

CS

PCAS

BUSH

CADS

PEG-200

A Search For

—a chemical simulant

Probably hundreds of thousands of chemical compounds exist that can be used as chemical training agents (simulants). However, only a few have been selected for use by the Army. In addition, soldiers have also selected some others through ingenuity and trial and error. Training needs have largely been met, yet the search still goes on.

The next generation of simulants are due for fielding in FY92. Persistent Chemical Agent Simulant (PCAS) and Chemical Agent Disclosure Solution (CADS) have been developed as a training system. PCAS/CADS comes with surrogate M8 and M9 detection papers, since actual M8/M9 papers react to chemical agents, not the PCAS. The surrogate papers change color indicating either G-nerve or H-blister agents. This flexibility gives the trainer a choice in building the scenario of chemical conditions.

In retrospect, the old standby of PEG-200 (polyethylene glycol) has served well to simulate the

physical aspects of a persistent agent. However, it does little else. No detection or identification methods were designed into the system. Often soldiers overlooked the simulant on vehicles and vegetation, unless an evaluator pointed it out. Then, soldiers would fake the identification steps or relied on some other chemical (like bug repellant) to give a color change on M8 paper. This is no way to train realistically.

Some other simulants have been tried over the years, with similar shortfalls. N-Butyl Mercaptan (BUSH) had a pungent odor similar to that given off by skunks. Soldiers were told that this smell was a chemical attack cue in training. Humorous results erupted—soldiers driving down a road, smelling a real skunk, often stopped and masked, believing they were under a chemical attack. CS powder and CS smoke grenades were also used in training. Soldiers always identified the NBC evaluator

—he was the one draped with CS grenades. The irritations caused by the CS was proof of a simulated chemical attack; however, this was more of an after-the-fact cue. None of our detection devices are designed to alarm with CS. Furthermore, CS has none of the attributes of the chemical agents it is supposed to simulate.

Soldiers have used several different types of field expedient simulants for training: bug repellant, weapons cleaner, cleaning solutions, and even DS2. Most cause specific color reactions with M8/M9 paper.

A note of caution—all the above solutions can pose serious hazards to soldiers and the environment. Simulants are necessary for NBC defense training. They create safe but realistic battlefield conditions. Even as current training needs are met, the search for perfect simulants continues. ☛☛