AIRCHECK

BREATHING AIR PURITY TEST KIT

OPERATING INSTRUCTIONS

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EURO-GAS
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AIRCHECK OPERATING MANUAL

By carefully following these instructions, the AIRCHECK with KITAGAWA gas detection tubes will enable you to accurately measure the concentration of impurities in compressed air. Please read carefully and follow the instructions in detail.

Please note: KITAGAWA compressed air detector tubes are supplied with a set of operating instructions which are **not** applicable to the AIRCHECK. The KITAGAWA instructions are for use with the P-41R compressed air test kit. Please contact Euro-Gas for information on the P-41R test kit if preferred.

The AIRCHECK system comprises the following components:

1.2 YOKE ADAPTOR

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OPERATING PROCEDURE

1. Ensure that the flow selector control (1.1) is in the OFF position.

2. Connect the AIRCHECK regulator assembly to the cylinder of air to be tested. This is designed for "DIN" valves. For use with international valves, screw the international adapter supplied to convert the regulator to suit.

3. Now open the cylinder valve and ensure that there is a minimum pressure of 50 bar registering on the contents gauge (1.3). At no time during the test should the pressure be allowed to fall below 4 bar.

4. Open the flow selector to the PURGE (P) position as shown in the test window (1.5) and allow to flow for a minimum time of 30 seconds. *It is important to note that you must purge for 20 seconds between each tube type to ensure any remaining contents are removed from the previous test.*

5. Select the appropriate KITAGAWA gas tube and break off the ends using the tip breaker provided (2.3).

6. Now insert the tube into the clamping collet (1.4) to its full depth. This should fit in firmly and you may have to loosen or tighten the collet to suit the tube you are using. You must ensure that the arrow on the tube is facing away from the collet in the direction of air flow and that the tube is suspended in a downward position as shown in the picture overleaf.

7. Set the timer alarm for the appropriate test. See notes on Operating Conditions shown on the next page.

   Setting the Alarm
   a. Set the time by pressing the minute button to the desired time.
   b. To start timing, press the "start/reset" once. Display will stop flashing.
   c. To stop alarm signal, press "start/reset" once. Display will now show 0:00 flashing and will automatically switch off after 1 minute.

8. Start the alarm timer and, at the same time, turn the flow selector (1.1) to the required test selector as shown in the selector window (1.5):

- P = PURGE
- H_2O = WATER
- OIL = OIL
- CO/CO_2 = Carbon Monoxide / Carbon Dioxide

9. At the end of the sampling period, turn the flow selector to the OFF position and remove the KITAGAWA tube from the collet.

10. If a colour change has taken place, read the concentration of impurity directly from the tube scale at the end of the colour stain.

REGULATOR SERVICE/EXCHANGE

Please note: it is recommended that the regulator is returned to your supplier for service/exchange by the date indicated by the spanner logo on the attached service label.

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WHAT IS OXYGEN COMPATIBLE AIR ?

The current *Healthy & Safety Executive's* standards for sport divers' breathing air are BS 4001 and BS 4275. However, BS 4275 has now been superseded by BS EN 12021, which is generally taken as the accepted standard as this is to a higher specification.These are the standards covering the use of compressed air (21% Oxygen). The various contaminant types and their respective limits that affect divers/operators are listed below:

Water Vapour	Better than 50mg/m^3 with no significant taste or odour
Oil Mist	0.5mg/m^3
Gaseous Hydrocarbons	Not specified under this standard
	American standards quote 25 PPM
	U.K. Specification for 100% Oxygen is 15 PPM
Carbon Monoxide	5 PPM/ 0.5mg/m^3
Carbon Dioxide	500ml/m^3

These limits can only be achieved and maintained by careful and regular compressor maintenance plus regular air purity testing and analysis.

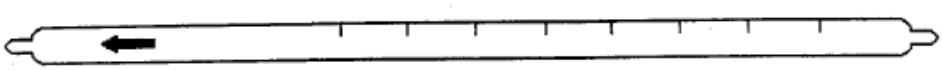
It must be understood that the above information is quoted from the current standards for air and gas mixes. The more Oxygen used will require even more cleanliness. Where compressed air comes into contact with 100% Oxygen it is recommended that the following specification is applied as a minimum requirement. This is a practical specification based on experience and BRITISH OXYGEN COMPANY standards for 100% Oxygen. *It is not a specification*.

