

# Oxy K plus S

## Oxygen Self-Rescuer

Instructions for Use



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## For Your Safety

### **Strictly follow the Instructions for Use**

Any use of the Oxy K plus S requires full understanding and strict observation of these instructions.

The Oxy K plus S is only to be used for purposes specified here.

### **Maintenance**

We recommend that a service contract be obtained with DrägerService.

Only original Dräger spare parts may be used for maintenance.

Observe chapter "Inspection Intervals".

### **Liability for proper function or damage**

The liability for the proper function of the Oxy K plus S is irrevocably transferred to the owner or operator to the extent that the

Oxy K plus S is serviced or repaired by personnel not employed or authorized by DrägerService or if the Oxy K plus S is used in a manner not conforming to its intended use.

Dräger cannot be held responsible for damage caused by non-compliance with the recommendations given above.

The warranty and liability provisions of the terms of sale and delivery of Dräger are likewise not modified by the recommendations given above.

### **Warranty**

All Dräger Oxy K plus S units do have a 12 month warranty, **(IS THIS FROM DATE OF MFG)** in line with the general Dräger Standard Terms and Conditions.

Dräger Safety AG & Co. KGaA

## Intended Use

The Oxy K plus S is an oxygen self-rescuer which operates independently of the atmosphere in a closed-circuit bi-directional breathing system on the basis of chemically bound oxygen.

**Do not use the Oxy K plus S in the presence of air mixtures containing gases or vapors whose ignition temperature is less than 135 °C (275 °F)!**

## S - Special or critical User´s Instructions

- Approved for respiratory protection during escape from poisoned or oxygen deficient atmospheres, gases and vapors at temperatures above –5 °C (23 °F).
- Use adequate skin protection when worn in gases and vapors that poison by skin absorption (i.e. hydrocyanic acid gases).
- One hour self-contained oxygen generating breathing apparatus for escape only.
- The operating period can be significantly extended depending on the users breathing rate.  
Follow the advice given in these Instructions for Use.

## Service Life

Service Life of the Oxy K plus S is the expected lifetime.

For stored Oxy K plus S in a warehouse the service life time is 10 years. No inspection intervals are required for this period.

Oxy K plus S should be stored under normal conditions as described in "Technical Data" on page 13. For worn and machine/vehicle carried Oxy K plus S, service life is 8+2 years. For this period all inspection intervals as listed in the Instruction for Use have to be maintained. Calculation for service life is based on normal conditions and one shift use (8 hours per day, 5 days per week). Deviation from this might reduce the service life. 90 day inspections using the AMS device will determine when the SCSR (Self Contained Self-rescuer) has to be removed from service.

8+2 years service life means, that after 8 years the customer has to send 2 % (or at least one unit per batch) to Dräger. Specify sending to Germany thru DSI. Dräger will test and evaluate the sample. If the sample test was positive, Dräger will inform the customer that the Dräger production batch is extended for another 2 years. If the sample showed a negative result, Dräger will inform the customer to remove the complete batch out from service.

**Note: Special DOT (Department of Transportation) shipping/transportation requirements for chemical oxygen generators have to be considered.**

**After 10 years the lifetime of Oxy K plus S units is expired in any case.**

**Batch means: A batch is defined as the number of units which came into service within 1(one) calendar year.**

## Carrying Oxy K plus S

Everyday carried on the waistbelt with pouch.

**Other methods are possible, such as**

- transport in a vehicle.

In an emergency

- on the chest.

## Handling

A Training set for the Oxy K plus S is available for regular training of personnel for Handling and Use Procedures.

- The Oxy K plus S should be opened for use only in an emergency. Water vapor from the atmosphere can enter the opened unit, thus, impairing its function.
- Check device daily.
- The Oxy K plus S can be used only once.
- Make sure that no combustible substances (oil, petrol, grease, solvents etc.) can enter the unit before or during use, otherwise there is a risk of fire!

