

# MSA Multi Chemical Warfare Agent Tube Sampler Kit

## ⚠ WARNING

**NEVER** use the results of this kit as the only evidence of the presence or absence of a particular contaminant. **ALWAYS** use it in conjunction with other tests or information to confirm the identity of an unknown atmosphere. Failure to follow this warning can cause agent exposure, resulting in serious personal injury or death.

The Chemical Warfare Agent Kit (P/N 10050705) is supplied with the MSA Escort ELF<sup>®</sup> Pump including:

- Battery Charger
- Dual Sampler Fixed Flow
- necessary tubing and connectors.

The Dual Sampler Fixed Flow assembly is:

- capable of sampling from one to four tubes simultaneously.
- factory-set for the proper flow required for CWA Tube sampling; no adjustments are required.

## ⚠ WARNING

**Do NOT** make adjustments to the Dual Flow Fixed Flow Assembly. Adjusting the flow could cause improper sample collection and inaccurate results.

This Detector Tube Kit for Chemical Warfare Agents (P/N 10049765) is approved for use only with the following Chemical Warfare Tubes:

- Blister (Lewisite) (P/N 10007650)
- Blood and Choking (CG,DP,AC,CK) (P/N 10007651)
- Blister (variety, including Mustard Gas) (P/N 10007652)
- Blister (Mustard Gas) (P/N 10007653)
- Nerve (Sarin, VX ,GA, GD, etc.) (P/N 10007654)

## ⚠ WARNING

**All detector tubes used for the sampling of Chemical Warfare Agents must be used in accordance with the instructions supplied with each type of tube. Failure to comply with the proper instruction could result in an inaccurate reading.**

## Using the Multi CWA Tube Sampler

1. Verify that the Escort ELF Pump battery pack is charged.
2. Turn the Escort ELF pump to "ON" and check that the flow rate is set to 2.0 lpm.
  - Ensure that the elapsed timer is reading 0.0.
  - If the pump is not set to the correct flow rate or the elapsed timer is not set to "0.0", refer to the Escort ELF Pump instruction manual (P/N 813549).
3. Connect the Dual Tube Fixed Flow Sampler Assembly to the Escort ELF pump inlet with the supplied tubing and adapter.
4. Using the mounting plate hole in the Dual Tube Fixed Flow Sampler, break off tips from both ends of the tube.
5. Insert the CWA tube in one port of the Dual Tube Sampler.
  - For proper flow direction, see the instructions supplied with the tube.
  - Tube should fit snugly in the sample port of the Dual Tube Sampler.

## ⚠ CAUTION

**When inserting the detector tube into the port of the Dual Flow Sampler assembly, Do not press the opposite end of the detector tube with a finger or hand; this end of the tube is broken glass and could cause injury. Use a twisting motion when inserting the tube into the holder.**

## Chemical Warfare Tube Sampling

CWA tubes can be used with the:

- MSA Kwik-Draw<sup>®</sup> Pump
- AUER/MSA Toximeter<sup>®</sup> II Pump or
- MSA Escort ELF Pump with Dual Flow Fixed Flow Sampler Assembly.

The Kwik-Draw Pump and the Toximeter II Pump require the user to set or count the number of pump strokes necessary for proper tube sampling.

- The number of strokes for each tube is listed on the outside box label and in the corresponding instruction sheet.

When using the Multi CWA Tube Sampler Kit, the number of pump strokes is converted to elapsed time at a pre-set flow rate.

The Dual Flow Fixed Flow Sampler Assembly is factory-adjusted to a flow rate of 300 cc/min.

- With the Escort ELF Pump set to 2.0 lpm, the time to complete one pump stroke is approximately 20 seconds (equal to that of a Kwik-Draw or Toximeter Pump).

The Dual Flow Fixed Flow Assembly design maintains a constant flow rate to each tube, whether used individually or in multiple tube sampling.)

**Example:**

CWA BlisterTube (P/N 10007652) requires 30 pump strokes:

1 pump Stroke = 20 seconds

30 pump strokes = 600 seconds

600 seconds ÷ 60 = number of sampling minutes

Number of sampling minutes = 10 minutes.

The Escort ELF Pump digital display shows the:

- actual pump flow rate
- pump's elapsed "ON" time.

Once the flow rate is set, the:

- flow rate remains constant
- elapsed timer can be stopped (paused) and reset by using the RUN/HOLD button.
  - The RUN/HOLD button can:
    - stop or pause the sampling program
    - restart the sampling program as desired.
  - See the Escort ELF Pump instruction manual for a more complete understanding of the these functions.

## Sampling with Tubes Requiring the Same Number of Pump Strokes

1. Ensure that the:
  - Escort ELF Pump is set to a flow rate of 2.0 lpm
  - elapsed timer reading is "0".
2. Follow instructions given under **Using the Multi CWA Tube Sampler** in this instruction sheet.
3. Convert the number of required strokes to sampling time.
4. Start the sampling process.
5. When the elapsed time has expired, remove the tubes for evaluation.

## Sampling with Tubes Requiring a Different Number of Pump Strokes

1. Ensure that the:
  - Escort ELF Pump is set to a flow rate of 2.0 lpm
  - elapsed timer reading is "0".
2. Follow instructions given under **Using the Multi CWA Tube Sampler** in this instruction sheet.
3. Convert the number of required strokes to sampling time.
4. Start the sampling process.
5. When the time has expired for those tubes requiring the least amount of pump strokes or minutes:
  - a. Press the RUN/HOLD button to stop the pump
  - b. Remove the sampled tube.
  - c. Press the RUN/HOLD button to start the pump for continuing sampling.
    - The RUN/HOLD button continues to record the sample "ON time".