Transport of Dangerous Goods by Road

Guidance for University Departments and Functions

October 2000

Safety Services Office
TRANSPORT OF DANGEROUS GOODS BY ROAD

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Transport of Dangerous Goods by Road

1. Introduction

This guidance covers the transport by road of all dangerous substances; further advice should be obtained for other modes of transport, such as rail, sea and air. The regulations that apply to road transport multiply and become more prescriptive as the quantity of the goods to be carried and the danger arising therefrom increases. Section 2 covers the general requirements, which should always be applied. Section 3 and Appendix 1 list the main regulations and their acronyms. A summary of the main requirements of the regulations is given in Section 3, though if they apply then the full regulations and associated guidance will need to be consulted.

In most cases the amounts used in the University are likely to be below the limits specified and only the general requirements will apply. If not, the advice is to use a reputable transport company who will be familiar with the regulations and can ensure compliance.

The transport of dangerous goods may invalidate the insurance on private motor vehicles or hire vehicles and therefore staff are advised to consult their individual insurance companies.

2. General Requirements

The first requirement is to identify all the properties, which are dangerous for transport. These categories (listed in Appendix 2) may not be the same as the hazard categories from CHIP, which are concerned with the use of the materials rather than their carriage. As the degree of danger is dependent on amounts being transported then the quantity of material must also be considered. The best source of information is the supplier of the material who is required to provide most of the relevant facts on safety data sheets.

Information

All containers of hazardous material must be clearly marked with the identity and quantity of the contents and the appropriate hazard or danger signs (this is good practice for materials in storage or use as well as transport). In some cases this information can be on inner packing, which is exposed when opening over-packing. In all cases the information should be sufficient to enable a person dealing with the package to take the appropriate care.

The consignor and consignee should appear on either the package or the accompanying paperwork and clearly state where the package is to be delivered and who sent the package, including a telephone number, which can be called if there are any questions about the package. This information is required, even if the package is escorted by a person, who has the above information. The driver also needs information on what precautions to take with the package and what to do in an emergency.
Packing

The packing needs to hold the contents during loading, during transport, and in the event of any reasonably foreseeable accident. The goods should be stored in the vehicle to reduce risks, i.e. flammable material away from sources of ignition, toxic or infectious material away from food, and all dangerous material segregated from the occupants of the vehicle.

A risk assessment will be required to determine the packing standard. Obviously, the more dangerous the material, the higher standard of packing needed. The packing also has to be compatible with the contents. Fragile receptacles, such as glass, need to be in a protective packaging.

Quantities above prescribed limits require packing, which has been approved by an authorised body. The more prescriptive requirements for either larger quantities or more dangerous material are a reflection of the regulators own risk assessment and should be used as a minimum standard.

In cases where the material to be transported was previously delivered to the University by a reputable organisation, then the packing used (including the over-packing and absorbent material) can be re-used to transport the material to another destination.

3. Regulations

**CDGCPL2** - The Carriage of Dangerous Goods (Classification, Packaging and Labelling) and Use of Transportable Pressure Receptacles Regulations SI 1996/2092

Requires goods to be appropriately packaged to prevent loss during carriage. For receptacle quantities greater than those in Appendix 3, or where more than one receptacle is in a package and the package exceeds 30 kg, prescriptive regulations apply and the package will have to be approved by a competent authority and be marked with the designation of the goods, the UN number and danger signs. In these cases the regulations provide the detailed requirements.

If transport danger signs are required in addition to the hazard warning signs required by CHIP, the danger signs should appear on the outer packing with the hazard signs on the inner packing or the receptacle.

As mentioned in Section 2, re-used packing is acceptable for the same type of goods so long as all absorbent material and over-packing is used as in the original. For definitions of classification, packing group and other information the Approved Carriage List (ACL) must be consulted. (Copies are available in the Library, in the Chemical Hazards Data Facility in Chemistry Research and with the Laboratory Managers Group).

Materials assigned to packaging group 1, or any infectious substances, have no exceptions to the regulations even in limited quantities.
CDGRoad - The Carriage of Dangerous Goods by Road Regulations SI 1996/2095
Guide - Guidance for road vehicle operators and others involved in the carriage of
The main requirements are a consignor's declaration providing information on the goods,
restriction of passengers, emergency action, fire fighting equipment and vehicle
markings. These requirements usually only apply as quantities increase; they do not
apply until the quantity thresholds in Appendix 4 are reached for the transport categories
defined in Appendix 5. These are above the prescriptive requirements of CDGCPL2.

Contains the official information on substances to be transported. Appendix 6 contains
extracts and special provisions for some common materials used by the University.

ARTM - Approved Requirements and Test Methods for the classification and packing of
Contains definitions on how to classify materials and special packing requirements.