**There is danger of ignition when the device is destroyed and the oxygen-generating chemical gets into contact with combustible substances e.g. coal.**

## Before taking the Oxy K plus S into service

The customer has to mark the Oxy K plus S with the following dates on the metal plate. The metal plate is on the backside of the Oxy K plus S.

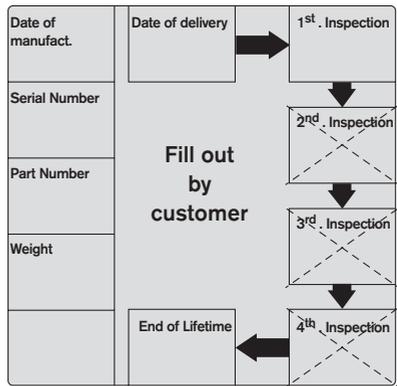
- The use of punch letters is not allowed. Dräger recommends engraving or etching.
- There are two open fields on the metal plate to be filled out by customer (latest 12 months after manufacturing).
- 1<sup>st</sup> field –**date of delivery**– fill in month and year (e.g. 07/00)

### For carried Oxy K plus S

- 2<sup>nd</sup> field –1<sup>st</sup> inspection– fill in date of delivery plus eight years.
- 3<sup>rd</sup> field –**End of Lifetime**– fill in date of delivery plus ten years (e.g. 07/10)

Furthermore you will find on the metal plate the following dates filled in by the manufacturer:

- date of manufacturing
- serial number
- part number
- weight
- designation (What does this mean)



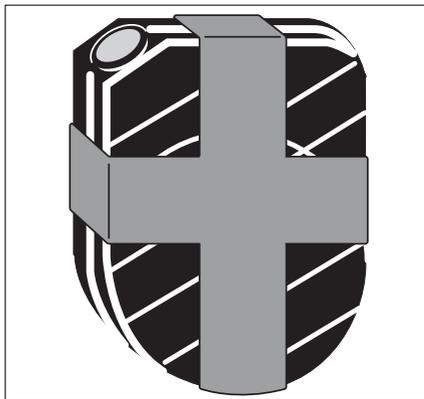
## Donning Procedure

If the Oxy K plus S is not donned correctly, there could be a delay in starting in an emergency.

Perform the following donning steps absolute according the described order.

### Open the pouch

- Open the pouch.



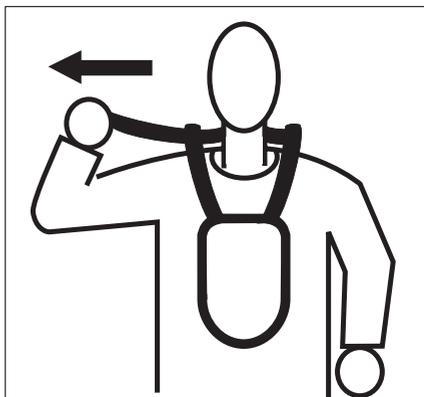
### Open the case

- Take the yellow opener.
- Move the yellow opener away from body til lid removes from canister.
- Remove the lid from unit in straight direction (straight away from body).
- Discard lid



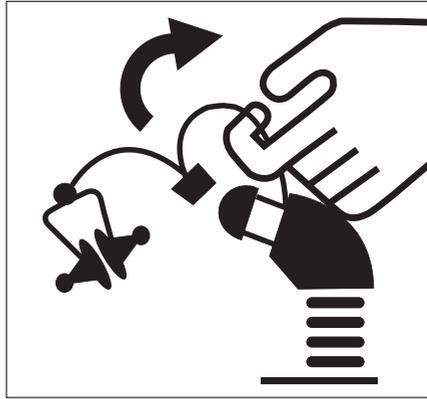
### Position the unit

- Take the neck strap, located inside the unit and adjust it around the neck.
- Pull neck strap (right side) to the end.



## Prepare the mouthpiece

- Take the breathing hose out of the case and bring it to your mouth to activate oxygen production. The breathing bag will be filled within 1 to 2 minutes.
- Do not twist or kink the breathing hose.
- Remove plug from mouthpiece.
- Immediate donning!



