternatives. 12 Packer and unloader are defined in ADR at 1.2.1. DTT guidance is that "final unloaders" (consignees) will not need to appoint a DGSA. Intermediate unloaders (such as freight forwarders and consolidators and operators of "in-transit" storage facilities) will need to have a DGSA. Exemption (a) Carriage related activities for small loads, where ADR 1.7.1.4 applies for radioactive materials, and for limited and excepted quantities. Exemption (b) Where the main or secondary activity of the duty holder is not the carriage of dangerous goods or (related activities). Various questions of interpretation arise in connection with this exemption. "Main or secondary activity" should be interpreted as the main or secondary purpose of the business. Thus companies whose business is not the transport of dangerous goods per se but whose activities involve such transport will normally not require to appoint a DGSA. Examples include Construction companies taking dangerous goods to and from sites would not be regarded as having transport of dangerous goods as either a main or secondary activity Repair organisations that occasionally recover vehicles which are still loaded with dangerous goods. For routine services, it would be expected that the vehicles would be unloaded and where applicable cleaned and purged. Carriers (in this context synonymous with vehicle operators) delivery companies, freight forwarders etc are not within this category as carriage of dangerous goods is often their main or secondary activity. This exemption is further qualified. The terms "occasionally engage" and "little danger or risk of pollution" pose practical difficulties of interpretation. In so far as the limited quantities exemptions apply a risk assessment approach, it could be argued that carriage above those thresholds cannot qualify. The regulation clearly envisages that there will be such cases and the following examples may help in making the judgment. transport of dangerous goods in transport category 4 transport of dangerous goods in transport Category 3 but only in packages (not tanks/bulk) where the volume/mass of the load concerned does not exceed 1500 litres or kg. Goods in transport categories 0, 1 and 2 should not be treated in this way. transport of explosives in loads of up to 10% above the thresholds at which placarding requirements apply. "occasionally" should be interpreted as 1 to 2 journeys per month. If more frequent deliveries (eg by a contractor to a site) are required this should not be regarded as occasional. Other exemptions may allow a duty holder not to appoint a DGSA. [back to top] In order to transport Class 7 Dangerous Goods (radioactive material) in Great Britain (GB), you must comply with the requirements of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (as amended) (CDG09) and the Ionising Radiations Regulations 2017 (IRR17). CDG09 Regulation 5 invokes the Agreement for the International Carriage of Dangerous Goods by Road (ADR) and the Regulations for the International Carriage of Dangerous Goods by Rail (RID) into GB law, and places additional requirements on transport dutyholders relating to emergency arrangements and notification of transport events. Examples of ADR and RID requirements include classification of radioactive material, package design, marking and labelling of packages and vehicles, provision of emergency equipment and emergency instructions on vehicles, training, security and management systems. Examples of IRR17 requirements include notification or obtaining registration or consent from the 'appropriate authority' and the production of radiation risk assessments and contingency plans for transport operations. Both CDG09 and IRR17 require transport dutyholders to consult, and where appropriate, appoint safety advisers (Dangerous Goods Safety Advisers (DGSAs) and Radiation Protection Advisers (RPAs)) to obtain advice on how to comply with CDG09, ADR, RID and IRR17. Any company considering transporting radioactive material should seek the advice of a DGSA and an RPA, who is familiar with GB law, in order to obtain advice on what they must do before they begin to transport radioactive material. The following links may be useful: Additionally, the Society for Radiological Protection has produced a guidance leaflet for anyone considering transporting radioactive material. I am an international carrier wanting to transport Class 7 Dangerous Goods within Great Britain (GB). I currently have a Radiation Protection Programme (RPP) in accordance with ADR 1.7.2. Is this compliant with UK legislation? In order to transport Class 7 Dangerous Goods (radioactive material) in Great Britain (GB), you must comply with the requirements of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (as amended) (CDG09) and the Ionising Radiations Regulations 2017 (IRR17). Whilst meeting the requirements of IRR17 fulfils the requirements within ADR 1.7.2 for an RPP, meeting the requirements of ADR 1.7.2 does not meet all IRR17 requirements. International carriers wanting to transport Class 7 Dangerous Goods within GB should refer to FAQ "My company is considering transporting Class 7 Dangerous Goods (radioactive