CHIP - The Chemicals (Hazard Information and Packing for Supply) Regulations
Transfer of a hazardous material to either another institution or another country should
be notified in writing to the destination department specifying substance, hazard,
quantity, packing standard, reason for transfer and attesting that adequate information
accompany the material.

When a hazardous chemical is forwarded to another institution then the forwarder is
acting as a supplier and the CHIP regulations also apply. These regulations require the
supplier to:
- identify and classify the hazards associated with the chemical substance
- provide recipients with a detailed safety data sheet which will enable them to take the
  necessary measures for the protection of health and safety at work and the
  environment.
- use safe and suitable packing.
- provide information to the receiver by way of labelling (name of substance,
  appropriate danger symbols, risk and safety phrases, EEC number, and name, address,
  telephone number of supplier).

When the chemical was originally supplied by a commercial organisation, retention of
the original labelling and packing with the duplication of the original safety data sheet
should be sufficient to comply with these requirements. A supplier who conforms to
these regulations will comply with some of the transport regulations.

COSHH - Control of Substances Hazardous to Health Regulations 1988
Guide - Approved Codes of Practice (ACOP)
- Control of substances hazardous to health (General)
- Control of carcinogenic substances (Carcinogens)
ISBN 0-1188-2085 0
Apply to any work involving a substance hazardous to health, and require that a suitable
and sufficient assessment is made of the risks and steps needed to control the hazard.
DTR2 - The Carriage of Dangerous Goods by Road (Driver Training) SI 1996/2094
This regulation requires specific training for drivers if the quantity thresholds exceed those in Appendix 4. In some cases this training and examination will have to be approved by the Department of Transport.

RAMRoad - The Radioactive Material (Road Transport)(Great Britain) Regulations SI 1996/1350.
Transport of radioactive material is covered by the University Radiation Protection Rules Section L:07 but the requirements in this Transport of Dangerous Goods by Road document will also apply if the material has additional non-radioactive hazards.

RIDDOR - The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995.
Any accident in connection with the transport of dangerous substances, including leaks and failure of the containment system, should be reported to the Safety Services Office as required by the University of Leicester guidance on the Reporting of Injuries, Diseases and Dangerous Occurrences at Work. When required by these regulations, the Safety Services Office will forward a report to the HSE.

Other regulations may also apply in particular circumstances (Appendix 1).

4. Examples

The following examples determine the quantities for which exceptions are made in the regulations without the main requirements applying. Below these quantities only the general requirements (Section 2) apply.

Ethanol
>70% by volume.
ACL (Appendix 6) - Flammable (cls 3) - packing group II
CDGCPL2 (Appendix 3) - exceptions for quantities less than 1 litre in metal packaging or 500 ml in glass or plastic packaging.

Acceptable quantities for University transport:
1 litre in unapproved metal packaging
500 millilitres in unapproved glass or plastic packaging
10 litres in an approved package

>24%, <70% by volume
ACL (Appendix 6) - Flammable (cls 3) - packing group III
CDGCPL2 (Appendix 3) - exceptions for quantities less than 5 litres

Acceptable quantities for University transport:
5 litres in unapproved packaging
25 litres in an approved package

≤24% by volume
ACL (Appendix 6) - SP144 not considered dangerous goods for carriage.
Fluorine Gas

ACL (Appendix 6) - Toxic gas (cls 2.3) with subsidiary hazards, fire intensifying (cls 5.1) and corrosive (cls 8).
CDGCPL2 (Appendix 3) - exceptions for quantities less than 120 ml in aerosols.

Acceptable quantities for University transport:
   120 millilitres in aerosols
   1 litre in an approved package

Note: The requirements under the COSHH regulations may be more restrictive than the transport regulations.

Formaldehyde Solution

≥25% formaldehyde
ACL (Appendix 6) - Corrosive (cls 8) - packing group III
CDGCPL2 (Appendix 3) - exceptions for quantities less than 1 litre.

Acceptable quantities for University transport:
   1 litre in unapproved packaging
   25 litres in an approved package

Flammable
ACL (Appendix 6) - flammable (cls 3) with a subsidiary hazard corrosive - packing group III
CDGCPL2 (Appendix 3) - exceptions for quantities less than 5 litres.

Acceptable quantities for University transport:
   5 litres in unapproved packaging
   25 litres in an approved package

<25% and not flammable - exceptions for all quantities

Note: Under the CHIP regulations concentrations ≥25% are toxic and those <25% are harmful. The different definitions under the two regulations reflect the differing conditions under which materials may be encountered.

