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Book Reviews

Air Monitoring. Part 1: Contamination Assessment (19 min), *Part 2: Direct Reading Instrument* (27 min), by L. Detrick, Duxbury, MA distributed by Emergency Films, Plymouth, MA, $495 (two video tapes).

Recently a local chemical plant had an accident spewing semireacted chemicals into the environment. Thinking that "emergency" did not require Fire Department notification, they began cleaning on their own with the help of a cleanup firm. When the fire chief arrived several hours after the spill, he found a hot (contaminated) zone delineated, but no one had monitored the air quality inside the zone. Not a good step. This video cassette addresses that concern.

In the preface to the video film, the accompanying brochure states:

> "Before you take action at a hazardous emergency, you need to determine whether the air is contaminated, and if so, what the risks are. This (tape) is designed to provide training to emergency responders who carry out air sampling activities at hazardous material incidents."

According to the back of the video cassettes, the first video tape, entitled *Contamination Assessment*, provides fundamental lessons about atmospheric sampling under emergency response conditions including:

- Basic emergency response monitoring instruments
- Dangers and risks to the air monitoring team
- Decontamination for monitoring instruments
- When to carry out atmospheric sampling
- Role of personal air sampling devices
- Hazards of contaminated atmosphere
- Size-up for air monitoring
- Air monitoring priorities
- Interpreting readings

Monitoring instruments demonstrated included:

- Combustible gas indicators
- Oxygen meters
- Detector (colorimetric) tubes
- Organic vapor analysis (survey) instruments
- Radiation detectors
- Toxic gas detectors

- Dust monitors
- Personal air samplers, such as used in work place monitoring
- Passive dosimeters

Once the trainer had shown the various types of instruments, he then discussed the need for sampling and the order of use (i.e. radiation first, then other components). Topics discussed were: instrument failure, second instrument verification, relativity of readings (i.e. versus calibration gas) and decontamination (of both personnel and monitoring instruments). A technique used to protect instruments from contamination during sampling, which I had not seen before, was to wrap them in plastic (or plastic bags) with the plastic, of course, not covering the detecting sensor and the admonition to be aware of the potential for some instruments to overheat.

The second video film, entitled *Direct Reacting Instruments*, provides, according to the jacket, fundamental lessons about atmospheric sampling equipment used in emergency response, explaining instrument capabilities, how they work, calibration checks, basic use and interpretation of readings from:

- Combustible gas detectors
- Reaction monitors
- Survey instruments: flame ionization detectors and photoionization detectors
- Detector tubes
- Oxygen meters

As a chemical engineer who has spent much time in the laboratory with analytical equipment, I was keenly interested in the video cassettes' description of how the instruments work. To say the least, I was pleased with their treatment of the topic. Their descriptions were simplistic, but scientifically correct coupled with a good demonstration. I asked our local hazardous material response team to view the tapes. They were quite complimentary, but want to acquire all the instruments shown on the tape. Unfortunately, the Battalion Chief pointed out the cost to obtain all the instruments shown in the video was well beyond the department's budget.

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Cryogenics Safety Manual, third edition, by British Cryogenics Council, published by Butterworth–Heinemann, Oxford, or 80 Montvale Avenue, Stoneham, MA, 1991, ISBN 0-7506-0225-2, 105 pp., £20/$54.95.

Cryogenic fluids are substances normally manufactured, stored, used, handled or processed at temperatures at or below minus 85 °C (188 K). In practice,