Medical Liquid Oxygen 100%, medicinal gas, cryogenic

Read all of this leaflet carefully before you start using this medicine because it contains important information for you. Keep this leaflet. You may need to read it again. Ask your pharmacist or doctor if you need more information or advice. If you get any side effects, talk to your doctor, pharmacist or nurse. This includes any possible side effects not listed in this leaflet. See section 4.

What is in this leaflet

1 What Medical Liquid Oxygen is and what it is used for

What is Medical Liquid Oxygen?
Medical Liquid Oxygen is supplied and stored as a liquid gas at very low temperatures in a special container. It is converted to Medical Oxygen, a gas for you to breathe in (inhalation gas). Oxygen gas is colourless, odourless and tasteless.

What is Medical Liquid Oxygen used for?
Medical Liquid Oxygen is converted to Medical Oxygen and is used to increase levels of oxygen in the body's tissues. It may be used in the following circumstances:

- at high concentration when there is a reduced amount of oxygen being taken into the body through the lungs due to acute or severe asthma or lung diseases such as pulmonary thrombo-embolism (a blockage of one of the arteries in the lung), pneumonia fibrosing alveolistis (inflammation and scarring of the air sacs of the lungs) and pulmonary oedema (a disease affecting the heart).
- in low concentrations when there are breathing difficulties due to conditions such as chronic obstructive airways disease (COAD/COPD) (a collection of lung diseases caused by damage to the lungs).
- in the treatment of acute and severe asthma, sleep apnoea (a sleep disorder in which a person has irregular breathing at night and is excessively sleepy during the day), cluster headaches (attacks of severe, one sided headaches over several weeks), shock (a dramatic reduction in blood flow that, if left untreated, can lead to collapse, coma and even death) and in other situations where localised blood supply is poor.
- for resuscitation purposes by trained persons, where oxygen supply to the body is reduced due to medical emergency.
- when the oxygen capability of the blood is reduced such as in carbon monoxide poisoning or severe anaemia (a condition which occurs when there is a reduced number of red blood cells or haemoglobin concentration).
- when gas is trapped in body spaces such as in pneumothorax (air that is trapped next to a lung resulting in collapse of the lung) or air embolism or other gas disturbances such as decompression sickness (associated with diving).
- as a carrier gas or as a diluent for anaesthetic gases or vapours.

2 What you need to know before you use Medical Liquid Oxygen

Warnings and precautions
Care is needed in the handling and use of Medical Liquid Oxygen – you must follow your doctor's instructions.

If you have a Chronic Obstructive Pulmonary Disease (COPD) (a collection of lung diseases caused by damage to the lungs) you must follow your doctor's instructions.

Premature/newborn babies
Medical Oxygen for premature or newborn babies should only be used under the direction of a qualified medical person.

Other medicines and Medical Liquid Oxygen
Interactions with other medicines are unlikely when used as directed. However, it is important that you tell your doctor if you are taking, or have recently taken, any other medicine – even those not prescribed. Unless specially advised by your doctor to do so, do not use Medical Liquid Oxygen if:

- you are taking or have recently taken **amiodarone** (used to treat irregular heart beat) or **bleomycin** (given as an injection or drip to treat some types of cancer) or **nitrofurantoin** (an antibiotic used to treat bladder infections).

Cold (cryogenic) burn risks
Contact with the Medical Liquid Oxygen can cause cold burns. Metal parts of the container and the equipment that are used with Medical Liquid Oxygen can become very cold. This will be evident by frost/ice forming on these cold sections. Care should be taken not to touch these cold areas. Unprotected skin can become stuck to very cold metal parts upon contact, which may tear the skin if it is pulled off. Freezing of the skin may cause local pain, or may not cause much pain at all. Frozen skin may have a waxy yellow appearance. When it thaws, this can cause intense pain and may lead to shock.

