

# Fire Safety Guidance Note: Oxygen Therapy in the Home

**GN63**

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The London Fire Commissioner (the Commissioner) is the fire and rescue authority for London. The Commissioner is responsible for enforcing the Regulatory Reform (Fire Safety) Order 2005 (as amended) in London.

This Guidance Note provides advice on fire safety for users of home oxygen therapy equipment and their helpers.

This Note is one of a series produced by the Commissioner to provide advice on various aspects of fire safety. If you require any further guidance on the advice given or require advice on another topic please visit your local Fire Safety Office, telephone 020 8555 1200 and ask for the nearest Fire Safety Office, or visit the London Fire Brigade web site at <http://www.london-fire.gov.uk>.

## 1 Introduction

- 1.1 This document has been prepared by the Fire Safety Regulation Department, London Fire Brigade (LFB)..
- 1.2 The purpose of this Guidance Note is to provide information to Housing Providers, Residents Groups, Individual Residents, Relatives and Carers on the risks from and causes of fires involving oxygen therapy equipment. This information should be used to inform and review Fire Risk Assessments and the management of oxygen therapy risk by stakeholders responsible for fire safety in premises including the Responsible Person, premises management groups, relatives, carers and residents.
- 1.3 There are several different kinds of oxygen therapy:
  - Long term oxygen therapy (LTOT) - used to stabilise oxygen levels for 15 hours and more a day
  - Nocturnal oxygen therapy (NOT) - used to improve oxygen levels when you're asleep
  - Ambulatory oxygen therapy (AOT) - used to improve oxygen levels when you're active
  - Palliative oxygen therapy (POT) - used to manage severe breathlessness that doesn't respond to other treatments.
- 1.4 Oxygen therapy can be given in a number of ways including:
  - Nasal prongs placed in the nose with the tubing secured over the ear (nasal cannula)
  - Face mask placed over the nose and mouth
  - Alongside other therapies to help people sleep and breathe
- 1.5 There are a number of hazards associated with oxygen and due regard should be given to these during the use and storage of oxygen equipment. It is assumed that the patients and their attendants have received training in the use of home oxygen therapy equipment and understand the terms and descriptions used in this note. If you are unsure of any of the terms referring to the equipment please contact the installer or your medical adviser.

## 2 Hazards

- 2.1 At standard temperature and pressure, oxygen is a colourless, odourless, and tasteless gas with the molecular formula O<sub>2</sub>. Oxygen can be stored and shipped in smaller cylinders containing compressed gas; a form that is useful in portable medical applications. It should be noted that;

- Oxygen adds enormously to the ferocity of any fire
- Oxygen is stored at high pressure in the cylinders and these cylinders may explode violently if subjected to violent movement or if heated.
- Liquid oxygen exists only at very high pressure, or very low temperature, and in either case can cause injury if it comes in to contact with the skin.
- Oil-based emollients and petroleum jelly, such as Vaseline, can increase risk of fire in the presence of oxygen and shouldn't be used. They can also cause blistering to the lips. Patients should be made aware that only water-based products should be used on the hands and face or inside the nose while using oxygen.

### 3 Safety

- 3.1 Each patient and their attendants should be fully conversant with the use of the oxygen apparatus. Each patient should obtain precise instructions on the use of the oxygen apparatus, details of safety aspects to be adhered to and the emergency telephone number to be used when expert help is urgently required, from the pharmacist supplying the equipment or the manufacturer.
- 3.2 Each patient should obtain precise instructions on the use of the oxygen apparatus, details of safety aspects to be adhered to and the emergency telephone number to be used when expert help is urgently required, from the pharmacist supplying the equipment or the manufacturer. A thorough check of all apparatus should include the servicing of all parts and be made at six monthly intervals.
- 3.3 The patient and the oxygen equipment should be kept well away (at least 2 metres) from any open fire, radiators, any apparatus producing sparks or apparatus producing radiant heat. Whenever possible radiant heaters should be replaced by heaters of the convector type. Smoking should not be allowed in rooms where oxygen is stored or used.
- 3.4 Oil and grease should be kept well away from valves, connections and any other part of the oxygen equipment. Be sure that the hands are kept clean and free of all grease before handling oxygen equipment.
- 3.5 Children and other untrained persons should not be allowed to use or tamper with any part of the apparatus.
- 3.6 Wherever possible a standard compressed gas cylinder sign should be placed on or next to the entrance of the home where the oxygen therapy equipment is stored or used.
- 3.7 Appropriate emergency fire fighting equipment should be provided and occupants instructed in its use. Clear written instructions on the use of the equipment provided should be placed in a prominent position. Equipment should be provided for the material that has the greatest risk of being involved in fire. Guidance Note 8: 'Hand Held Portable Firefighting Equipment' details the various classes of materials and the appropriate extinguishing media which should be provided.
- 3.8 Fire extinguishers should conform to British Standard (BS) EN 3 and be maintained as outlined in BS 5306-3: Fire extinguishing installations and equipment on premises. Commissioning and maintenance of portable fire extinguishers. Code of practice. Schemes for ensuring the conformity with these Standards have been produced by the BS Institution and adopted by British Approvals for Fire Equipment (BAFE) and conforming equipment and services are recognised by that organisation's mark of approval.

