

## **Package leaflet: Information for the user**

**Neophyr 225 ppm mol/mol medicinal gas, compressed**  
**Neophyr 450 ppm mol/mol medicinal gas, compressed**  
**Neophyr 1000 ppm mol/mol medicinal gas, compressed**

Nitric oxide

**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.
- If you have any further questions, ask your doctor.
- This medicine has been prescribed for you only. Do not pass it on to others. It may harm them, even if their signs of illness are the same as yours.
- If you get any side effects, talk to your doctor. This includes any possible side effects not listed in this leaflet. See section 4..

### **What is in this leaflet:**

1. What Neophyr is and what it is used for
2. What you need to know before you use Neophyr
3. How to use Neophyr
4. Possible side effects
5. How to store Neophyr
6. Contents of the pack and other information

### **1. What Neophyr is and what it is used for**

Neophyr is a gas mixture for inhalation use.

Neophyr is a medicinal gas, compressed, consisting of a mixture of gases that contains 225 ppm, 450 ppm or 1000 ppm mol/mol of nitric oxide.

#### ***What are its uses?***

Neophyr must be administered exclusively by healthcare professionals and it is only for strict hospital use.

Neophyr is indicated in the following conditions:

- newborn babies with lung failure associated with high blood pressure in the lungs, a condition known as hypoxic respiratory failure. When inhaled, this gas mixture can improve the flow of blood through the lungs, which may help to increase the amount of oxygen that reaches your baby's blood.
- newborn babies, babies, children, teenagers 0-17 years and adults with high blood pressure in the lungs, connected with heart surgery. This gas mixture can improve heart function and increase the flow of blood through the lungs.

### **2. What you need to know before you use Neophyr**

**Do not use Neophyr**

- If you (as the patient) or your child (as the patient) are allergic (hypersensitive) to nitric oxide or any of the other ingredients of this medicine (listed in section 6).
- If you have been told that you (as the patient) or your child (as the patient) have an abnormal circulation within the heart.
- If you (as the patient) or your child (as the patient) have congenital or acquired deficiency of methemoglobin reductase (MetHb reductase) or glucose 6 phosphate dehydrogenase (G6PD).

### **Warnings and precautions**

Talk to your doctor before using Neophyr.

Inhaled nitric oxide may not always be effective and thus other therapies may be considered necessary for you or your child.

Inhaled nitric oxide may influence the oxygen carrying capacity of the blood. This will be monitored by blood samples and if required the dose of inhaled nitric oxide must be reduced.

Nitric oxide may react with oxygen forming nitrogen dioxide that may cause airway irritation. Your or your child's doctor will undertake monitoring of nitrogen dioxide and in case of elevated values the Neophyr therapy will be adjusted, decreased accordingly.

Inhaled nitric oxide may have a mild but influence on the platelets (components that help the blood to clot) of you or your child and any signs of bleeding and or haematoma should be observed. If you see any signs or symptoms that may be associated to bleeding you should directly inform the doctor.

No effect of inhaled nitric has been documented in newborn babies with a malformation where the diaphragm is not fully complete, so called 'congenital diaphragmatic hernia'.

In newborn babies with special malformations of the heart, 'what doctors calls congenital heart defects' inhaled nitric oxide may cause a worsening of the circulation.

Cases of fluid retention in the lungs have been reported with nitric oxide in patients with disease due to a blocked or narrow vein in the lungs. If you (as a patient) or your child (as a patient) develops shortness of breath or difficulty breathing, contact your doctor immediately.

### **Children**

Neophyr should not be used in preterm baby < 34 weeks of gestational age.

### **Other medicines and Neophyr**

The doctor will decide when to treat you or your child with Neophyr and with other medicines, and will carefully supervise the treatment.

Tell your doctor if you (as the patient) or your child (as the patient) are taking, have recently taken or might take any other medicines.

Some medicines can affect the ability of blood to carry oxygen. These include prilocaine (a local anaesthetic used for pain relief in association to minor painful procedures e.g. suturing, and minor surgical or diagnostic procedures) or glyceryl trinitrate (used to treat chest pain). Your doctor will take care to check that the blood can carry enough oxygen when you are taking these medicines.

### **Pregnancy, breast-feeding and fertility**

Neophyr should not be used during pregnancy unless clearly necessary, such as in situations of life support.

Exposure to nitric oxide in humans during lactation should be avoided.

If you are pregnant or breast-feeding, think you may be pregnant or are planning to have a baby, ask your doctor for advice before taking this medicine.

### **3. How to use Neophyr**

Your doctor will decide the correct dose of Neophyr and will administer Neophyr to you or your child's lungs through a system designed for delivering this gas. This delivery system will ensure that the correct amount of nitric oxide is delivered by diluting Neophyr with an oxygen/air mixture immediately before giving it to you.

For you or your child's safety, the delivery systems intended for administration of Neophyr are fitted with devices that constantly measure the amount of nitric oxide, oxygen and nitrogen dioxide (a chemical formed when nitric oxide and oxygen are mixed) being delivered to the lungs.

Your doctor will decide how long you or your child should be treated with Neophyr.

Neophyr is given in dose of 10 to 20 ppm, (maximal dose 20 ppm in children and 40 ppm in adults) parts per million of the gas that you or your child inhale. The lowest effective dose will be sought. Therapy is usually required for about 4 days in newborn infants with lung failure associated with high blood pressure in the lungs. In children and adults with high blood pressure in the lungs, connected with heart surgery, Neophyr is usually given for 24-48 hours. However, therapy with Neophyr may last longer.