First aid for cold burns:
Do not attempt to pull frozen skin apart from other items or remove clothing frozen to the skin. If the skin is stuck to metal parts, it may be removed by flushing with large amounts of tepid water (no higher than body temperature). Do not use dry heat, such as a hair drier or electric heater. Loosen any tight clothing that may restrict blood flow. Affected skin can be covered with sterile dressings. Do not rub or massage frozen skin and do not apply any creams or ointments. Seek medical attention as soon as possible for anything but the most minor injuries.

Fire risks:

- do not smoke or allow those near you to smoke during treatment with Medical Liquid Oxygen, smoking during oxygen treatment has caused serious injuries and can prove fatal.
- do not allow naked flames in the area where you are using your Medical Liquid Oxygen, since even the smallest spark can cause violent ignition; electrical equipment capable of sparking (including toys which may produce sparks) must not be used where you are using your Medical Liquid Oxygen.

Medical risks:

- if oxygen is being used for a premature or newborn infant, they must receive a carefully monitored dose of oxygen. Giving too much oxygen can damage their sight.
- if you have a chronic obstructive airway disease you must receive a carefully monitored dose of oxygen.
- although Medical Oxygen is necessary for patients with lung damage due to poisons such as paraquat (a type of weed killer), it may worsen the lung injury; the dose must be monitored carefully.

Taking alcohol and other risks:

- a slowing down in your breathing caused by drinking alcohol may be made worse by the use of Medical Oxygen.
- do not breathe Medical Oxygen at pressures higher than atmospheric pressure.

Pregnancy and breast-feeding

- Medical Oxygen can be used if you are pregnant or breast-feeding, however, ask your doctor for advice before using this medicine.

Driving and using machines
Occasional use of Medical Liquid Oxygen will not affect your ability to drive or use machines. If you use oxygen continuously, your doctor will need to assess your ability to drive or use machines.

3 How to use Medical Liquid Oxygen

Always use this medicine exactly as your doctor has told you. Check with your doctor if you are not sure.

Medical Liquid Oxygen is only given to you after it has been converted to Medical Oxygen gas via inhalation and you will be given a facemask, mouthpiece or nasal cannula (prongs) to use which are connected to a Medical Liquid Oxygen container via a suitable medical device. The device must be operated in the manner described by the manufacturer. The amount of oxygen you will receive is controlled by the type of equipment that you are supplied with and the flow rate. You must use the flow rate prescribed by your doctor and the equipment provided.

If you are using Medical Liquid Oxygen at home, you will be given full training on how to use the equipment supplied.

The flow rate of oxygen used in your treatment will depend on the conditions it is being used to treat. Your doctor will tell you how much oxygen you should use per day and how long your treatment with Medical Liquid Oxygen is likely to last.

Other systems used to administer oxygen include face tents, headboxes, cot hoods, a positive pressure mask or supply to a tracheotomy. These systems will only be used to give you oxygen under the direct supervision of attendant and suitably trained medical personnel.

Preparation for use and precautions
- Medical oxygen can either be supplied directly from the Medical Liquid Oxygen containers or from a portable liquid oxygen unit that has been filled from the Medical Liquid Oxygen container by the user.
- Ensure the correct container has been selected – check that the container contains Medical Liquid Oxygen. (Read the label on the container.)
- Ensure that the gas is within its expiry date (this is specified on a separate batch label on the container).
- Ensure that the connections on the Medical Liquid Oxygen container and the associated equipment are dry and clean.
- If necessary, clean only with plain water. Do not use solvents.
- Use clean, lint free cloths for cleaning and drying off.
- Never use grease, oil or similar substances to lubricate any part of the Medical Liquid Oxygen container or any equipment used with the Medical Liquid Oxygen container.
- Do not use oil based moisturising creams with any equipment used with the Medical Liquid Oxygen container.
- Check that hands are clean and free from oil or grease before handling oxygen equipment.
- If you use alcohol gels, ensure that all alcohol has evaporated before handling Medical Liquid Oxygen equipment.

Use of Medical Liquid Oxygen containers
- Containers must not have any markings obscured or labels removed.
- Always keep the Medical Liquid Oxygen container in an upright position.
- Use the Medical Liquid Oxygen container following the manufacturer's instructions.
- Only use the equipment provided for use with the Medical Liquid Oxygen container.
- Check the level of liquid oxygen in the container.
- Check for leakage.
- If using the Medical Liquid Oxygen container to fill a portable oxygen unit, follow the filling instructions provided for the portable unit.

