



DR 5

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Inspection of Tanks for the Carriage of Dangerous Goods by Road and Rail

Guidelines for the Appointment of Conformity Assessment Bodies required Under Regulation 29(2) of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004, No 568

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CHANGES SINCE LAST EDITION

No specific changes have been marked as DR5 has been completely revised.

NOTE: Previous editions of DR5 have referred to EN 45004 - General Criteria for the Operation of Various Types of Bodies Performing Inspection. The content of the current editions of EN 45004 and ISO/IEC 17020 are identical. In order to assist in familiarisation with the ISO number the standard is referred to via both numbers throughout this document.

1 INTRODUCTION

- 1.1 This publication contains policy, requirements and guidance applicable to bodies seeking recommendation by the United Kingdom Accreditation Service (UKAS) to the Department for Transport (DfT) as organisations suitable for appointment as DfT 'Appointed Persons' for Tanks under:

The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations SI 2004, No 568 (The Carriage Regulations) and;

RID - Regulations concerning the International Carriage of Dangerous Goods by Rail (Reglement concernant le transport international ferroviaire des marchandises dangereuses) and;

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road (Accord européen relatif au transport international des marchandises dangereuses par route);

to perform the inspection functions of:-

- (i) Verification and certification of the design and/or construction of tanks;

and/or

- (ii) Initial examination and testing of tanks or examination and testing following a repair or modification to the tank shell;

and/or

- (iii) Periodic examination and testing of tanks in accordance with the requirements in regulations or as appropriate RID and ADR Agreements.

This publication replaces DR5, Edition 2, and applies to all tanks built for domestic use on or after 10 May 2004 under the Carriage Regulations and to all tanks for international journeys under RID/ADR. (Notes 1 and 2 refer).

NOTE 1: It does **not** apply to tanks for Class 2 and 3 named substances UN 1051, Class 6.1 STABILISED HYDROGEN CYANIDE UN 1052, Class 8 ANHYDROUS HYDROGEN FLUORIDE UN 1790, Class 8 HYDROFLUORIC ACID with more than 85% hydrofluoric acid, governed by the EC Transportable Pressure Equipment Directive, 99/36 EC and Part 4 of the Carriage Regulations.

NOTE 2 Separate guidance will also be issued on the appointment of inspection bodies to carry out the periodic inspection of tanks constructed before the coming into force of the Carriage Regulations (defined as "old tanks" in these Regulations).

- 1.2 This publication provides background information for assessors and bodies seeking appointment as Appointed Persons undertaking activities in respect of the inspection functions described above and interprets the requirements of ISO 17020/EN 45004 when applied to these functions. ISO 17020/EN 45004 is the authoritative publication, supported by the associated guidance given in EA-5/01.

- 1.3 Applications for assessment should be made to UKAS. Further information on the application process and related information is given in UKAS document P16 - Assessment of Approved and Notified Bodies. Contact details for UKAS and other organisations and document sources are given in Appendix 1.
- 1.4 This publication may also be used in support of UKAS accreditation to perform the above inspection functions.

2 SCOPE OF THIS PUBLICATION (ISO 17020/EN 45004, CLAUSE 1)

- 2.1 For the purposes of this publication “tank” should be interpreted as meeting the definitions given for tank, tank container, demountable tank, tank wagon or road tanker as provided for in the Carriage Regulations (Regulation 2): These in turn make reference to the detailed definitions from RID and ADR. Further information is given in Appendix 2.
- 2.2 This publication specifies the requirements applicable for ‘Appointed Persons’ to carry out the tank inspection functions specified in Regulation 22 of the Carriage Regulations and in Chapters 6.7, 6.8, 6.9 of RID/ADR and in Chapter 6.10 of ADR of tanks that are to carry the goods specified in Regulation 2(b) of the Carriage Regulations. The requirements given in this publication apply equally and without distinction to dangerous goods of Classes 2-9.