## Oxygen Cylinders

- 3.9 All cylinders should be stored with valves closed tightly in an upright position and secured within a properly constructed stand or within a wall retaining device. All empty cylinders should be clearly distinguishable.
- 3.10 All cylinders should be stored externally to the building, but if this is not possible they should be in an area of negligible risk such as a cupboard used only for this purpose and outside the patient's room. This cupboard should be indicated by a compressed gas sign and should not be under the stairs.
- 3.11 Cylinders must not be stored in the same place as flammable liquids, e.g. paraffin, petrol, etc. Nor should flammable materials such as clothing be hung on the cylinders or stored near them.
- 3.12 Any plastic tubing used should be kept well away from flame, electric light bulbs or other sources of heat. Medical personnel or delegated technicians should plan the lay-out of the tubing circuitry within the house in such a way that maximum safety is offered. There should be separate main lines for the lounge and bedroom. The number of junctions in the circuit should be as few as possible unless copper tubing is used. All equipment should be installed by a qualified person.

## Oxygen Concentrator

- 3.13 The electric circuitry at the patient's home should be inspected by a qualified electrician for defects, to avoid electrical hazards and overloading. The wall socket to be used should have an earth pin and the circuit should be properly fused.
- 3.14 Any evidence of electrical malfunction, such as discoloration of the plug, frequent changes of the fuse, or heating of the wall socket, plug or flex, should be rectified immediately by a qualified electrician.
- 3.15 The air intake and exhaust should be kept clear of obstructions and on no account should clothing or other potentially obstructing or flammable material be placed on or near the apparatus.

## Liquid Oxygen

- 3.16 Do not use or store the equipment within 2 metres of any open flame or electrical appliance that might produce sparks. Do not smoke at any time in the same room as the Reservoir Unit. The Reservoir Unit should be anchored to the floor or adjacent wall in such a way that tipping is prevented.
- 3.17 All oil, grease and other flammable material should be kept away from the Reservoir Unit. Under no circumstances must chlorate organic chemicals, any bronze material, any fine metallic dust, flammable liquids such as turpentine substitute, linseed oil, sawdust, coal dust, or any flammable dust material be placed in the same room as the Reservoir Unit.
- 3.18 The equipment should be kept in well-ventilated places. Do not carry the Walker Unit under the coat or other clothing. Do not store the Walker or the Reservoir Unit in a closet, drawer or other tightly enclosed place where oxygen might accumulate. Always be sure that the supply valves are turned off when the equipment is not in use.
- 3.19 The Walker Unit should be handled only by the shoulder strap and should never be lifted by the hose or covers. When not in use it should be kept in a place where it will not be knocked over or dropped to the floor. The patient should be carefully instructed in the filling of their Walker Unit.

- 3.20 The patient and their relatives should be carefully instructed on how to cope with a leakage of liquid oxygen and other potential hazards. Liquid oxygen and the metallic parts of the equipment which show frost on the surface will cause severe frostbite to the skin and may damage the eyes; on no account must the patient or anyone else make direct physical contact with liquid oxygen.

### General

- 3.21 The principles for safety of the person and the equipment should be followed when any oxygen therapy equipment is away from the home.
- 3.22 Motor vehicles that carry oxygen cylinders should have the standard compressed gas warning sign.

## 4 Bibliography

Detailed guidance on the various standards referred to in this guidance note may be obtained from the following bibliography. You can also obtain fire safety advice on other subjects by visiting the London Fire Brigade's website at [www.london-fire.gov.uk](http://www.london-fire.gov.uk).

The publications can be obtained from the following addresses:-

AVAILABLE FROM	TITLE
BSI Customer Services 389 Chiswick High Road London W4 4AL Telephone: 0845 086 9001 Fax: 020 8996 7001 Web: <a href="http://shop.bsigroup.com">http://shop.bsigroup.com</a>	BS EN2: Classification of fires  BS EN3 Portable fire extinguishers  BS 5306-3: Fire extinguishing installations and equipment on premises. Commissioning and maintenance of portable fire extinguishers. Code of practice

The above publications are current at the time of preparation of this Guidance Note (see date in footer).

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