Hydrochloric Acid

ACL (Appendix 6) - Corrosive (cls 8) - packing group II
CDGCPL2 (Appendix 3) - exceptions for quantities less than 500 ml

Acceptable quantities for University transport:
   500 millilitres in unapproved packaging
   10 litres in an approved package

ACL (Appendix 6) - Corrosive (cls 8) - packing group III
CDGCPL2 (Appendix 3) - exceptions for quantities less than 1 litre
Acceptable quantities for University transport:

- 1 litre in unapproved packaging
- 25 litres in an approved package

**Note:** The correct packing group is defined in the [ARTM](#) which states the classification of corrosive substances dependent on the rate of destruction of skin tissue. An easier way involves asking the manufacturer for the correct packing group.

**Infectious Substances**

**ACL (Appendix 6) - (cls 6.2) - no packing group allocated**

**CDGCPL2 (Appendix 3) - no exceptions**

**Note:** As these regulations also apply to waste, the University guidance on Hazardous Biological Agents must be followed and all potentially infected waste must be made safe before disposal. If any infectious substance is to be transported then the regulations will need to be consulted.

**Petrol, Motor Spirit or Gasoline**

**ACL (Appendix 6) - Flammable (cls 3) - packing group II**

**CDGCPL2 (Appendix 3) - exceptions for quantities less than 1 litre in metal packaging or 500 ml in glass or plastic.**

**Acceptable quantities for University transport:**

- 1 litre in unapproved metal packaging
- 500 millilitres in unapproved glass or plastic packaging
- 10 litres in an approved package

**Note:** These regulations apply unless the package is the fuel tank of a vehicle when regulations covering vehicle standards apply.

**Diagnostic Specimens**

**ACL** not named

**CDGCPL2 (Appendix 3) exceptions for quantities less than 100 ml if packed in accordance with the appropriate approved method (appendix 8).**

*Diagnostic specimens will be accepted on University transport if they meet the requirements of Appendix 8.*
APPENDIX 1

REGULATIONS AND APPROVED DOCUMENTS

ACL  Approved Carriage List - L9
ISBN 0 7176 1223 6  (See Section 3)

AEVR  Approved Requirements for the construction of vehicles intended for the carriage of explosives by road.
HSE Books 1996.  ISBN 0 7176 1225 2

ARCRR  Approved Requirements for the packaging, labelling and carriage of radioactive material by rail.
HSE Books 1996.  ISBN 0 7176 1227 9

ARTM  Approved Requirements and test methods for the classification and packing of dangerous goods for carriage.
ISBN 0 7176 1221 X  (See Section 3)

ATR  Approved Tank Requirements
HSE Books 1996.  ISBN 0 7176 1226 0

AVR  Approved Vehicle Requirements
HSE Books 1996.  ISBN 0 7176 1222 8

CDGCPL2  The Carriage of Dangerous Goods (Classification, Packaging and Labelling) and Use of Transportable Pressure Receptacles Regulations.
ISBN 0 7176 1255 4 (See Section 3)

CDGRail2 The Carriage of Dangerous Goods by Rail Regulations 1996.
HMSO.  SI 1996 No. 2089

CDG Road The Carriage of Dangerous Goods by Road Regulations
ISBN 0-7176-1253-8  (See Section 3)

CER2 The Carriage of Explosives by Road Regulations
HMSO.  SI 1996 No. 2093

CHIP  The Chemicals (Hazard Information and Packing for Supply)  SI 1997/1460
ISBN 0 1106 3750 X  (See Section 3)

CLER The Classification and Labelling of Explosives Regulations 1983
HMSO.  SI 1983 No. 1140

COSHH  Control of Substances Hazardous to Health Regulations 1988
ISBN 0 1188 2085 0  (See Section 3)

DTR2  The Carriage of Dangerous Goods by Road (Driver Training)
SI 1996/2094  (See Section 3)
IRR 85  The Ionising Radiations Regulations 1985
SI 1985 No. 1333

**LOCAE**  List of Classified and Authorised Explosives 1994
HSE  ISBN 0 7176 1134 5

**MoD Lists**  Ministry of Defence Lists of Temporary and Permanent Classifications for
Military Explosives 1996
HSE Books.  ISBN 0 7176 0772 0

**PEC**  The Packaging of Explosives for Carriage Regulations 1991
HMSO  SI 1991 No. 2097

**RAMRail**  The Packaging, Labelling and Carriage of Radioactive Material by Rail
Regulations 1996
HMSO  SI 1996 No. 2090

**RAMRoad**  The Radioactive Material (Road Transport) (Great Britain) Regulations
SI 1996/1350  (See Section 3)

**RIDDOR**  The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
1995
ISBN 0 7176 1012 8  (See Section 3)

Approved Requirements for the packaging, labelling and carriage of radioactive material by
rail
HSE Books.  ISBN 0 7176 1227 9

