

# BRIGON-CO<sub>2</sub>-INDICATOR TESTORYT

0 – 20%

for measuring CO<sub>2</sub> in flue gases

## Testing Device TESTORYT 20

Range: 0 to 20%

Scale Division: 0.5%

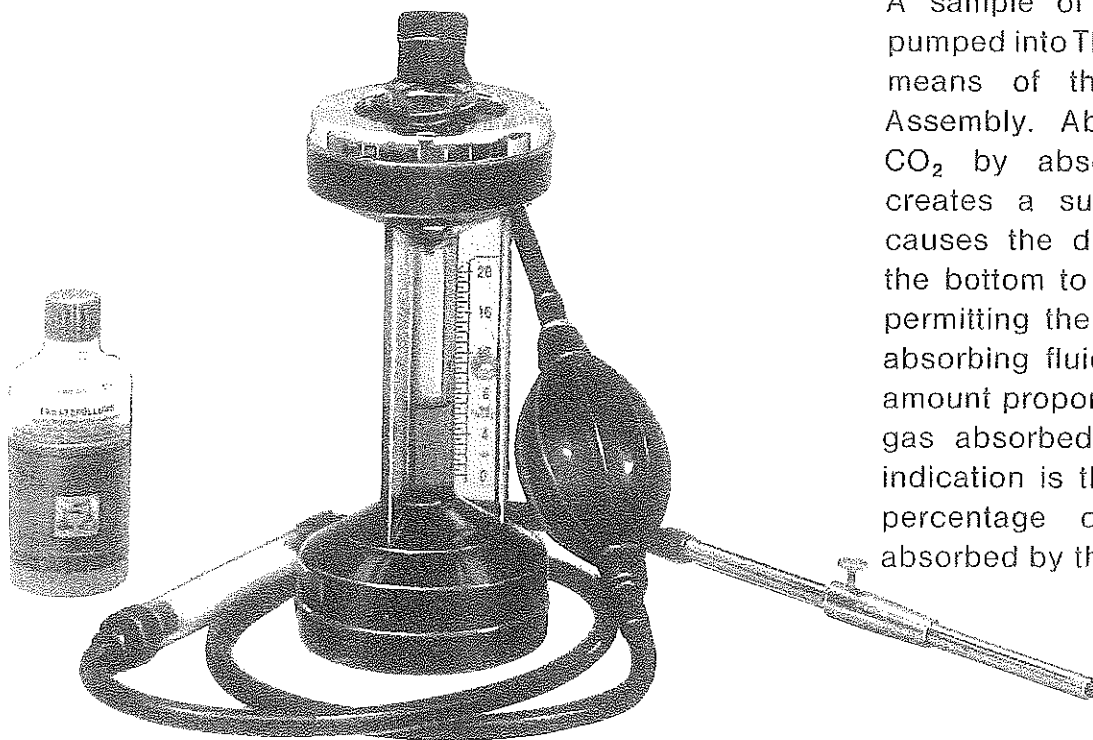
Accuracy:  $\pm 0.5\%$

Features: red protective rings, red scale, red absorbing fluid, green base

BRIGON-CO<sub>2</sub>-Indicator TESTORYT with Aspirator Assembly and Fluid

### Principle of Operation

A sample of flue gas is pumped into TESTORYT by means of the Aspirator Assembly. Absorption of CO<sub>2</sub> by absorbing fluid creates a suction which causes the diaphragm at the bottom to flex upward permitting the level of the absorbing fluid to rise an amount proportional to the gas absorbed. The scale indication is then read as percentage of the gas absorbed by the fluid.



### Measurement

Before each measuring process invert TESTORYT once. Hold TESTORYT on sloping position to drain fluid through center tube into top reservoir. Turn TESTORYT in upright position. Hold TESTORYT at slight angle to allow fluid to drain back into bottom reservoir. Depress Plunger Valve several times and release to vent TESTORYT. Adjust zero point on Scale so that it corresponds to level of fluid. Secure Scale with lock nut. To ensure greatest degree of accuracy when adjusting zero point and when reading off CO<sub>2</sub>-content, always use same point of dish-shaped fluid surface.

Insert metal tube of Aspirator Assembly into smoke outlet into main current of flue gas at least 15 to 20 cm (6 to 8 inches) away from any draft regulator that may be fitted. Avoid secondary air by using a cone.

Place Rubber Connector Tip of Aspirator Assembly over Plunger Valve on top of TESTORYT. Depress Plunger Valve firmly in order to seal off the gas sample which is pumped by the Aspirator in top reservoir while center bore is sealed off.