Oxygen Compatible Air Standard:

Water Vapour:	Better than 150mg/m^3
Oil Mist:	Less than 0.1mg/m^3
Gaseous Hydrocarbons:	15 PPM
Carbon Monoxide:	2 PPM
Carbon Dioxide:	500 PPM

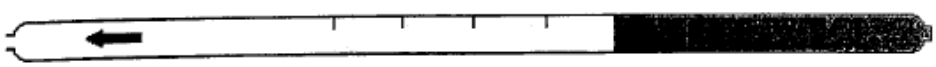
All other impurities should meet BS 4275.

2.1 Gas Detector Tube



Gas

Detector Tube with colour stain



2.3 Tip Breaker

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OPERATING CONDITIONS

Test Duration Times:

Tube type:	KITAGAWA No:	Sample Time:
CARBON MONOXIDE	600 SP	2 MIN.
CARBON DIOXIDE	601 SP	2 MIN.
OIL MIST	602 SP	25 MIN.
WATER VAPOUR	603 SPA	1 MIN.

Test Result Criteria:

The current *Health & Safety Executive* Standards for breathing air used by sport divers are BS 4275 and BS 4001. Generally it is accepted that BS 4275 is the most relevant. However, various standards currently being used are detailed below:

For user comfort, breathing air for divers should be free of odour (smell). It is considered that air having a total oil content, mist and vapour below 0.3 mg/m^3 is odour free.

	BS EN 12021	BS 4001 PT 1	BS 4001 PT 2	DIN 3188	JTM BS 4667	KOMYO TUBE: RANGE & PART NO.
CO	5 PPM 1.5 ML/M^3	10 PPM 11 MG/M^3	10 PPM 11 MG/M^3	30 PPM	5 PPM	5 – 100 PPM **600 SP**
CO_2	500 PPM 500 ML/M^3	500 PPM 900 MG/M^3	500 PPM 900 MG/M^3	1000 PPM	500 PPM	100 – 3000 PPM **601 SP**
OIL	0.5 MG/M^3	1.0 MG/M^3	1.0 MG/M^3	TASTELESS & ODOURLESS OIL WILL BE BELOW 0.3 MG/M^3	0.5 MG/M^3	0.3 – 5.0 MG/M^3 **602 SP**
WATER	SEE NOTE BELOW	500 MG/M^3 IF RISK OF FREEZING, AIR SHOULD BE DRIED	DRY AS POSSIBLE, NO CONDENSATION AT MAX W.P. & AT 40 °C	50 MG/M^3 AT 200 BAR 35 MG/M^3 AT 300 BAR	DEW POINT MINUS 50C 38 MG/M^3	20 – 160 MG/M^3 **603 SPA**
HUMIDITY	NOT TO EXCEED 80% RH (10880 – 19550 MG/M^3)					
TEMP.	15 – 25 °C	15 – 25 °C	15 – 25 °C			
ODOUR	ODOURLESS & TASTELESS	ODOURLESS	ODOURLESS	ODOURLESS & TASTELESS		
CLEANLINESS	NO DUST, NO DIRT, NO METALLIC PARTICLES, NO TOXIC OR IRRITATING INGREDIENTS					

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OPERATING CONDITIONS (Cont.)

There are several considerations with regard to **water** content. Exposure to very low humidity levels is not recommended and is even considered to be hazardous. Also **high** levels could lead to regulators freezing up in very low temperature situations and the risk of corrosion in steel cylinders.

Taking all the relevant factors into consideration, it is considered that water levels should be kept below the following:

50mg/m^3 at 200 Bar
35mg/m^3 at 300 Bar

These amounts should ensure there is no free water.

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AIRCHECK TEST RECORD

It is strongly recommended that the air purity should be checked on a monthly basis or at any time when there are symptoms of increased oil consumption or a change in water discharge from the filter system.

Date	Carbon Monoxide (CO)	Carbon Dioxide (CO_2)	Oil Mist	Water Vapour (H_2O)

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