3 SCOPE OF ASSESSMENT (ISO 17020/EN 45004, CLAUSE 3.3)

- 3.1 The scope of assessment and, if applicable, subsequent appointment will be determined by the inspection activity, by reference to tank standards and to the classes of goods specified in Regulation 2(b) of the Carriage Regulations and will be limited to those areas in which the organisation seeking appointment has demonstrated its capability.
- 3.2 Appointed Persons may be appointed to carry out one or more of the following so as to provide an effective service for the detection of potential and actual defects in tanks and their fittings/accessories, to report to the user or operator as appropriate the condition of the equipment under examination and to specify any necessary action.
- 3.3 Where appropriate to verify and certify that a tank design:
- (a) conforms with -
 - (i) the construction requirements,
 - (ii) the equipment requirements, and
 - (iii) the conditions peculiar to the dangerous goods to be carried, as have been approved and published in the Carriage Regulations or as appropriate in the RID and ADR Agreements; and

- (b) is suitable for the purpose for which it is intended.
- 3.4 Where appropriate at construction, to verify and certify that the tank:
- (a) has been examined and tested by the Appointed Person in accordance with such requirements as have been approved and published or as appropriate in the RID and ADR Agreements;
 - (b) conforms to an approved design; and
 - (c) is suitable for the purpose for which it is intended.
- 3.5 Where appropriate, following a modification or a repair to the tank shell, verify and certify that the tank:
- (a) has been examined and tested by the Appointed Persons in accordance with such requirements as have been approved and published or as appropriate in the RID and ADR Agreements; and
 - (b) remains suitable for the purpose for which it is intended to be used.
- 3.6 Where appropriate and following the introduction of a tank into service, to verify and certify at the prescribed intervals that the tank:
- (a) has been examined and tested by the Appointed Person in accordance with such requirements as have been approved and published in or as appropriate in the RID and ADR Agreements; and
 - (b) remains suitable for the purpose for which it is intended to be used.
- 3.7 To permanently stamp/mark the tanks in accordance with the relevant requirements.

4 INDEPENDENCE (ISO 17020/EN 45004, CLAUSE 4)

- 4.1 ISO 17020/EN 45004 classifies the independence, impartiality and integrity of an inspection body by reference to the minimum criteria, which are specified in Clause 4 of that standard and the normative Annexes A, B and C of the standard. For the tank inspection activities covered by this publication the following requirements apply.

Activity	Annex
Verification and certification of designs	A or B
Verification and certification at construction	A or B
Verification and certification following modification and repair of the tank shell	A or B
Examination and certification in service	A or B or C

5 PERSONNEL (ISO 17020/EN 45004, CLAUSE 8)

5.1 Supervision

In addition to the requirements specified in ISO 17020/EN 45004 the Appointed Persons shall employ sufficient supervisory personnel knowledgeable in the problems of the specific inspections for which the organisation is appointed. They shall have knowledge of the law, standards, codes of practice, examination and inspection techniques and an understanding of the effects of operation for the tanks concerned.

5.2 Technical Support

The Appointed Person shall also employ, or have permanent defined access to sufficient Chartered Engineer(s), or equivalent, who are trained and experienced in relevant specialist areas.

5.3 Verification and Examination

5.3.1 Qualification categories, level of supervision and constraints on activities are defined in Appendices 3, 4 and 5.

5.3.2 The minimum requirements for individuals carrying out the inspection functions within the scope of this publication are given in Table 1.

Table 1: Minimum requirements for individuals carrying out inspection functions

Qualification category	Design Verification		Verification & certification at new construction	
	Level of supervision	Constraints	Level of supervision	Constraints
1	Occasional	I	Occasional	I
2	Occasional	I	Occasional	I
3	Occasional	II*	Occasional	II
4	Occasional	II*	Occasional	II
5	Not permitted		Not permitted	
6	Not permitted		Not permitted	

Qualification category	Inspection following repair		Examination & certification, In service	
	Level of supervision	Constraints	Level of supervision	Constraints
1	Occasional	I	Occasional	I
2	Occasional	I	Occasional	II
3	Occasional	II	Occasional	III
4	Occasional	II	Frequent	III**
5	Not permitted		Frequent	III**
6	Not permitted		Not permitted	

*Examiners in this category are restricted to those with a minimum of 3 years direct experience of relevant design verification work having authoritative technical support from personnel qualified to Category 1 or 2.

**Examiners in this category are restricted to carrying out routine, repetitive and well defined examinations on specified categories of tanks.

6 EQUIPMENT (ISO 17020/EN 45004, CLAUSE 9)

- 6.1 The Appointed Person shall ensure that all inspections and tests, on which its verifications and examinations are in any way dependent, are carried out by individuals who are competent using appropriate equipment that is properly operated and maintained and which is in a known state of calibration which is traceable to national standards.

NOTE: BS EN ISO 10012:2003 'Measurement management systems - requirements for measurement processes and measuring equipment' may be used as guidance.