**UN Recommendations on the Transport of Dangerous Goods (Ninth revised edition)**
HMSO  ISBN 92 1 1390486 X

and Criteria (Second revised edition) 1995**
HMSO  ISBN 92 1 139049 4

**European Agreement concerning the Carriage of Dangerous Goods by Road (ADR) 1995
dition**
HMSO  ISBN 92 1 1390435

**Regulations concerning the International Carriage of Dangerous Goods by Rail (RID),
Annex 1 to Appendix B to the Convention concerning International Carriage by Rail, 1995
dition.**
HMSO  ISBN 0 11 5512667

**Pressure Systems and Transportable Containers Regulations 1989**

**International Maritime Dangerous Goods Code (MDG Code) Volumes 1-4 and Supplement**
Obtainable from Civil Aviation Authority


<table>
<thead>
<tr>
<th>Substance</th>
<th>CLS(2)</th>
<th>Hazardous Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explosive substance</td>
<td>1</td>
<td>A substance which is capable by chemical reaction in itself of producing gas at such a temperature, pressure and such a speed as could cause damage to surroundings or which is designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as a result of non-detonative self-sustaining exothermic chemical reactions</td>
</tr>
<tr>
<td>Gas</td>
<td>2</td>
<td>At 50°C has a vapour pressure greater than 300 kilopascals absolute, or is completely gaseous at 20°C and at a standard pressure of 101.3 kilopascals</td>
</tr>
<tr>
<td>Flammable liquid</td>
<td>3</td>
<td>A liquid with a flash point: (a) above 61°C and which is carried at a temperature above its flash point; or (b) of 61°C or below except: (i) a liquid with a flash point equal to or more than 35°C which does not support combustion; (ii) a viscous substance; or (iii) a flammable gas</td>
</tr>
<tr>
<td>Flammable solid</td>
<td>4.1</td>
<td>(a) A solid which is steadily combustible, or may cause/contribute towards fire through friction; (b) a self-reactive or related substance which is liable to undergo a strongly exothermic reaction; (c) a desensitised explosive where the explosive properties have been suppressed.</td>
</tr>
<tr>
<td>Spontaneously combustible substance</td>
<td>4.2</td>
<td>A substance which is liable to spontaneous combustion under conditions met in carriage or liable to self-heating when in contact with air, and liable to catch fire.</td>
</tr>
<tr>
<td>Substance which in contact with water emits flammable gas</td>
<td>4.3</td>
<td>A substance which in contact with water is liable to become spontaneously combustible or to give off a flammable gas</td>
</tr>
<tr>
<td>Oxidising substance</td>
<td>5.1</td>
<td>A substance other than an organic peroxide, which although not necessarily combustible, may by yielding oxygen or by a similar process cause/contribute to the combustion of other material.</td>
</tr>
<tr>
<td>Organic peroxide</td>
<td>5.2</td>
<td>A substance, which is: (a) an organic peroxide; and (b) an unstable substance which may undergo exothermic self-accelerating decomposition.</td>
</tr>
<tr>
<td>Toxic substance</td>
<td>6.1</td>
<td>A substance which is liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact.</td>
</tr>
<tr>
<td>Infectious substance</td>
<td>6.2</td>
<td>A substance which either contains viable micro-organisms that are known or believed to cause disease in animals or humans, or genetically-modified micro-organisms and organisms which may be infectious.</td>
</tr>
<tr>
<td>Term</td>
<td>Code</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Radioactive material</td>
<td>7</td>
<td>A substance which meets the criteria in Section 1(1) of the Radioactive Material (Road Transport) Act 1991</td>
</tr>
<tr>
<td>Corrosive substance</td>
<td>8</td>
<td>A substance, which by chemical action will:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(a) cause severe damage when in contact with living tissue;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(b) cause damage to other freight or equipment on the vehicle if leakage occurs.</td>
</tr>
<tr>
<td>Other dangerous goods</td>
<td>9</td>
<td>A substance which is listed in the ACL, and which may cause a risk to health or safety during carriage, whether or not it has any of the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>characteristic properties listed above, or a substance which is hazardous to the environment, but excluding any substance which:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(a) is an explosive or radioactive material;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(b) possesses any of the hazardous properties of any other classification;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(c) constitutes dangerous goods for any other reason.</td>
</tr>
</tbody>
</table>

Notes:

(1) In CDGCPL2, the definition of dangerous goods includes both substances and articles

(2) CLS = Classification code on UN class/division number (column 3 in ACL)
**APPENDIX 3**

List of exceptions allowed for limited quantities: Schedule 3 of CDGCPL2(1)

