

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 classified as dangerous goods under the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (CDG) 2009 (as amended) 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.

The Guidelines:

1. In order to be exempted from the full requirements of the CDG/ADR Regulations, the quantity of dangerous goods must be below the threshold quantity as defined in ADR 1.1.3.6, and also stated in the British Compressed Gases Association (BCGA) document (pages 3-6) referred to in the Bibliography section at the end of this document.

2. For non-flammable, non-toxic (ie asphyxiant and/or oxidizing) compressed gases (transport category 3, UN Class 2.2 and/or 5.1), the small load is equivalent to 1000 Litres water capacity in cylinders.

3. **What is still MANDATORY** under the small load exemption:

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

¹ At time of writing, Dr Jamie Trembath, 01234 754520, jatr@faam.ac.uk

² At time of writing, Dr Stuart Heron, 07837 896252, siheron@outlook.com

checked within the last 12 months and/or the next due date for inspection. 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 a 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 and the transported gases are asphyxiant.

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 constitute a very serious hazard to anyone nearby. Any accidents while loading or unloading the dangerous goods, or while in transit, must be reported to NERC/FAAM through the Accident, Incident and Near Miss online system on iShare (<https://ishare.apps.nerc.ac.uk/ainm/default.aspx>), so that the NERC Dangerous Goods Safety Adviser can be informed.

3.7 If possible the vehicle should not be left unattended while carrying gas cylinders, but if this is not possible the vehicle must be locked.

3.8 The driver and vehicle loader must have had "appropriate training"; the easiest way to do this is to have vehicle crew involved read these guidelines. Furthermore vehicle crew should have received training in the hazards of gas cylinders, safe handling of gas cylinders and use of fire extinguishers. Such training should be recorded in the FAAM staff training matrix.

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 displayed³ 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 small 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 the CDG derogation. If required the police should be referred to either the FAAM Health and Safety Adviser, or the Head of FAAM⁴.

³ In terms of the Law, it is not compulsory to display the Class 2.2 label/placard, although it is very strongly recommended to do so, and it is perfectly legal to do so while the cylinders are in the vehicle. This requirement is compulsory for FAAM staff.

⁴ At time of writing, Alan Woolley, +44(0)1234 754533, alwo@faam.ac.uk

To Whom It May Concern:

The compressed gas 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 Class 2.2, transport category 3) is below the 1000 Litres small load threshold limit as stated in ADR 1.1.3.6.

This cylinder transportation also falls under the Approved Road Derogation No. 2 (RO-a-UK-2) of Regulation 11(3) of CDG 2009 (as amended). Although the derogation exempts FAAM from requiring dangerous goods transport documentation, a detailed list of cylinders on this vehicle is nonetheless being carried in case of emergency.

Signed,



Alan Woolley
Head of Facility
Facility for Airborne Atmospheric Measurements
01234 754533 / 07733 075562

Authorised for use



A Woolley
 Head of FAAM
 Date as header

Amendment Record

<u>Issue</u>	<u>AL</u>	<u>Date</u>	<u>Pages</u>	<u>Notes</u>
1	0	4 Dec 2009	5	Initial issue, Drafted by S. Bauguitte and J. Trembath
1	1	3 Sep 2012	5	Reviewed & Updated references by S. Bauguitte
1	2	5 Jan 2015	5	Reviewed & Updated references by S. Heron & S. Bauguitte
1	3	25 May 2016	5	Reviewed & Updated references by S. Heron & S. Bauguitte
1	4	26 June 2018	5	Reviewed & Updated by S. Heron (7/12/2017) & S. Bauguitte

Bibliography

“Guidance for the Carriage of Gas Cylinders on Vehicles”, British Compressed Gases Association (BCGA), BCGA Guidance Note GN27, Revision 2: 2017, ISSN 2398 – 936X, downloadable from
http://www.bcgga.co.uk/pages/index.cfm?page_id=112&title=guidance_notes

Carriage of Dangerous Goods Manual Main Exemptions
<http://www.hse.gov.uk/cdg/manual/exemptions.htm>

Summary of key contacts

Dr Jamie Trembath, FAAM Health & Safety adviser, 01234 754520, 07581 176186,
jatr@faam.ac.uk

Dr Stuart Heron, NERC Dangerous Goods Safety Adviser, 07837 896252,
sjheron@outlook.com

Bill Dark, NERC Corporate Health and Safety Advisor, 01793 411596, 07837 896252, bdark@nerc.ac.uk

Alan Woolley, Head of FAAM, 01234 754533, 07733 075562, alwo@faam.ac.uk

Dr Stéphane Bauguitte, Compressed Gases & Cryogenics trained FAAM staff, 01234 754534, 07825 114135, sbau@faam.ac.uk