

## APG Garrison Gives Harmful Paints the Brush Off

By Robert Solyan and Michelle Guitard

Paint, though not generally considered a threat, is a hazardous material used in large quantities at Aberdeen Proving Ground (APG). A recent review found that 2,200 paints are used at APG. Of that total, 565 are latex paints (architectural and anti-corrosive), which are known to be less harmful, in most cases, than epoxy and other types of paint. Yet studies proved that only 12.5% of the latex paints used at APG are environmentally acceptable under newly established APG standards. The standards are the result of a project to provide a simple method for choosing paints that cause the least harm, yet get the job done.

In a letter from David Kling, director of the Pollution Prevention Division of the Environmental Protection Agency (EPA), the agency acknowledged APG's efforts to develop an environmentally preferable paint standard. The January 11, 1999, letter called APG a "pioneer" and stated that "the body of knowledge you are contributing to will help guide environmentally preferable purchasing as it evolves into a mature and practical tool for protecting human health and the environment..." The development and institutionalization of APG's environmentally preferable paint standards are now part of a pilot project under EPA's Environmentally Preferable Purchasing Program.

Because paint is an environmental threat, the federal government regulates its use and disposal. Executive Order (EO) 12873 and, more recently, EO 13101 established goals to encourage recycling and to minimize solid and hazardous waste liability as well as disposal dangers and costs. To meet the requirements of the executive orders and in line with the EPA program, APG created standards that prevent pollution at the point of purchase.

Ideally, approved products contain no chemicals known to harm the environment or human health; however, most paints of necessity contain solvents to aid in drying. Hence, the APG standards were designed to identify the least harmful paints. To be approved, a paint has to meet all restrictions for inorganic compounds, organic compounds, and volatile organic compounds (VOCs).

Inorganic compounds are used in paints to retard growth of molds and algae and as preservatives and pigments. Those prohibited at APG include antimony, cadmium, hexavalent chromium, lead, and mercury. It has been shown that exposure to lead and mercury can damage the central nervous system, liver, and kidneys. In fact, lead poisoning is the number one neurotoxic disease in the United States, affecting primarily children. Mercury, after long-term exposure, is known to induce personality changes, tremors, and vision, hearing, and memory problems. Also, inorganic and organic compounds contribute to the "sick building" syndrome.

Twenty organic compounds are prohibited by APG standards. An example is methyl ethyl ketone, which impairs the central nervous system, damages the liver and kidneys, and

causes upper respiratory tract irritation, nausea, dizziness, and headaches. It also contributes to smog formation.

A VOC exists in a gaseous state under normal atmospheric conditions and is released as vapor from substances such as cleaning fluids, degreasing agents, gasoline, and paints. When exposed to sunlight, VOCs form ozone. They pose a serious environmental threat by contributing to ground-level ozone formation and increasing photochemical smog. Exposure to ozone can seriously impair human health by inflaming and irritating the nasal and lung passages, causing coughing, wheezing, headaches, and nausea. Ozone also weakens the immune system, leaving the exposed person susceptible to infection. Some VOCs are, themselves, toxic chemicals that can harm the neurological system.

APG contracted with Green Seal, a nonprofit testing and rating service, to help identify the environmentally preferable paints. The first task was to determine if a paint contained any prohibited compounds by examining its material safety data sheet (MSDS). An MSDS identifies hazardous materials contained in a product as well as safety precautions. Of the 565 paints, 118 passed the MSDS check. The second task was to test each of the 118 paints for VOCs. Forty-seven failed because either samples were not provided by the manufacturer or analysis indicated VOCs were far in excess of the concentrations stated on the MSDS and the standard. Seventy-one latex paints were determined to be within the APG standard.

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