- 6.2 It is acceptable that the Appointed Person's verifications and examinations may be in part dependent on facilities, equipment and measurement data made available, under the Appointed Person's supervision, by the tank manufacturer or the tank depot provided that the Appointed Person has assessed such arrangements and retains the responsibility for the determination of conformity.

7 INSPECTION METHODS AND PROCEDURES (ISO 17020/EN 45004, CLAUSE 10)

- 7.1 The procedures used to carry out the inspection functions covered by this document shall detail how the approved person interprets and applies guidance included in any requirements documents such as statutory regulations, standard specifications, codes of practice or guidance notes.

8 RECORDS (ISO 17020/EN 45004, CLAUSE 12)

- 8.1 The Appointed Person shall maintain records that shall be sufficient to permit satisfactory retrospective evaluation of the inspection. The records may be in hard copy form or stored using an electronic system. The records shall be protected against alteration and unauthorised access and security measures shall be implemented with respect to authentication of inspection reports. The system shall enable hard copies to be obtained when necessary.

- 8.2 Records shall be stored for the following minimum periods unless particular contracts specify a longer period:

Records detailing:

Certification of designs	7 years
Certification of construction	7 years
Certification of modifications and repairs to a tank shell	7 years
In-service inspection	Life of certificate

9 REPORTING (ISO 17020/EN 45004, CLAUSE 13)

- 9.1 Where a tank inspection falls within the scope of statutory regulations the reporting requirements of the relevant regulations shall be met and the DfT standard report formats used if applicable. The Appointed Person shall ensure, as far as reasonably practical, that such reports comply with the requirements of ISO 17020/EN 45004.

10 SUBCONTRACTING (ISO 17020/EN 45004, CLAUSE 14)

- 10.1 Where supporting conformity assessment activities such as testing and, exceptionally, inspection activities are subcontracted, Appointed Persons shall take responsibility for and demonstrate that these activities are carried out in accordance with the requirements of the relevant conformity assessment standard in the EN 45000 Series or ISO 17025.

Appointed Persons shall do this by either:

- (a) subcontracting to an organisation which is accredited by a recognised national authority for the scope of work subcontracted;
- (b) subcontracting to an organisation which the Appointed Person has itself formally assessed and accepted as operating in compliance with the requirements of the relevant conformity assessment standard for the scope of work subcontracted.

NOTE: In order to give time for the necessary arrangements to be developed to implement the above, Appointed Persons yet to be appointed (at May 2004) under DR5 requirements may accept relevant subcontracting organisations who hold nationally accredited ISO 9001:2000 certification for the scope of work subcontracted up to end of May 2005.

- 10.2 Where the Appointed Person contracts with individuals for the provision of inspection services these individuals may be treated as staff provided that there is a contract in place requiring that their activities shall be controlled through the approved person's quality system and arrangements for the qualification, supervision, audit and assessment of staff.
- 10.3 Where the Appointed Person contracts with individuals for the provision of NDT services these individuals shall hold relevant up-to-date BS EN 45013 or BS EN ISO/IEC 17024 nationally accredited personnel certification for the scope of work undertaken.
- 10.4 Where the tank manufacturer or tank depot directly subcontracts specialised conformity assessment activities these activities are also within the scope of the approved person's responsibility.

APPENDIX 1: RELEVANT PUBLICATIONS AND SOURCES

Information on the main legislation, international documents, product standards and conformity assessment standards is listed here along with source information. However, this Appendix is non-exhaustive and the documents listed may be subject to change between updates of DR5.

(1) UK National Regulations

Identifier	Title	Source
Statutory Instrument 2004 No 568	The Carriage of Dangerous Goods and Use of Transportable Equipment Regulations 2004	TSO

UK Statutory instruments may also be downloaded from <http://www.legislation.hms.gov.uk/stat.htm>

(2) International Regulations

	Title	ISBN	Source
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail ((Règlement concernant le transport international ferroviaire des marchandises dangereuses) (RID) 2003	0-11-552553-x	UN
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road (Accord européen relatif au transport international des marchandises dangereuses par route) (ADR) 2003	92-1-139078-8	UN

ADR may also be downloaded from <http://www.unece.org/trans/danger/publi/adr/adr2003/ContentsE.html>

(3) Conformity Assessment Standards

ISO/IEC 17020:1998 (EN 45004:1995)
General criteria for the Operation of Various Types of Bodies Performing Inspections

BS EN ISO/IEC 17025:2000
General Requirements for the Competence of Testing and Calibration Laboratories

United Kingdom Accreditation Service, 21-47 High Street, Feltham, Middlesex, TW13 4UN
Website: www.ukas.com Publication requests Tel: 020 8917 8421 (9am – 1pm) Fax: 020 8917 8500

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BS EN ISO/IEC 17024:2000 (EN 45013:1989)

Conformity assessment - General requirements for bodies operating the certification of persons.

