

**CO₂ FYRITE OPERATION
(RED FLUID)**

1. Hold FYRITE upright (Fig. 2) and away from face. Depress Plunger Valve (momentarily) to vent FYRITE, and release.
2. Invert FYRITE (Fig. 3) Hold at slight angle to drain fluid into top reservoir.

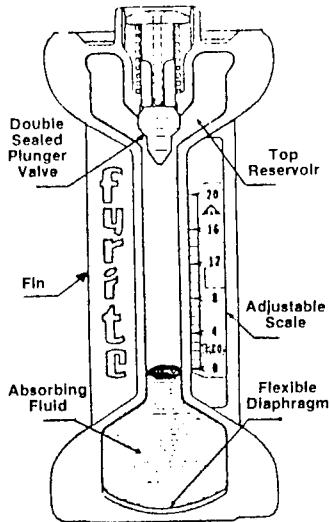


Figure 1

3. Turn upright. Hold FYRITE at 45° angle (Fig. 4) momentarily to allow fluid droplet drainage into bottom reservoir.

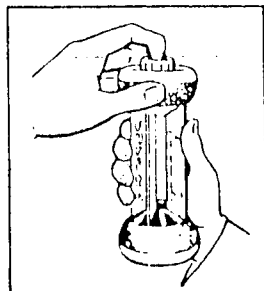


Figure 2

4. Hold FYRITE in upright (Fig. 2) position and away from face. Depress Plunger Valve (momentarily), and release.

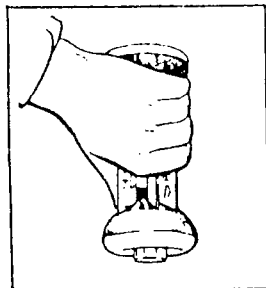


Figure 3

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5. Holding FYRITE upright (Fig. 5) loosen locknut at rear of scale. Slide scale until top of fluid column lines up with zero on scale. (Fig. 5A). Tighten scale locknut.

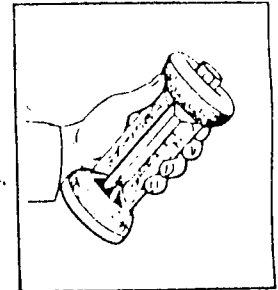


Figure 4

NOTE: WHEN SETTING SCALE ZERO, HOLD FYRITE VERTICALLY AS SHOWN AND LEVEL WITH EYES WHILE SIGHTING ACROSS SCALE TO TOP OF FLUID COLUMN.

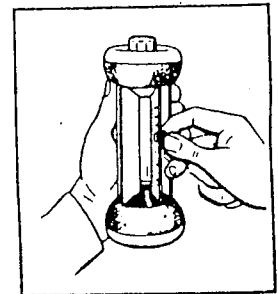


Figure 5

6. To pump gas sample into FYRITE (Fig. 6), insert open end of metal sampling tube into area bearing gas for analysis. Hold FYRITE in upright position and place sampling assembly rubber connector tip over the Plunger Valve.

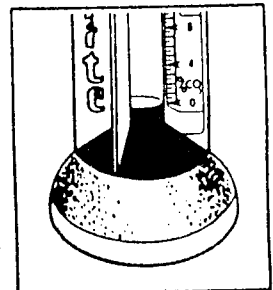


Figure 5A

Depress Plunger Valve firmly with connector tip.

Pump sample by squeezing and releasing aspirator bulb 18 times. during 18th bulb squeeze (with bulb held deflated) release connector tip and Plunger Valve.

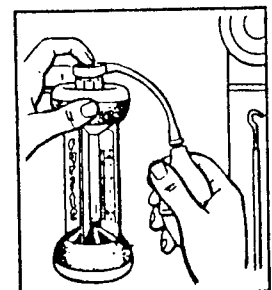


Figure 6

10. This step completes CO₂ or O₂ FYRITE gas sample analysis. A few points to remember when reading the FYRITE.

- (a) FYRITE accuracy is within +1/2% CO₂ or O₂ compared to actual value.
- (b) Always handle FYRITE by the fins to ensure body heat is not absorbed by the fluid.
- (c) A delay in reading of 5 or 10 seconds may decrease accuracy of reading slightly but longer delays may cause substantial error.
- (d) The FYRITE is calibrated to indicate on a "dry" basis for flue gas samples which are normally fully saturated with moisture. Failure to artificially moisten wool packing in Filter Saturator Tube when actual sample is not fully saturated will cause FYRITE to read slightly low.