## Insert the mouthpiece

- Put mouthpiece in your mouth between teeth and lips.

### Warning!

The mouthpiece is of limited use for persons wearing dentures.

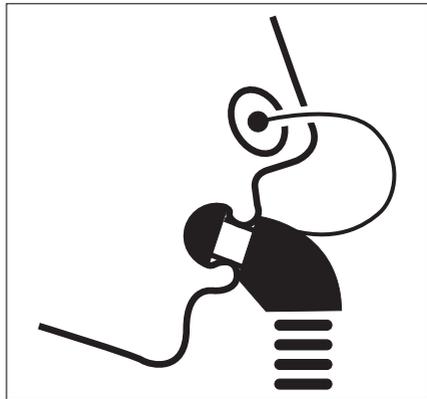
- Seal your lips tightly around the mouthpiece.
- Pull nose clip apart and push over your nostrils so that the nose is completely sealed.
- Support the unfolding of the breathing bag with your hands – if necessary.

### Attention!

If the breathing bag has not inflated, breath out deeply several times to fill the breathing bag with ambient air.

- Breath steadily.
- Put on protective goggles.
- Put on chest strap:
  - take out both parts of chest strap (see “What’s What” on page 11).
  - put around the parts of chest strap behind your body.
  - fasten the strap with a knot.

Dräger suggest to practice this procedure with the training unit.



## **Important Rules for Escaping**

- Begin your escape calmly; do not rush.
- Plan your escape so that you use the shortest route to safety.
- Behave calmly. Hurrying makes you breath more quickly and uses up more oxygen.
- Make sure that the mouthpiece is gripped firmly between the teeth and lips and is completely sealed by the lips.
- If the air from the Oxy K plus S is warm and dry this is a sign that the Oxy K plus S is functioning correctly.  
Any off-taste is quite normal and not dangerous.
- Take care not to damage or squash the breathing bag and so waste life-saving oxygen.
- If you have to vomit, take the mouthpiece out of your mouth but keep it sealed with the thumb. Do not vomit into the Oxy K plus S.

**Do not start to breathe in again until you have put the mouthpiece back into your mouth so that you do not inhale toxic substances from the ambient air.**

## **End of Use**

- When breathing becomes more difficult and the breathing bag begins to deflate, the oxygen supply is coming to an end.
- Any Oxy K plus S used underground must be brought to the surface.

## Disposal

The Oxy K plus S is to be discarded after use.

### Deactivating used unit

- Prevent combustible substances (petrol, grease, solvents etc.) from entering the Oxy K plus S to prevent danger of fire!
- Use protective goggles and gloves.
- Remove starter from the case and discard it according to local regulations.
- Remove KO<sub>2</sub> cartridge from the case.
- Immerse dismantled KO<sub>2</sub> cartridge completely in water, until gas bubbles no longer emerge. Neutralize the resulting solution with a 3 % acid e.g. HCl in a 1:1 ratio.
- All plastic components are identified and can be collected according to their material characteristics for recycling.

### We dispose for you! (price on request)

Please send damaged, opened<sup>1</sup>, used and expired Oxy K plus S in an approved packaging (e.g. Dräger transport packaging – 63 04 511) to the following address:

Dräger Interservices GmbH  
Produktücknahme und Recycling  
Bochstrasse 1  
D-23569 Luebeck  
Germany  
Tel. +49 451 3 97 78 - 15  
Fax +49 451 3 97 78 - 50

or the nearest DrägerService Center.

## Transport

Because this Oxy K plus S contains sodium chlorate (NaClO<sub>3</sub>) hazard regulations apply when it is in transit.

An undamaged and unopened Oxy K plus S can be dispatched either in its original packaging or in another approved packaging (e.g. Dräger transport packaging – 63 04 511).

Please note special regulations for shipping by airfreight.