#### **If you receive more Neophyr than you should**

Too much of inhaled nitric oxide may influence the oxygen carrying capacity of the blood. This will be monitored by blood samples and if required the Neophyr dose will be decreased and the administration of medicines such as vitamin C, methylene blue, or eventually blood transfusion, in order to improve the oxygen carrying capacity, may be considered.

#### **If you stop receiving Neophyr**

Treatment with Neophyr should not be stopped suddenly. Low blood pressure or a rebound increase in pressure in the lungs has been known to occur if treatment with Neophyr is stopped suddenly without first lowering the dose.

At the end of treatment, the doctor will slowly lower the amount of Neophyr being given to you or your child, so that the circulation in the lungs is able to adjust to oxygen/air without Neophyr. Thus it may take a day or two before you or your child is off Neophyr therapy.

If you have any further questions on the use of this medicine ask your doctor or other healthcare professionals.

### **4. Possible side effects**

Like all medicines, this medicine can cause side effects, although not everybody gets them.

Your doctor will notice and closely monitor any side effects. It is not likely that you will experience these side effects yourself.

Side effects that are very commonly seen (*affects more than 1 user in 10*) in association with Neophyr therapy include:

- Low platelet count, abnormally low potassium concentration in the blood (hypokalemia), low blood pressure, airless or collapsed lung, abnormally high amounts of bile pigment (bilirubin) in the blood.

Side effects that may be seen but the frequency is not known (*frequency cannot be estimated from the available data*) are:

- Rebound high blood pressure in the lungs (increase in pulmonary artery pressure), and too low amount of oxygen in the blood (oxygen desaturation/hypoxemia) due to sudden withdrawal of the treatment, increase in methemoglobin, thus reduced oxygen carrying capacity.
- Accidental ambient air exposure to nitric oxide, e.g. leakage from equipment or cylinder may cause headache.

You should directly inform the personnel if you experience headache while being in close proximity to your child receiving Neophyr.

If any of the side effects become serious, or if you notice any side effects not listed in this leaflet, please tell your doctor.

If you have any further questions on the use of this product ask your doctor or other healthcare professionals.

### **Reporting of side effects**

If you get any side effects, talk to your doctor. This includes any possible side effects not listed in this leaflet. You can also report side effects directly via

HPRA Pharmacovigilance

Earlsfort Terrace

IRL - Dublin 2

Tel: +353 1 6764971

Fax: +353 1 6762517

Website: [www.hpra.ie](http://www.hpra.ie)

e-mail: [medsafety@hpra.ie](mailto:medsafety@hpra.ie)

By reporting side effects you can help provide more information on the safety of this medicine.

## **5. How to store Neophyr**

Keep this medicine out of the sight and reach of children.

Neophyr therapy should only be used and handled by hospital personnel.

- Neophyr cylinders should be stored secured in order to avoid falling and thus potentially causing harm.
- Neophyr should be used and administered only by personnel specially trained in the use and handling of Neophyr.

All regulations concerning handling of pressurised cylinders must be followed.

Storage is supervised by specialists at the hospital. Gas cylinders are to be stored in well-ventilated rooms or in ventilated sheds where they are protected from rain and direct sunlight.

The cylinders must be stored at a temperature between -10 and +50°C.

**Protect the cylinders from shocks, falls, oxidising and flammable materials, moisture, sources of heat or ignition.**

*Storage in the pharmacy department*

The gas cylinders should be kept in a place designated exclusively for medicinal gas storage that is well ventilated, clean and under lock and key. This place should house a separate, special facility for the storage of nitric oxide gas cylinders.

*Storage in medical department*

The cylinder should be placed in an area with appropriate equipment to ensure that the cylinder is held vertically.

When the cylinder is empty, do not dispose of it. Empty cylinders will be collected by the supplier.

Do not use this medicine after the expiry date which is stated on the gas cylinder label. The expiry date refers to the last day of that month.

## **6. Contents of the pack and other information**

### **What Neophyr contains**

- The active substance is nitric oxide 225 ppm mol/mol, 450 ppm mol/mol or 1000 ppm mol/mol
- The other ingredient is nitrogen

### **What Neophyr looks like and contents of the pack**

Gas cylinders with a capacity of 2l (Neophyr 1000 ppm mol/mol).

A 2-liter gas cylinder filled to 150 bar contains about 0.35 kg of gas.

Or

Gas cylinders with a capacity of 10l (Neophyr 225 ppm mol/mol, Neophyr 450 ppm mol/mol, Neophyr 1000 ppm mol/mol).

A 10-liter gas cylinder filled to 150 bar contains about 1.77 kg of gas.

Aluminum alloy cylinders have a white painted body and a turquoise-painted shoulder.

They are equipped with a stainless steel residual pressure valve with a specific ISO 5145 (2004) type outlet connector.

## **Marketing Authorisation Holder and Manufacturer**

### **Marketing Authorisation Holder**

SOL S.p.A.

Via Borgazzi 27

20900 Monza

Italy

### **Manufacturer**

SOL S.p.A.

Via Libertà 247

20900 Monza

Italy

**This medicinal product is authorized in the Member States of the EEA under the following names:**

Austria: Neophyr  
Belgium: Neophyr  
Bulgaria: Neophyr  
Czech Republic: Iasophyr  
Croatia: Neophyr  
Cyprus: Neophyr  
Germany: Neophyr  
Greece: Neophyr  
Hungary: Noxphyr  
Ireland: Neophyr  
Italy: Neophyr  
Luxemburg: Neophyr  
The Netherlands: Neophyr  
Romania: Neophyr  
Slovenia: Neophyr  
Slovakia: Neophyr  
Spain: Neophyr  
United Kingdom: Neophyr

**This leaflet was last revised in**

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The following information is intended for healthcare professionals only.

[Full SPC will be included hereafter].