material). What do we need to do to ensure we are legally compliant?". Do I need an emergency plan? The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG09) requires within Regulation 24, Schedule 2 Part 1 paragraph 2 that dutyholders undertake a radiation risk assessment (RRA) in compliance with Regulation 8 of the Ionising Radiations Regulations 2017 (IRR17) as if it were an employer. The RRA should clearly define whether or not a radiation emergency is possible, where it exists all possible accident situations. If the dutyholder's RRA concludes that a radiation emergency is possible, then an emergency plan is required in accordance with CDG09 Schedule 2 Part 1 paragraph 3. ONR has produced detailed guidance covering: transport radiation risk assessments, and emergency planning and notification of events Dutyholders are encouraged to review this guidance and consult with their RPA and DGSA as appropriate for further advice. What are the Dangerous Goods Safety Adviser (DGSA) requirements in GB for overseas consignors and carriers? ADR 1.8.3 requires a DGSA to be appointed for each undertaking, the activities of which include the carriage, or loaded packing, loading, filling or unloading, of dangerous goods by road. ONR has provided for exclusions to this requirement under ADR 1.8.3.2. Information on this is contained within ONR's guidance on DGSAs. ONR's Five Steps to Transport Emergency Planning clarifies that dutyholders based overseas and involved in the transport of Class 7 goods by road, rail or inland waterway in Great Britain (GB) have the same legal duties as GB based duty holders which cannot be devolved to others. To ensure compliance with GB specific legislation they should consult, and may need to appoint, suitable advisers (DGSAs and Radiation Protection Advisers (RPAs)). DGSAs/RPAs do not need to be from GB but must be suitably qualified and experienced to advise on GB transport legislation. In addition, dutyholders based overseas may need to provide documentation both in the language of the driver and English to ensure there is no barrier to cooperation between the carrier, consignor, emergency services, local authorities and ONR in the event of a radiation emergency in GB. It may be appropriate for an overseas carrier or consignor to contract a GB provider to supply aspects of the emergency response and notify relevant bodies to ensure a timely response to transport emergencies. Do orange plates need to have the hazard and UN numbers on? ADR requirements for orange plates are in section 5.3.2 of ADR. The requirements to include the marking on the plate are defined in 5.3.2.1.2 onwards, specifically, 5.3.2.1.2 requires the addition of the Hazard Identification Number (HIN) and UN number but only for tank-vehicles, battery vehicles or transport units carrying tanks. This does not normally apply to Class 7.5.3.2.1.4 - requires the addition of the HIN and UN number in the following cases: unpackaged solids; unpackaged articles, or; packaged radioactive material with a single UN number required to be carried under exclusive use. These could apply to Class 7 carriers but don't in the majority of cases. In all other cases the Orange plate can be plain with no additional markings. Note: CDG09 Schedule 1, part 1, Para 1 states that the "emergency action code" for the substance should be used instead of the HIN. This only applies within GB and not if the vehicle is moving internationally. Also note Derogation RO-a-UK-9 which allows the use of the fireproof plate in the cab instead of orange plates under certain conditions. What are my responsibilities as a consignor who uses carriers who carry loads for other consignors? Both consignors and carriers have duties under IRR17 and CDG09 to produce transport radiation risk assessments (RRAs) that make clear conclusions regarding whether a radiation emergency is possible and prepare appropriate emergency arrangements based upon this conclusion. Where consignors use carriers who carry packages for multiple consignors as part of the same load, consignors should ensure that they provide carriers with sufficient information to enable carriers to undertake their own transport RRAs for the loads they carry and prepare appropriate emergency arrangements. As carriers will be carrying more radioactive material than individual consignors have consigned there may be instances where consignor's transport RRAs have concluded that they are not required but carriers have concluded that such a plan is required. Consignors and carriers must co-operate to ensure that in the event of an accident both appropriate radiation protection advice and support is provided at the scene of an accident and all relevant consignors duties are fulfilled by the appropriate consignor. Note that IRR17 Regulation 16 and CDG09 Schedule 2 part 1 paragraph 3(b), require carriers and consignors to share information regarding contingency plans. Returning a spent Mo99/Tc99m generator A consignor is returning a spent Mo99/Tc99m generator. The carrier is arranged through the supplier of the generator. It is usual practice for a fresh generator to be delivered and swapped for a spent one which is collected for return