Therefore make certain wool packing in Filter Saturator Tube is sufficiently moistened with water for accurate results on non-flue gases. Avoid excessive moisture which can be drawn into the Aspirator Bulb and forced into the FYRITE during sampling.

- (e) **CAUTION: Never depress plunger valve to vent Fyrite in the inverted position. This will cause fluid spill which is corrosive and contains poisonous elements. In the event of a spill, read instructions in Section 2.2 Fyrite fluid handling precautions.**

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7. Absorb sample gas into FYRITE by *Inverting* until fluid drains into top reservoir (Fig. 7), then turn upright (Fig.8) to drain fluid into bottom reservoir. Repeat this step once.

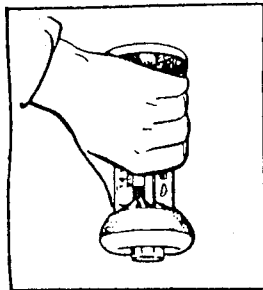


Figure 7

8. Hold FYRITE at 45° angle (Fig. 9) momentarily to allow fluid droplets to drain into bottom reservoir.

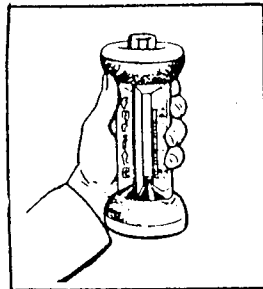


Figure 8

9. With FYRITE held upright (Fig. 10), permit fluid in column to stabilize a few seconds, then immediately read % carbon dioxide on scale at point corresponding to top of fluid column.

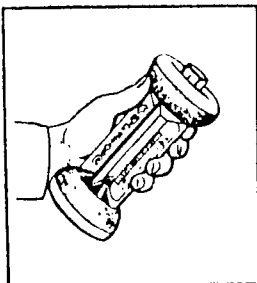


Figure 9

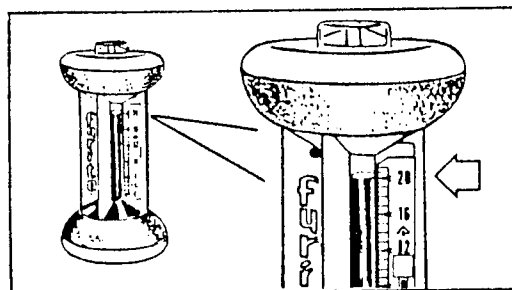


Figure 10

3.1 Determining CO₂ and O₂ FYRITE Fluid Strength

FYRITE Fluid strength can be conveniently checked immediately after the first sample reading.

Without venting, repeat the absorbing operations (Steps 7 through 9) by inverting FYRITE again and positioning upright until all fluid drains to the bottom reservoir. Observe scale reading. An increase of more than 1/2% CO₂ or O₂ in second reading as compared to the first indicates a need for fluid replacement.

3.2 Operating Precautions to Ensure Maximum Accuracy when Reading FYRITE

Locate top of fluid column (refer to Fig. 11).

The surface at the top of the fluid column in the small, center bore will be dish-shaped as shown in Fig. 11. Either the high or low point of this dish-shaped surface may be used to locate top of fluid column providing the same point is always used both for setting scale zero and reading percent CO₂ or O₂. Obviously, using high point for one operation and low point for the other will cause error.

Best practice is to use high point of this fluid surface just at the small center bore wall. In setting scale zero or reading percent CO₂ or O₂, hold FYRITE vertically and level with eyes and sight across scale to top of fluid column.

3.2.1 Draining Fluid Droplets

For maximum accuracy, it is important to form the habit of following a standard procedure in this operation and to use the same procedure both before adjusting scale zero and before reading percent CO₂ or O₂.