After use
- Return empty containers to your supplier.
- Any containers that are no longer required should be returned to your supplier.

In the event of a leak
- In the unlikely event of a leak from the Medical Liquid Oxygen container, open windows and doors to ventilate the room and allow the oxygen to disperse.
- Shut off any potential sources of heat such as ovens, heaters etc.
- Stay away from the Medical Liquid Oxygen container.
- Contact the manufacturer immediately on 01352 736 050.

If you use more Medical Liquid Oxygen than you should:
If you may have used more Medical Liquid Oxygen than you should, talk to a doctor or pharmacist as soon as possible. However, it is very unlikely that an overdose will occur.

Using 100% Medical Oxygen continuously for more than a day may produce chest pain and difficulties in breathing. Such a concentration is likely only to be achieved using specialised (hospital) equipment.

Using Medical Oxygen at pressure higher than atmospheric may lead to convulsions. This is only likely to occur in specialised circumstances when using decompression units, high altitude mountaineering or diving.

If you stop using Medical Liquid Oxygen
There are no additional side effects from withdrawal of oxygen.

4 Possible side effects

Like all medicines Medical Liquid Oxygen can have side effects, although not everybody gets them. The toxicity of Medical Oxygen depends upon both the pressure (concentration) of Medical Oxygen that is breathed in and the amount of time that it is used for. The higher the pressure that Medical Oxygen gas is breathed in at, the shorter the time that it can safely be used for.

Side effects may include:
- giving too much oxygen in newborn and premature infants can damage their sight and may be associated with other damage (these conditions have more than one cause and can occur even in the absence of oxygen therapy).
- lung damage from prolonged use of too much oxygen – symptoms include shortness of breath, cough and chest discomfort.
- central nervous system toxicity if Medical Oxygen is breathed in at pressures of twice atmospheric pressure or more as in hyperbaric oxygen therapy. This would normally only occur in specialist hospital treatment. Symptoms could include nausea, mood changes, vertigo, twitching, convulsions and loss of consciousness.

If you notice any side effects not mentioned in this leaflet, please inform your doctor or pharmacist.

Reporting of side effects
If you get any side effects talk to your doctor, pharmacist or nurse. This includes any possible side effects not listed in this leaflet. You can also report side effects directly via the Yellow Card Scheme at: **www.mhra.gov.uk/yellowcard**. By reporting side effects, you can help provide more information on the safety of this medicine.

5 How to store Medical Liquid Oxygen

Check the date given on the batch label attached to the cylinder. Do not use Medical Liquid Oxygen after the expiry date given on the label.

Keep Medical Liquid Oxygen out of the reach and sight of children.

Store your Medical Liquid Oxygen container:
- upright on a level surface so that it cannot fall over.
- securely in a well-ventilated place, under cover and kept clean and dry.
- at temperatures below 50°C and preferably between 10°C and 30°C.
- separately from other medical gases and non-medical gases.
- Do not cover with blankets or fabrics.
- Do not smoke or allow others to smoke near your Medical Liquid Oxygen container.
- Do not store your Medical Liquid Oxygen container near clothing or combustible materials or sources of heat.

6 Contents of the pack and other information

The name of your medicine is **Medical Liquid Oxygen 100%, medicinal gas, cryogenic,** commonly named as Oxygen or medical liquid oxygen or LOX.

The active substance is Oxygen with a minimum purity of 99.5% v/v.

Medical Liquid Oxygen is supplied in special containers of the following sizes: 30 litres, 32 litres and 35 litres. These contain liquid gas at low temperature. Not all pack sizes may be marketed.

Further information on handling and using Medical Liquid Oxygen is available from Medical Gas Solutions.

Marketing Authorisation Holder and Manufacturer:
Medical Gas Solutions Ltd, Unit 19, Manor Industrial Estate, Bagillt, Flintshire, CH6 5UY.

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