transit. The carrier often has several packages on their vehicle with different consignors. If an incident occurs, which consignor's contingency or emergency plans should be enacted? Who does the responsibility lie with? Who is expected to respond, how, and when? The vehicle might be many miles away from the consignor when the incident takes place. Further to this, what can these consignors do if a carrier will not share their contingency/emergency plans? The above question is already answered in the previous question. Radionuclide therapies and domestic properties Sometimes patients that have received radionuclide therapies (e.g. I-131 therapy) can generate radioactive waste at their home after the treatment. The most common scenario is soiled incontinence pads which might have activity greater than the exempt consignment limit (e.g. 1 MBq for I-131). In some cases, the patient does not have a safe and legal route for the disposal of this waste and may find it difficult to store the waste until it has decayed to below exempt consignment limits. In this instance, the waste should be collected by hospital staff and transported back to the hospital where it can enter the appropriate waste stream. Question: Is there guidance on what requirements must be met in these circumstances, e.g. is a licence to act as a waste company needed? Or can it simply be collected by a suitably trained driver with appropriate UN2910 packaging? The issue of radioactive waste in a patient's home (and acceptance back to hospital site) may also need to be considered in conjunction with the Environment Agency (or equivalent). Answer: If the waste is above exempt levels, it is required to be transported in full compliance with CDG09 (and ADR). Specifically, a transport RRA must be produced for such waste and appropriate contingency/emergency arrangements produced. ONR guidance: TD-TCA-GD-003 Five steps to transport emergency planning It should be noted ONR cannot provide guidance on the appropriate waste route as this is not within our remit. Can a radioactive corpse be considered as "radioactivity within a human" for transport exemptions? There appears to be conflicting information on this. This situation will unfortunately become more common as more patients receive molecular radiotherapy. Answer: ONR has consulted with other ADR (Agreement for the International Carriage of Dangerous Goods by Road) signatory competent authorities and the general agreement is that "person" includes alive and dead. As such, ADR does not apply to dead bodies for transport. However, IRR17 would still apply and radiation safety advice should be given to anyone involved in the handling of a body. Note that this exemption does not apply to body parts/waste or cremated remains. What are the requirements for the periodic inspection of Type A packages? Manufacturer's guidance might limit users of packages to organisations that have been approved by the manufacturer to perform this annual check. Will ONR accept if users choose to override the manufacturer's guidance? Can users implement their own system of checking e.g. within their own engineering department, and if so, is there any guidance (e.g. expected levels of competence or service accreditation)? Many hospitals would like to implement local checks to save costs, rather than sending their packages away to an external company to perform the checks. Cardboard Type A package Hospitals are often supplied with a cardboard Type A package (for a Mo99/Tc99m generator) that arrives with minor damage (scuffs, minor crushing at the corners, non-penetrating tears, denting etc). They then re-use this package a few weeks later, as they consign the Type A package (spent generator) back to the supplier. Is there guidance on what minor damage to the package is acceptable for its continued use? Contingency planning Transporting radioactive material can require a contingency plan with trained people that can effectively respond anywhere, at any time. This can be difficult to implement without getting involved in a national scheme, which can be out of proportion to the small quantity and infrequency of the operation. What response time are we expected to make if our vehicle is a long way from 'base'? If we rarely transport, and don't carry large quantities, is it reasonable for our response plan to include remote assistance to the police, with our own staff attending site several (or many) hours later? There is no expectation on a specific response time to the scene. ONR would expect the RPA to provide 'remote' advice immediately then appropriate RP personnel (which may be the RPA) to attend the scene (if required) in a reasonable timescale (not several hours). Therefore, ONR would not expect emergency plans to rely on personnel attending the scene from great geographical distances. Paragraph 10.2 of ONR's transport emergency planning guidance states that it is ONR's expectation that the emergency plan, as a minimum, describes how to obtain specialist advice and support where damage to a package(s) is suspected. In addition, carriers and consignors should ensure that contingency and emergency plans are aligned so that it is clear which