<table>
<thead>
<tr>
<th>Goods/Classification</th>
<th>CLS</th>
<th>Packing Group</th>
<th>Maximum quantity per receptacle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-toxic, non-flammable gas without fire intensifying subsidiary hazard</td>
<td>2.2</td>
<td>-</td>
<td>120 ml 1000 ml in metal or plastic aerosols</td>
</tr>
<tr>
<td>Flammable gas or non-toxic, non-flammable gas with fire intensifying hazard</td>
<td>2.1</td>
<td>-</td>
<td>120 ml in glass aerosols 1000 ml in metal or plastic aerosols</td>
</tr>
<tr>
<td>Toxic gas</td>
<td>2.3</td>
<td>-</td>
<td>120 ml in aerosols</td>
</tr>
<tr>
<td>Flammable liquid</td>
<td>3</td>
<td>II</td>
<td>1 litre in metal packagings 500 ml in glass or plastic packagings 5 litres</td>
</tr>
<tr>
<td>Flammable solid</td>
<td>4.1</td>
<td>II</td>
<td>500 g 3 kg</td>
</tr>
<tr>
<td>Substance (liquid or solid) which in contact with water emits flammable gas</td>
<td>4.3</td>
<td>II</td>
<td>500 g 1 kg</td>
</tr>
<tr>
<td>Oxidising substance (liquid or solid)</td>
<td>5.1</td>
<td>II</td>
<td>500g 1 kg</td>
</tr>
<tr>
<td>Organic peroxide (solid, Type B or C)</td>
<td>5.2</td>
<td>II</td>
<td>100 g</td>
</tr>
<tr>
<td>Organic peroxide (liquid, Type B or C)</td>
<td>5.2</td>
<td>II</td>
<td>25 ml</td>
</tr>
<tr>
<td>Organic peroxide (solid, Type D, E or F)</td>
<td>5.2</td>
<td>II</td>
<td>500 g</td>
</tr>
<tr>
<td>Organic peroxide (liquid, Type D, E or F)</td>
<td>5.2</td>
<td>II</td>
<td>125 ml</td>
</tr>
<tr>
<td>Toxic substance (solid)</td>
<td>6.1</td>
<td>II</td>
<td>500 g</td>
</tr>
<tr>
<td>Toxic substance (liquid)</td>
<td>6.1</td>
<td>II</td>
<td>100 ml</td>
</tr>
<tr>
<td>Toxic substance (solid)</td>
<td>6.1</td>
<td>III</td>
<td>3 kg</td>
</tr>
<tr>
<td>Toxic substance (liquid)</td>
<td>6.1</td>
<td>III</td>
<td>1 litre</td>
</tr>
<tr>
<td>Corrosive substance (solid)</td>
<td>8</td>
<td>II</td>
<td>1 kg</td>
</tr>
<tr>
<td>Corrosive substance (liquid)</td>
<td>8</td>
<td>II</td>
<td>500 ml(2)</td>
</tr>
<tr>
<td>Corrosive substance (solid)</td>
<td>8</td>
<td>III</td>
<td>2 kg</td>
</tr>
<tr>
<td>Corrosive substance (liquid)</td>
<td>8</td>
<td>III</td>
<td>1 litre</td>
</tr>
<tr>
<td>Diagnostic specimens</td>
<td></td>
<td></td>
<td>100 ml(3)</td>
</tr>
<tr>
<td>Dibromodifluoromethane</td>
<td>9</td>
<td>III</td>
<td>5 litres</td>
</tr>
<tr>
<td>Benzaldehyde</td>
<td>9</td>
<td>III</td>
<td>5 litres</td>
</tr>
<tr>
<td>Environmentally hazardous substance (solid), NOS</td>
<td>9</td>
<td>III</td>
<td>5 kg</td>
</tr>
<tr>
<td>Environmentally hazardous substance (liquid), NOS</td>
<td>9</td>
<td>III</td>
<td>5 litres</td>
</tr>
</tbody>
</table>
Notes:
(1) Further details on limited quantities are in regulations 6(3)(c) and 8(4) of CDGCPL2.
(2) If glass, porcelain or stoneware receptacles are used, they must be enclosed in compatible and rigid intermediate packagings.
(3) Packed in accordance with the appropriate approved method.
(4) These exceptions apply to single receptacles and combination packagings with a total mass of not more than 30 kilograms.
(5) A single receptacle on its own counts as a package.
Quantity thresholds : Schedule 1 of CDGRoad

<table>
<thead>
<tr>
<th>Transport Category</th>
<th>Individual package mass or volume</th>
<th>Total mass or volume of packaged dangerous goods</th>
<th>Total mass or volume of dangerous goods (parking &amp; supervision)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No lower limit</td>
<td>No lower limit</td>
<td>No lower limit</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>20</td>
<td>200</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>200</td>
<td>2000</td>
</tr>
<tr>
<td>3</td>
<td>25</td>
<td>500</td>
<td>5000</td>
</tr>
<tr>
<td>4</td>
<td>Unlimited</td>
<td>Unlimited</td>
<td>Unlimited</td>
</tr>
</tbody>
</table>

Notes:

(1) The numbers in columns 2, 3 and 4 relate to the gross mass, measured in kg, of articles; the net mass, measured in kg, of compressed gases dissolved in a solvent, solids and liquefied gases; and the nominal capacity, measured in litres, of any receptacle containing compressed gases (other than those dissolved in a solvent) and liquids.