A damaged and/or opened Oxy K plus S must be sealed in a plastic bag and then dispatched as described above.

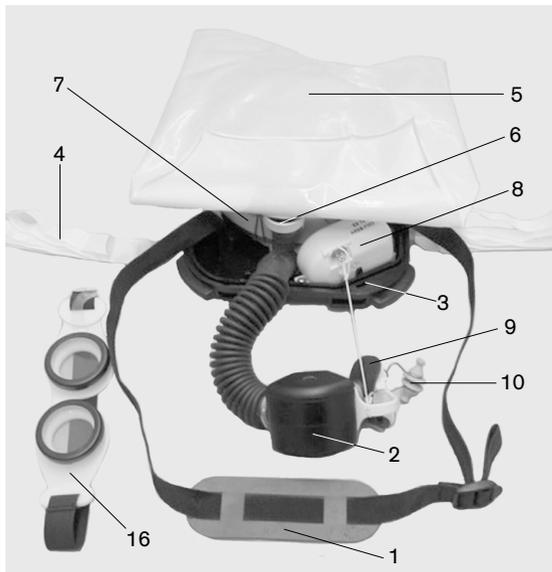
If you have any queries, please contact your nearest DrägerService Center.

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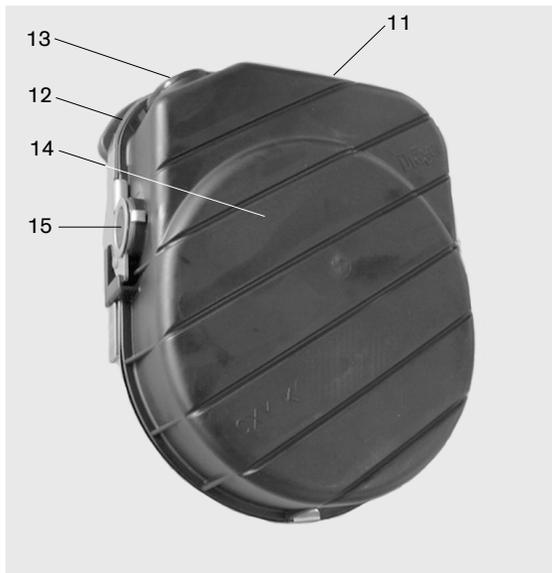
1) Before sending back an opened Oxy K plus S, please pull the starter and seal the unit in an air tight plastic bag.

## What's What

- 1 Neckstrap  
(including neck protection)
- 2 Heat exchanger
- 3 Housing carrying-frame
- 4 Chest strap
- 5 Breathing bag
- 6 Relief valve
- 7 Chemical cartridge
- 8 Starter
- 9 Mouthpiece
- 10 Nose clip
- 16 Goggles



- 11 Closure
- 12 Handle
- 13 Indicator
- 14 Housing-lid
- 15 Seal
- 16 Goggles



## Inspection Intervals

The inspection intervals for the Oxy K plus S depend on the use and storage

- **Storage:**

If the Oxy K plus S is cached in a warehouse, no inspection intervals are required. After ten years Oxy K plus S lifetime is over, and the Oxy K plus S must be disposed.

For Oxy K plus S stored underground ready for use, use the 90 day inspection column (Reference: 30 CFR, Part 75, Section 75.1714).

- **Wearing:**

If the Oxy K plus S is worn the following inspection intervals are relevant (if there is a mixture between cached and worn use of the Oxy K plus S, than the complete inspection intervals should be followed):

	daily	90 day inspection by trained inspector	8 years	10 years
Completeness of Oxy K plus S <sup>1</sup>	X	X		
Lid closed seal undamaged	X	X		
Housing incl. indicator undamaged <sup>2</sup>	X	X		
Deep blue color of indicator <sup>3</sup>	X	X		
Noise test with AMS <sup>4</sup>		X		
Life time extension			X	
End of lifetime				X

1 The Oxy K plus S has to be complete. No parts should be missing such as a clamp, opening mechanism etc.

2 The housing must be airtight. No cracks, dents or other defects deeper than 1.5 mm. The indicator window must not be damaged.