dutyholder has responsibility for which parts of plans. IRR17 Regulation 16 (contingency plans) and CDG09 Schedule 2 part 1 paragraph 3(b) (Emergency plans) refer. Occasionally, radioactive blood samples or tissue samples need to be transported. There seems to be conflicting guidance (from different DGSAs) on the appropriate packaging/labelling and transport requirements in this situation. Packaging should take account of all hazards - primary and subsidiary - ADR 1.7.5. If radioactive material is the primary hazard then marking and labelling is discussed in ADR 3.3.1 Provision 172. Determination of primary hazard is detailed in ADR 2.13.5.3 and ADR 3.3.1 Provision 290. Does a waste contractor driver require Class 7 awareness training appropriate to their responsibilities when radioactivity is a subsidiary hazard to another class e.g. Class 6.2? If the waste is above exempt levels, it is required to be transported in full compliance with CDG09 (and ADR). This includes meeting the training requirements for transporting Class 7 dangerous goods. Can ONR clarify the requirement for a radiation risk assessment covering Class 7 in case of an accident on a public road when radioactivity is a subsidiary hazard. If consignments are above exempt levels, they are required to be transported in full compliance with CDG09 (and ADR) and IRR17. This includes the requirements for producing a transport RRA and appropriate contingency/emergency arrangements. When radioactivity is a subsidiary hazard are incinerator/waste disposal sites that accept Class 7 subsidiary hazard consignments (at excepted package levels) required to appoint an RPA? ONR would suggest that an RPA be consulted in order to obtain advice about the specific need to appoint an RPA for such sites and that if information is not required, the basis for this is documented and revisited at appropriate intervals to make sure the conclusion remains valid. Transporting small radioactive check sources What would be considered appropriate steps for an RPA/RWA to take and appropriate security measures, if considering transporting small radioactive check sources (for checking contamination monitors, and possibly dose-rate meters) by road or rail, if the trip involves one or more overnight stay(s) in a hotel or private residence? [These would usually be a few MBq at most, sealed sources, and generally transported as UN2910] The requirements for security and the supervision of vehicles are detailed in ADR chapters 1.10, 8.4 and 8.5. Dutyholders should include the requirements for security and the supervision of vehicles within their transport RRAs. What are the requirements for displaying orange coloured plates? Orange coloured plate specification and attachment requirements are as follows: Specification: ADR 5.3.2.2.1 Size - 40x30cm - can be reduced to 300 x 120mm but only if space for that plate is insufficient to affix a full one. Insufficient is available surface area due to shape of vehicle - not "it covers up company logo". Specification - reflectorized, weather-resistant and durable - specific orange colour. Attachment: ADR 5.3.2.1.1 Two plates, vertically mounted, front and rear of vehicle. Clearly visible. Shall not become detached either due to vehicle movement or engulfment in fire for 15 mins. Magnetic plates will generally fail on the attachment requirement. They also tend to be the wrong size. They are used because some dutyholders don't want to drill holes in the body of leased or rented vehicles to attach metal plates. An alternative could be to use something similar to the "Taxi licence plate holder". These fix behind the registration plate and provide an alternative location to attach an orange plate. They would need to be metal in construction to meet the fire requirement. What is ONR's interpretation of "consumer products" that are exempt from ADR? ADR 1.7.1.4 - The provisions in ADR do not apply to any of the following: (e) radioactive material in consumer products which have received regulatory approval (soon to be authorisation once SSR-6 changes) following their sale to the end user. ONR considers consumer products in this instance to be products available to the public as the end user (for their personal or domestic use or for their sporting or leisure activities) without further control or restriction, provided measures have been taken to control any leakage of contents in normal conditions of carriage. They are sold directly in-store or online and are not intended for continued production or resale. The General Product Safety Regulations 2005 (GPSR) requires all products to be safe in their normal or reasonably foreseeable use. ONR considers products that meet the requirements of GPSR that have received regulatory approval. ONR does not consider the exemption in ADR 1.7.1.4 to apply to products which are sold (or resold) for purposes other than their original intended use or products that do not meet the requirements of GPSR. Examples of items that ONR does not consider to be consumer products which have received regulatory approval are: historic dials that contain radioactive coatings and markings, radioactive mineral samples, re-purposed industrial equipment