

FAAM Compressed Gas Cylinders Road transport Guidelines

Foreword:

These guidelines **ONLY** cover the road transport of **INERT** non-flammable and non-toxic compressed gases (eg Nitrogen, Helium, Air, Oxygen...). In what follows it is also assumed that:

- a) nothing else being transported is being classified as dangerous goods under the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG) and the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR);
- b) the cylinders have their UN number/ID/transport labels on them as they were delivered to FAAM;
- c) the user is not conducting dynamic air sampling experiments requiring a gas supply on the vehicle while on the move;
- d) if it is intended to carry other dangerous goods, the legality of this must be checked with either the FAAM Health & Safety adviser¹ or the NERC Dangerous Goods Safety Adviser².

Background:

The present document was compiled from an email sent by Stuart Heron (NERC Dangerous Goods Safety Adviser) to Gavin Phillips of the Centre for Ecology and Hydrology (Bush Estate, Edinburgh). The publication entitled "Carriage of Gas Cylinders By Road in Cars, Vans and Other Vehicles – Guidance for drivers at work" of the British Compressed Gases Association (BCGA) was also referred to. This BCGA document has not been updated since 1 September 2006; the HSE website is also not providing more up-to-date guidance; eg The Safe Use of Gas Cylinders guidance document is still dated June 2004 (Issue 1). See also references at the end of these guidelines for relevant hyperlinks to the H&S Executive website.

The Guidelines:

1. In order to be exempted from the full requirements of the CDG/ADR Carriage Regulations 2009, the quantity of dangerous goods must be below the threshold quantity as defined in the BCGA document Appendix 1 (pages 6-7).

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2. For non-flammable, non-toxic (ie asphyxiant and/or oxidizing) compressed gases (transport category 3, UN division 2.2/5.1), the limited load (Z) is equivalent to 500 Litres water capacity in cylinders.

3. **What is MANDATORY** under the limited load exemptions scheme:

3.1 A 2kg or larger dry powder extinguisher (class ABC) with an intact pin must be carried. The extinguisher must be readily accessible in the driver compartment, and should carry an inspection label indicating that it has been checked within the last 12 months. The purpose of this extinguisher is to put out an engine or brake fire.

3.2 Cylinders must not be thrown or subject to impact, e.g., by dropping. They must be stowed so they cannot overturn or fall during the journey.

3.3 The main cylinder valves must be shut, and any detachable valve covers fitted. If provided cylinder outlet blanking nuts must be fitted.

3.4 Cylinders can be carried in either vertical or horizontal orientation, but clearly the critical matter is their immobilisation. Cylinders which are sufficiently stable or are carried in suitable racks preventing them from overturning can be placed upright (as in a BOC cylinder transport truck). If the cylinders are to be carried horizontally, then they shall be laid parallel to or at right angles to the longitudinal axis of the vehicle; however, those situated near the forward transverse wall shall be laid at right angles to the said longitudinal axis. Cylinders which are laid flat must be securely and appropriately wedged, attached and secured so that they cannot shift.

3.5 Ideally gas cylinders should be carried in an open or ventilated cargo area. If this is not possible and a closed vehicle is used, the cargo doors must be labelled in letters not less than 25mm high: "**WARNING NO VENTILATION OPEN WITH CAUTION**". The sign would not be required if only compressed air is being carried. The risk assessment for the transport will have shown that the crew carrying section of the vehicle must be isolated from the cargo carrying area if the cargo area is not open/ventilated.

3.6 Should the vehicle catch fire and/or be seriously damaged in an accident, the driver (or delegated person) must inform the fire service and/or police about the quantities and hazards of the dangerous goods being carried. Obviously the cylinders in a fire would be a very serious hazard. Any accidents while loading, or unloading the dangerous goods, or while in transit, must be reported to NERC/FAAM through the normal system (so that the NERC dangerous good adviser can be informed).

3.7 If the vehicle is left unattended, it must be locked.

3.8 The driver and vehicle loader must have had "appropriate training"; the easiest way to do this is to have everyone involved read these guidelines.

3.9 The vehicle must not be labelled with orange plates.

4. **Additional Guidance.**

- 4.1. A sensible precaution, before any journey, is to inform (by phone or preferably email) both the Head of FAAM and the FAAM Health and Safety Adviser that a journey carrying compressed gases is to take place. This is purely so that if there is any incident, they are aware of what is being reported to them.
- 4.2. A Class 2.2 green diamond hazard label/placard (non-flammable, non-toxic compressed gas) must be displayed on the rear of the vehicle. If transporting oxygen cylinders, a Class 5.1 yellow diamond hazard label/placard (oxidizing agent) is also required. These must be removed from the vehicle once the cylinders are unloaded.
- 4.3. A copy of these guidelines must be carried in the vehicle, a list of all carried cylinders detailing their quantity, gas type and purity, UN number and class, transport category, total water capacity, plus a copy of individual gas safety data sheets. This information must be passed on to the emergency services in case of an accident involving the vehicle.
- 4.4. The driver does not have to be an ADR qualified/trained driver for limited loads.
- 4.5. The driver must carry their driver's licence and FAAM/Cranfield/DFL pass ID. If stopped by the police and queried about the vehicle cargo, the overleaf 'To Whom It May Concern' statement should be produced explaining CDG derogation. If required the police should be referred to either the FAAM Health and Safety Adviser, or the Head of FAAM³.

³ At time of writing, Dr. Guy Gratton, +44(0)1234-754411, guat@faam.ac.uk

To Whom It May Concern:

The cylinders in this vehicle are being transported for UK domestic-only journeys by staff from the Facility for Airborne Atmospheric Measurements (FAAM) based in Cranfield.

The total water capacity of the transported non-flammable and non-toxic cylinders (UN division 2.2, transport category 3) is below the 500 Litres threshold limit as stated under the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (CDG) 2009.

This cylinder transportation therefore falls under the Approved Road Derogation No. 2 of Regulation 11(3) of CDG2009. Although the derogation dispenses FAAM of providing transport documentation, a detailed list of cylinders carried on this vehicle is nonetheless being carried in case of emergency.

Signed,



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Authorised for use



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 Head of FAAM
 Date as header

Amendment Record

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1	0	4 Dec 2009	5	Initial issue, Drafted by S. Bauguitte and J. Trembath

Bibliography

“Carriage of Gas Cylinders By Road in Cars, Vans and Other Vehicles – Guidance for drivers at work”, British Compressed Gas Association (BCGA), 1 September 2006, <http://www.bcgga.co.uk/publications/carriage.pdf>

“The Safe Use of Gas Cylinders”, Issue 1, Health & Safety Executive, June 2004, <http://www.hse.gov.uk/cdg/pdf/safusgc.pdf>

“Carriage of Dangerous Goods Manual”, Health & Safety Executive, updated 17/06/2009, <http://www.hse.gov.uk/cdg/manual/index.htm>

“Main exemptions for CDG2009 Regulations”, Health & Safety Executive, updated 19/06/2009, <http://www.hse.gov.uk/cdg/manual/exemptions.htm#lq>