3 Indicator shows deep blue colour – if there is a significant loss of blue colour (50 % of the particles have changed colour from dark blue to light blue or white) the unit has to be taken out of service.

4 See Instructions for Use "AMS".

**Note: Oxy K plus S which change from stored to carried use have to be inspected in line with worn Oxy K plus S inspection intervals.**

- If one of the above mentioned criteria is not in line, the Oxy K plus S has to be taken out of service.
- Oxy K plus S with damaged indicator window can be repaired by DrägerService Center or an authorized Service Center.
- If the Oxy K plus S has experienced unusual conditions (punctures, punch, pressure, rockfall etc.) it has to be checked immediately.

## Technical Data

### Environmental conditions

Storage and transportation temperature (Not in service)	-20 °C to 50 °C (-4 °F to 122 °F) 70 °C (158 °F) for maximum 24 hours
Minimum usage temperature	-5 °C (23 °F)
relative Humidity	up to 100%
Atmospheric pressure	700 to 1300 hPa (20.6 to 38.4 in Hg)

### Temperature category

according to CEN 50 014 T3 max. surface temperature	160 °C (320 °F)
Storage temperature prior to use	-5 °C to 50 °C (23 °F to 122 °F)
Usage period	
with minute volume 10 L/min	180 minutes
with minute volume 30 L/min	60 minutes
with minute volume 90 L/min	15 minutes

### Volume of breathing bag

>6 Liters

### Inhalation/exhalation resistance

with 30 L/min sinusoidal-shaped flow	4 mbar (1.6 in H <sub>2</sub> O)
with 30 L/min sinusoidal-shaped flow at end of usage period	max. 6 mbar (2.4 in H <sub>2</sub> O)

### CO<sub>2</sub> content

in breathing gas	less than 1.5 % by vol.
in breathing gas at end of usage period	max. 2.0 % by vol.

### Breathing-gas temperature

per 42 CFR P 84, Subp.H, Sect. 84.103-Table 4	max. 46 °C (115 °F) (dry breathing gas)
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### Weight

unopened	approx. 3 kg (6.6 lb)
during use	approx. 2.4 kg (5.28 lb)
Dimensions W x H x D	200 x 257 x 105 mm (7.87 x 10.12 x 4.13 in)

### Service life

Carried daily	8 + 2 years (based on 8 hr/day – 5 days/week)
Transported on a machine/vehicle	8 + 2 years (based on 8 hr/day – 5 days/week)
Cached	10 years

## Oxygen Generation

The oxygen required for breathing is supplied by a solid chemical substance, potassium dioxide ( $\text{KO}_2$ ), which reacts with the carbon dioxide ( $\text{CO}_2$ ) and water vapour ( $\text{H}_2\text{O}$ ) in exhaled air. These two components of the exhaled air are absorbed by the  $\text{KO}_2$  to release the chemically-bound oxygen ( $\text{O}_2$ ) in  $\text{KO}_2$ . The simplified reaction formulas are as follows:



$\text{KO}_2$  is both  $\text{O}_2$  source and  $\text{CO}_2$  absorber at the same time. Alternating between inhalation and exhalation, the breathing air flows from the breathing bag through the  $\text{KO}_2$  cartridge to the heat exchanger and the back again. A volume-controlled valve controls the volume in the breathing bag.

## Order List

Designation and Description	Order No.
<b>Oxy K plus S</b>	63 02 000
<b>Accessories</b>	
Pouch	on request
Sticker for individual labeling (set of 20 pieces)	63 03 611
Reflektor sticker (set of 5 pieces)	63 03 613
<b>Training accessories</b>	
Training unit Oxy K plus S	63 02 001
Training poster	on request
Training video	on request
Training documents (set of overhead foiles)	on request
CD Rom Oxy Self-Rescuer	90 44 210



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Subject to alteration

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