(2) For the purposes of calculating the total mass or volume of packaged dangerous goods or the total mass or volume of dangerous goods where the load comprises a mixture of liquids and solids, 1 kilogram gross or net mass shall equate to 1 litre.

(3) For the purposes of columns 3 and 4, where goods of different transport categories are carried in the same load, all the dangerous goods in that load should be deemed to belong to the most hazardous of those transport categories.
### APPENDIX 5

**Transport categories: Schedule 1 of CDGRoad**

<table>
<thead>
<tr>
<th>Dangerous Goods</th>
<th>Transport Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infectious substances in risk group 4*</td>
<td>0</td>
</tr>
<tr>
<td>Packing Group I goods</td>
<td></td>
</tr>
<tr>
<td>Toxic gases</td>
<td>1</td>
</tr>
<tr>
<td>Organic peroxide type b or c</td>
<td></td>
</tr>
<tr>
<td>Self-reactive substances type b or c</td>
<td></td>
</tr>
<tr>
<td>Temperature controlled substances</td>
<td></td>
</tr>
<tr>
<td>Infectious substances in risk group 3*</td>
<td>2</td>
</tr>
<tr>
<td>Packing Group II goods, other than those specified elsewhere</td>
<td></td>
</tr>
<tr>
<td>Flammable gases</td>
<td></td>
</tr>
<tr>
<td>Infectious substances in risk group 2.</td>
<td></td>
</tr>
<tr>
<td>Packing Group III goods, other than those specified elsewhere</td>
<td>3</td>
</tr>
<tr>
<td>Non-flammable, non-toxic gases</td>
<td></td>
</tr>
<tr>
<td>UN 2990 LIFE-SAVING APPLIANCES, SELF INFLATING</td>
<td></td>
</tr>
<tr>
<td>UN 3072 LIFE-SAVING APPLIANCES, NON SELF-INFLATING</td>
<td></td>
</tr>
<tr>
<td>Any other dangerous goods not listed elsewhere.</td>
<td></td>
</tr>
<tr>
<td>Empty, uncleaned packagings** (except those containing infectious substances in risk group 4* and toxic gases)</td>
<td>4</td>
</tr>
<tr>
<td>UN 1345 RUBBER SCRAP or RUBBER SHODDY</td>
<td></td>
</tr>
<tr>
<td>UN 1331 MATCHES, &quot;STRIKE ANYWHERE&quot;</td>
<td></td>
</tr>
<tr>
<td>UN 1944 MATCHES, SAFETY</td>
<td></td>
</tr>
<tr>
<td>UN 1945 MATCHES, WAX &quot;VESTA&quot;</td>
<td></td>
</tr>
<tr>
<td>UN 2254 MATCHES, FUSES</td>
<td></td>
</tr>
<tr>
<td>UN 2623 FIREFIGHTERS, SOLID</td>
<td></td>
</tr>
<tr>
<td>UN 1361 CARBON of Packing Group III only</td>
<td></td>
</tr>
<tr>
<td>UN 1362 CARBON, ACTIVATED of Packing Group III only.</td>
<td></td>
</tr>
</tbody>
</table>

* The risk groups for infectious substances are defined in the Approved Requirements and test methods for the classification and packaging of dangerous goods for carriage.

** Empty, uncleaned packagings should be considered only as those, which are completely empty of the dangerous goods they have contained, but have not yet been cleaned. Quite often, so-called "empty" receptacles will, in fact, still contain dangerous goods (eg large drums will usually contain significant amounts of residues, gas cylinders are always likely to contain residual gas.)
### APPENDIX 6