Conformity assessment standards may be obtained via <http://bsonline.techindex.co.uk/>

(4) UK Approved Tanks Standards

A maintained list of the current UK tank standards can be downloaded from <http://www.dft.gov.uk/roads/dangerousgoods>

Tank standards may be obtained via <http://bsonline.techindex.co.uk/>

(5) Guidance on the Application of the Conformity Assessment Standards

Guidance on the application of the EN 45000 series and associated conformity assessment standards is published by European Accreditation and may be directly downloaded from <http://www.european-accreditation.org/>

APPENDIX 2: DEFINITIONS FROM THE CARRIAGE OF DANGEROUS GOODS AND USE OF TRANSPORTABLE PRESSURE EQUIPMENT REGULATIONS 2004

DEFINITIONS

“**Demountable tank**” has the meaning in Section 1.2.1 of ADR in relation to carriage by road or of RID in relation to carriage by rail.

“**Portable tank**” has the meaning in:

- (a) Section 1.2.1;
- (b) Sub-section 6.7.2.1 for the purposes of Section 6.7.2;
- (c) Sub-section 6.7.3.1 for the purposes of Section 6.7.3; or
- (d) Sub-section 6.7.4.1 for the purposes of Section 6.7.4, of ADR in relation to carriage by road or of RID in relation to carriage by rail.

“**Tank**” has the meaning in:

- (a) Section 1.2.1; or
- (b) Sub-section 6.7.4.1 when used for the purposes of Section 6.7.4, of ASR in relation to carriage by road or of RID in relation to carriage by rail and in relation to carriage by rail such term includes a demountable tank, tank-container, a tank wagon, a portable tank or fixed tank, including tanks forming elements of battery-wagons or MEGCs.

“**Tank-container**” has the meaning in Section 1.2.1 of ADR in relation to carriage by road or of RID in relation to carriage by rail.

“**Tank-vehicle**” has the meaning in Section 1.2.1 of ADR.

“**Tank wagon**” has the meaning in Section 1.2.1 of RID.

DEFINITIONS FROM 2003 ADR

“**Demountable tank**” means a tank, other than a fixed tank, a portable tank, a tank-container or an element of a battery-vehicle or a MEGC which has a capacity of more than 450 litres, is not designed for the carriage of goods without breakage of load, and normally can only be handled when it is empty;

“**Fixed tank**” means a tank having a capacity of more than 1-000 litres which is permanently attached to a vehicle (which then becomes a tank-vehicle) or is an integral part of the frame of such vehicle;

“**Portable tank**” means a multimodal tank having a capacity of more than 450 litres in accordance with the definitions in Chapter 6.7 or the IMDG code and indicated by a portable tank instruction (T code) in column (10) of Table A of Chapter 3.2;

“**Shell**” means the sheathing containing the substance (including the openings and their closures);

NOTE 1: This definition does not apply to receptacles.

NOTE 2: For portable tanks see Chapter 6.7.

“Tank” means a shell, including its service and structural equipment. When used alone, the term tank means a tank-container, portable tank, demountable tank or fixed tank as defined in the Part, including tanks forming elements of battery-vehicles or MEGCs (see also *“Demountable tank”*, *“Fixed tank”*, *“Portable tank”* and *“Multiple-element gas container”*);

“Tank-container” means an article of transport equipment meeting the definition of a container, and comprising a shell and items of equipment, including the equipment to facilitate movement of the tank-container without significant change of attitude, used for the carriage of gases, liquid, powdery or granular substances and having a capacity of more than 0.45 m³ (450 litres);

“Tank swap body” is considered to be a tank-container;

DEFINITIONS FROM 2003 RID

“Demountable tank” means a *tank* designed to fit the special apparatus of the *wagon* but which can only be removed from it after dismantling their means of attachment;

“Fixed tank” means a *tank* having a capacity of more than 1000 litres which is permanently attached to a *wagon* (which then becomes a *tank-wagon*) or is an integral part of the frame of such a *wagon*;

“Portable tank” means a multimodal *tank* having a capacity of more than 450 litres in accordance with the definition in Chapter 6.7 or the *IMDG Code* and indicated by a tank transport instruction (T-Code) in column 10 of Table A of Chapter 3.2;

“Shell” means the sheathing containing the substance (including the openings and their closures);

NOTE 1: This definition does not apply to receptacles.