containing radioactive materials. What retention period is required for training records? ADR 1.3.3 - Records of training according to this Chapter shall be kept by the employer and made available to the employee or competent authority, upon request. Records shall be kept for a period of time established by the competent authority. Records of training shall be verified upon commencing a new employment. ONR expectations are that: employers provide initial training and provide refresher training at suitable frequencies. Individuals are expected to always be up-to-date with their training. employers keep records of training during the specified period of validity of the training. Once the validity period has passed records are no longer required to be kept. If you are unable to find the answer to your question here, please email contact@onr.gov.uk Dangerous goods are classified into 9 different classes, based on the dangerous properties of the goods or substance. If the goods have multiple dangerous properties, the most dominant one determines the class to which it shall belong. The classes are part of the United Nations-based system of identifying dangerous goods, and are used within many different subsystems such as the ADR, RID, IMDG and DGR for classifying dangerous goods and hazardous materials. Class 1 contains substances and articles which pose a hazard due to explosion. Items in Class 1 are further divided into divisions 1.1 - 1.6 depending on the nature of the explosion hazard and the sensitivity of the item. A compatibility group, consisting of a single letter, is also assigned to each item. The compatibility group letter indicates which items can be transported together. See also: List of all items in class 1 Class 2 contains potentially dangerous gases. Gases in class 2 are assigned one or more groups, representing their dangerous properties. Groups of class 2 GroupProperty AAsphyxiant Ooxidizing FFlammable TToxic TFtoxic, Flammable TCtoxic, Corrosive TOtoxic, Oxidizing TFCtoxic, Flammable, Corrosive TOCToxic, Oxidizing, Corrosive In some regulations, gases in class 2 are divided into divisions 2.1 - 2.3 depending on their primary hazard. Divisions of class 2 DivisionPrimary hazardLabel 2.1Flammable gases 2.2Non-flammable, non toxic gases 2.3Toxic gases See also: List of all items in class 2 Class 3 covers flammable liquids, which includes some molten solid substances and liquid desensitized explosives. Substances are divided into different packing groups according to the degree of danger they present to transportation. Packing groups for class 3 Packing groupFlash pointInitial boiling point I<= 35°C II< 23°C> 35°C III< 23°C <= 60°C> 35°C See also: List of all items in class 3 Class 4, like class 5 and 6, is actually an umbrella term, where all substances belong to one of the subclasses. Class 4 consists of the following subclasses ClassPrimary hazardLabel 4.1Flammable solids, self-reactive substances, polymerizing substances and solid desensitized explosives 4.2Substances liable to spontaneous combustion 4.3Substances which, in contact with water, emit flammable gases They all have in common that they are flammable under certain conditions. For instance, strike-anywhere-matches (UN 1331) would be classified as a Class 4.1 substance. See also: List of all items in class 4 Class 5 consists of the following classes ClassPrimary hazardLabel 5.1Oxidizing substances 5.2Organic peroxides Class 5.1, oxidizing substances, are substances that may decompose quickly, releasing oxygen or other oxidizing substances. This can cause a fire to accelerate quickly, or to start due to the heat given off in the oxidation process. Class 5.2, organic peroxides, may also decompose at a high rate and give off oxygen or flammable gases, as well as heat. They can be very unstable and extremely flammable under certain circumstances such as heat, friction, mechanical shock, or when they come into contact with other substances. See also: List of all items in class 5 Class 6 consists of the following classes ClassPrimary hazardLabel 6.1Toxic substances 6.2Infectious substances Class 6.1, toxic substances, is used to classify substances that - in relatively small amounts and in a short duration - can cause serious injury or death to humans if swallowed, inhaled or with by absorption through skin contact. Class 6.2, infectious substances, covers substances which are known or are reasonably expected to contain pathogens, i.e. microorganisms (including bacteria, viruses, parasites and fungi) and other agents which can cause disease in humans or animals. See also: List of all items in class 6 Class 7 contains substances and articles that are radioactive, meaning that they contain radionuclides where both the activity concentration and the total activity exceed certain threshold values defined in the regulations. For some (Type A) materials and packages, a transport index is calculated on the basis of the maximum dose rate on the external surface of the packaging, and different labels and regulations apply depending on this index. Transport indexes, dose rates and labels of class 7 Maximum dose rate on external surfaceTransport indexLabel 0.005 0.5