**Examples from the Approved Carriage List in alphabetical order**

<table>
<thead>
<tr>
<th>1</th>
<th>PROPER SHIPPING NAME and other relevant information (NB only that part in CAPITALS is the proper shipping name)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>UNNO</td>
</tr>
<tr>
<td>---</td>
<td>-------</td>
</tr>
<tr>
<td>ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) &gt; 70% (see separate entry for 'alcoholic beverages')</td>
<td>1170</td>
</tr>
<tr>
<td>ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) &gt; 24%, &lt; 70% (see separate entry for 'alcoholic beverages')</td>
<td>1170</td>
</tr>
<tr>
<td>FLUORINE, COMPRESSED</td>
<td>1045</td>
</tr>
<tr>
<td>FORMALDEHYDE SOLUTION with ≥ 25% formaldehyde</td>
<td>2209</td>
</tr>
<tr>
<td>FORMALDEHYDE SOLUTION, FLAMMABLE</td>
<td>1198</td>
</tr>
<tr>
<td>HYDROCHLORIC ACID</td>
<td>1789</td>
</tr>
<tr>
<td>HYDROCHLORIC ACID</td>
<td>1789</td>
</tr>
<tr>
<td>INFECTIOUS SUBSTANCE, AFFECTING ANIMALS* only (see part 5 of the approved requirements for packaging)</td>
<td>2900</td>
</tr>
<tr>
<td>INFECTIOUS SUBSTANCES, AFFECTING HUMANS* (see part 5 of the approved requirements for packaging)</td>
<td>2814</td>
</tr>
<tr>
<td>PETROL or MOTOR SPIRIT or GASOLINE</td>
<td>1203</td>
</tr>
</tbody>
</table>

### Key:

| UNNO | United Nations Number |
| CLS | Classification Code |
| SH | Subsidiary Hazard Number |
| U | Updated Entry? (Y=Yes, N=No) |
| EAC | Emergency Action Code |
| HI | Hazard Identification Number |
| SP | Special Provision |
| B | Carriage allowed in Bulk? (Y=Yes, N=No) |
| T | Carriage allowed in Tanks? (Y=Yes, N=No) |
| PG | Packing Group (# = PG not allocated) |

*Technical name required to obtain the designation
SP 144 An aqueous solution containing $\leq 24\%$ alcohol by volume is not considered to be dangerous goods for carriage.

SP 184 These dangerous goods shall be allocated to Packing Group II or III in accordance with the Approved Requirements. The correct Packing Group must be determined in order to obtain the correct entry in the List. Goods not meeting the criteria of Packing Group I, II or III for any hazardous property are not subject to the CDGCPL2 Regulations and are not considered to be dangerous goods for carriage.

SP 185 These dangerous goods shall be allocated to Packing Group I, II or III in accordance with the Approved Requirements. The correct Packing Group must be determined in order to obtain the correct entry in the List. Goods not meeting the criteria of Packing Group I, II or III for any hazardous property are not subject to the CDGCPL2 Regulations and are not considered to be dangerous goods for carriage.

SP 243 Petrol, motor spirit or gasoline shall be assigned to this entry regardless of variations in volatility.
Transport of Dangerous Goods by Road

Consult

Summary in Appendix 2,
Definitions in ACL and ARTM

ACL list, or if
not listed, ARTM

Appendix 3

Identify properties dangerous for transport

Identify packing group

Is quantity per receptacle exempt?

YES
Apply General requirements (Section 2)

NO
Consult regulations and guidance (Section 3)
Packing requirements for diagnostic specimens

1. Diagnostic specimens are any human or animal material including, but not limited to, excreta, secreta, blood and its components, tissue and tissue fluids being transported for diagnostic or investigation purposes, but excluding live infected animals.

2. For the purposes of these provisions, diagnostic specimens are divided into the following groups:

   A) those known or reasonably expected to contain pathogens in risk groups 2, 3 or 4, and those where a relatively low probability exists that pathogens of risk group 4 are present. Such substances shall be classified in class 6.2 under UN numbers 2814 or 2900, as appropriate. Specimens carried for the purpose of initial or confirmatory testing for the presence of pathogens fall within this group;

   B) those where a relatively low probability exists that pathogens of risk groups 2 or 3 are present. Such substances shall be classified in class 6.2 under UN numbers 2814 or 2900, as appropriate. Specimens carried for the purpose of routine screening tests or initial diagnosis for other than the presence of pathogens fall within this group; and

   C) those known not to contain pathogens are not considered as infectious substances (and are therefore not considered hazardous for transport).

   The risk groups 1, 2, 3 and 4 are classified according to their ability to cause infection, the severity of the disease that may result, the risk that infection may spread into the community, and the availability of vaccines and effective treatment. These risk groups are defined in the University of Leicester guidance on Hazardous Biological Agents.

3. Blood which has been collected for the purpose of blood transfusions or for the preparation of blood products, and blood products and any tissues or organs intended for use in transplants are not regarded as dangerous for carriage.

4. Packagings for diagnostic specimens of Group A shall meet all the requirements for infectious substances, this includes using an approved package. (Approved packages can be obtained from some of the normal laboratory suppliers, details can be obtained from the Safety Services Office. It is recommended that a carrier, who is familiar with the transport of infectious material, is used for this group of specimens as the full regulations will need to be followed).