NOTE 2: For portable tanks see Chapter 6.7.

“Tank” means a *shell*, including its *service* and *structural equipment*.

“Tank-container” means an article of transport equipment meeting the definition of a *container*, and comprising a *shell* and items of equipment, including the equipment to facilitate movement of the *tank-container* without significant change of attitude, used for the *carriage of gases, liquid, powdery or granular substances* and having a capacity of more than 0.45 m³ (450 litres);

“Tank swap body” is considered to be a *tank-container*.

APPENDIX 3: QUALIFICATION CATEGORIES

For all the following categories the combination of qualifications and experience shall be such that the person carrying out the examination shall be competent to detect those defects, which it is the purpose of the examination to discover. Documented authority shall specify the extent of the duties for which a person is appointed.

Persons in Categories 4*, 5 and 6 shall be required to pass a qualifying test related to the particular inspection activity and this should cover relevant experience and knowledge of the law, codes of practice, and examination and inspection techniques.

**A person in Category 4 who is already an Engineering Technician would probably not need to be so tested.*

Categories of Examiner

Category 1 Chartered Engineer as defined by the Engineering Council (or equivalent) including at least 3 years' experience within an engineering discipline associated with the inspection of tanks.

Category 2 Incorporated Engineer as defined by the Engineering Council (or equivalent) including at least 5 years' experience within a relevant engineering discipline of which at least one year must have been spent working within an engineering discipline associated with the inspection of tanks.

Category 3 Person employed prior to the date of application for appointment in the inspection of tanks with less than Incorporated Engineer qualification but meeting the criteria of Category 4 below.

Category 4** Engineering Technician as defined by the Engineering Council, or trained in a relevant engineering discipline with a recognised and documented engineering apprenticeship, followed by a minimum of 5 years' experience within a relevant discipline of which at least one year must have been spent working within an engineering discipline related to the inspection of tanks.

Category 5** Person employed prior to the date of application for appointment in the inspection of tanks with less than tradesman's apprenticeship but meeting the criteria of Category 6 below.

Category 6 A minimum of 5*** years spent working with or within the industry associated with the inspection of tanks, and has general knowledge of that area and is operating environment. Employees shall have satisfactorily completed recognised training courses with appropriate and documented tests in the inspection of tanks. The minimum age for persons in this Category shall be 21 years.

***Engineering technicians or examiners who have been employed for the examination of unpressurised tanks prior to the date of launch of this scheme on the basis of acceptable experience and performance, may, subject to employer's authorisation and UKAS assessment, continue to be acceptable.*

****For some routine, repetitive, well-monitored activities specified in the service schedule this period may not be necessary.*

Note: Qualification categories will be updated in future to reflect forthcoming changes in the criteria for professional status.

APPENDIX 4: ACCESS TO SUPERVISION

In the supervision levels described below, 'Supervisor' means a technical superior, however named. Direct Contact means on the job contact at the site of operation.

Occasional:

Formal, direct contact to review work with Supervisor at least annually. More frequent direct contact with Supervisor may be necessary. Authoritative technical support from personnel qualified to Category 1 or 2 to be readily available.

Frequent:

Direct contact with Supervisor at least weekly. Authoritative technical support from personnel qualified to Category 1, 2 or 3.

Constant:

Direct daily contact with Supervisor at site of operation. Authoritative technical support from personnel qualified to Category 1, 2, 3 or 4 to be readily available.

APPENDIX 5: CONSTRAINTS ON ACTIVITY (PROHIBITED AREAS)

Constraint I:

Technology outside this field of competence - except by formal, documented consultation.

Constraint II:

As above, plus any non-routine repairs or modifications or changes to operating parameters or non-routine changes of inspection procedures involving considerations or calculations not defined within an appropriate, recognised national or international code or standard - unless with the specific and documented approval of an appropriately qualified person.

Constraint III:

Any activities other than the testing and inspection to identify faults and weaknesses within limits defined by the persons qualified to Category 1 or 2. Any decisions involving limits of acceptability, repairs or modifications shall have the procedural or individual documented authorisation of a person qualified to Category 1 or 2.