By squeezing and releasing aspirator bulb 18 times the sample is pumped into top reservoir of TESTORYT. After 18<sup>th</sup> bulb squeeze i.e. with the bulb held deflated, quickly remove Rubber Connector Tip from Valve, then release Rubber Bulb.

By inverting TESTORYT the gas sample locked in TESTORYT is absorbed by the absorbing fluid. Then turn upright to drain fluid into bottom reservoir. Repeat this step twice. Inverting should be done by momentarily holding TESTORYT at 45° angle. All testing fluid should be allowed to drain through TESTORYT each time TESTORYT is turned.

Place TESTORYT in upright position. Immediately after fluid has stabilized and fluid droplets have drained into bottom reservoir read % CO<sub>2</sub> of flue gas on Scale at point corresponding to top of fluid column.

TESTORYT gas sample analysis is completed. Hold TESTORYT upright and depress Plunger Valve to vent TESTORYT for next analysis and release.

### **TESTORYT Absorbing Fluid**

BRIGON-CO<sub>2</sub>-Indicator TESTORYT is supplied filled with testing fluid. Absorbing fluid inside TESTORYT has a shelf-life of about one year. Absorbing fluid in use inside TESTORYT is to be replaced from time to time to ensure greatest degree of accuracy. Fresh TESTORYT Fluid will absorb all CO<sub>2</sub> from approximately 300 samples containing 12% CO<sub>2</sub>. TESTORYT Fluid in original refill bottles may be stored for several years due to the sealing of the bottle.

### **Replacing TESTORYT Absorbing Fluid**

Remove the four screws, the metal cover ring, the seals and the entire valve assembly. Drain old fluid from TESTORYT and rinse all parts in clean lukewarm water. Pour contents of refill bottle into TESTORYT until fluid extends about 8 mm (1/4") into the bore of Center Tube. Reinstall all removed parts, draw the four screws down with light screwdriver force. When reassembling TESTORYT, make sure all seals are dry and fit perfectly. Vent TESTORYT and set scale to zero as described before.

### **Safety Precautions**

TESTORYT Absorbing Fluid is corrosive to skin, clothing and some metals. Make sure to take all safety precautions!

Keep out of children's reach! Keep refill bottles tightly closed. Do not eat, drink or smoke while working. Avoid bringing fluid and acids together. Keep fluid away from metals and metallic salts. Avoid contact with skin, eyes and clothing. In the event of a spill or accidental body contact with TESTORYT-CO<sub>2</sub>-Fluid pay careful attention to the following.

External — flood with water and remove contaminated clothing.

Internal — administer or drink plenty of water.

Eyes — flood with plenty of water for at least 15 minutes.

In case of accident call physician immediately and show him these instructions or the refill bottle.

### **Aspirator Assembly**

It is important that Aspirator Assembly is air-tight and that air or gas is pumped only from Metal Sampling Tube to Rubber Connector Tip. Defective Valves or a leaking Aspirator will result in sample loss, with resultant loss of accuracy.

1. Check green Outlet Valve by sealing Metal Sampling Tube with finger, squeezing Aspirator Bulb and release again. Aspirator Bulb should remain deflated.
2. Check red Inlet Valve by sealing hole in center of Rubber Connector Tip with finger. When now squeezing Aspirator Bulb, Bulb should remain firm.
3. Filter Wool must be replaced when dirty or clogged. Use only BRIGON-Filter Wool as replacement.
4. BRIGON-CO<sub>2</sub>-Indicator TESTORYT and BRIGON-O<sub>2</sub>-Indicator TESTORYT are calibrated to analyze gases which are saturated with moisture. Unsaturated gas samples will cause TESTORYT to indicate slightly lower than actual gas concentration.

If unsaturated gas is to be analysed or if compressed gas standards are used to check TESTORYT accuracy, be sure to saturate Filter Wool in Aspirator Assembly or to pump the dry gas over water.

### **Maintenance**

BRIGON-CO<sub>2</sub>-Indicator needs no special maintenance but make sure to observe all instructions outlined in the paragraphs before. To extend life of Diaphragm keep TESTORYT in horizontal position when not using.

### **Additional Application Information**

TESTORYT-CO<sub>2</sub>-Indicators are available in three scale ranges. All instruments are similar in size and appearance, but are specified for different use and differ in important construction details.

BRIGON-CO<sub>2</sub>-Indicator TESTORYT with range 0-60% is specified for checking CO<sub>2</sub> in sewage plant digesters and other places where higher CO<sub>2</sub> percentage is required.

BRIGON-CO<sub>2</sub>-Indicator TESTORYT with range 0-10% is specified for measuring CO<sub>2</sub> at gas fired equipment with natural draft. Specific informations for this TESTORYT 10 are available from the manufacturer or supplier.