5. Packagings for diagnostic specimens of Group B shall meet all the requirements for infectious substances except when the following conditions are met:

   (a) an inner packaging comprising:

   (i) watertight primary receptacle(s) which do not contain more than 100 ml;

   (ii) a watertight secondary packaging;
(iii) absorbent material in sufficient quantity to absorb the entire contents placed between primary receptacle(s) and the secondary packaging; if several primary receptacles are placed in a single secondary packaging, they shall be individually wrapped to prevent contact between them;

(b) the outer packaging does not contain more than 500 ml;

(c) an outer packaging of adequate strength for its capacity, mass and intended use, and with a minimum external dimension of 100 mm.

(e) Inner packagings containing infectious substances may not be consolidated with inner packagings containing unrelated goods. However, over-packs may contain dry ice.

(f) Other than for exceptional consignments, eg whole organs, which require special packaging, infectious substances shall be packed in accordance with the following:

   (i) LYOPHILIZED SUBSTANCES

   among other suitable receptacles, flame-sealed glass ampoules or rubber-stoppered glass vials fitted with metal seals, may be used for the primary receptacle;

   (ii) LIQUID OR SOLID SUBSTANCES

   (1) for substances consigned at ambient temperature or at a higher temperature, primary receptacles shall be of glass, metal or plastics. Positive means of ensuring a leak-proof seal shall be provided, eg a heat seal, a skirted stopper or a metal crimp seal. If screw caps are used, they shall be reinforced with adhesive tape;

   (2) for substances consigned refrigerated or frozen, ice or dry ice shall be placed around the secondary packaging(s). Interior supports shall be provided to secure secondary packaging(s) in position after the ice or dry ice has dissipated. If ice is used, the outer packaging needs to be leak-proof. If dry ice is used, the outer packaging shall permit the release of carbon dioxide gas. The primary receptacle and the secondary packaging need to be able to maintain their integrity at the temperature of the refrigerant used;

   (3) for substances consigned in liquid nitrogen, plastics primary receptacles capable of withstanding very low temperatures need to be used. The secondary packaging shall also be capable of withstanding very low temperatures, and in most cases will need to be fitted over the primary receptacle individually. The requirements for the consignment of liquid nitrogen shall also be fulfilled. The primary receptacle and the secondary packaging need to be able to maintain their integrity at the temperature of the liquid nitrogen.

   (g) Whatever the intended temperature of the consignment, the primary receptacle or the secondary packaging shall be capable of withstanding without leakage an internal
pressure producing a pressure differential of not less than 95 kPa and temperatures in
the range -40°C to +55°C. (Space should be left when filling the receptacle to allow
for expansion.)

6. If diagnostic specimens are to be sent by the royal mail the following are additional
requirements:

(a) Pathological specimens and biological materials can only be sent if agreed in
advance with the Royal Mail.
(b) They are sent by a recognised medical practitioner or scientific or educational
institution or organisation for research purposes.
(c) Infectious substances must be packaged to packing instruction 602. (This is an
International Air Transport Authority IATA, instruction.)
(d) Non infectious substances should be packed as follows:

- Specimen placed in a securely sealed watertight container not exceeding 50ml.
- Wrapped in enough absorbent material (eg cellulose wadding or cotton wool)
to absorb all possible leakage in the event of damage.
- Sealed in a leak-proof plastic bag (when sending more than one specimen,
separate containers with additional absorbent padding).
- Placed in either a clip down container, cylindrical, light metal container,
strong cardboard box with full depth lid or a two-piece polystyrene box with
empty spaces filled with absorbent material and the two halves firmly fixed
together with adhesive tape.
- Padded bag as outer cover labelled in bold capitals 'PATHOLOGICAL
SPECIMENS - FRAGILE WITH CARE' and sender's name and address so
they can be contacted in the event of damage or leakage.
<table>
<thead>
<tr>
<th>Material:</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Properties:</td>
<td>UN No.</td>
</tr>
<tr>
<td>As defined in: Transport of Dangerous Goods by Road</td>
<td>Classification</td>
</tr>
<tr>
<td></td>
<td>Packing Group</td>
</tr>
</tbody>
</table>

Are the goods in excepted quantities? Yes or are they in an approved package? Yes

If the goods are above the quantity thresholds of the Carriage of Dangerous Goods by Road Regulations, they cannot be carried in University vehicles.

Emergency Information

Information for the driver on what to do in the event of an emergency. What if the goods leak? Under what circumstances are the emergency services called? Note: the driver will not have easy access to facilities normally available in a laboratory, such as hand-washing facilities.

I hereby declare that the contents of this consignment are fully and accurately described above, and are classified, packed, marked and labelled, and are in all respects in proper condition for transport by road in accordance with the University of Leicester guidance on the Transport of Dangerous Goods by Road.

Date of Dispatch ................................................... Signature of Consignor ......................................................