



## Just the Facts...

## Paints - Medical

<b>GENERAL INFORMATION</b>	<p>The hazards associated with paints will vary with the type of paint used. Today's paints fall into three main types: water based, oil based and Chemical Agent Resistant Coating (CARC paint).</p> <p>The hazards from paint will vary with the type of solvent and pigments used. Water based paints should not be associated with any hazards. Oil based paints have long been associated with lead poisoning. But this problem has been eliminated with the current formulations. Today lead is a hazard only during the removal of old lead based paints.</p>
<b>ROUTINE USES IN THE DEPLOYED SETTING</b>	<p>Paint is used to protect wood and metal surfaces, to provide camouflage and to enhance appearance.</p>
<b>PERSONAL PROTECTIVE EQUIPMENT and COUNTERMEASURES FOR DEPLOYED PERSONNEL</b>	<p>The primary exposure is through inhalation. Inhalation of paint vapors can be controlled with local exhaust ventilation or general ventilation (an open area with moving fresh air), or an appropriate respirator (not the M-40). Many paints should not be used in confined areas without respiratory protection as the vapor level may become extremely high. Eye contact from splashed paints can be prevented by the use of safety glasses, goggles, or a face-shield. This is especially important during spray painting. Although occasional skin contact with most paints will not result in harmful effects, repeated skin contact should be prevented by the use of gloves. Exposed skin areas should be washed with soap and water, and then well-dried.</p>
<b>QUESTIONS TO ASK REGARDING EXPOSURE</b>	<ul style="list-style-type: none"><li>• How frequently did individual paint? What method of painting was used, how large of an area? Spray painting produces higher exposure concentrations. What was the type of paint used and are there exposure data? What was the quantity used? Was the total used a quart, a pint, or many gallons? Did they do grinding and chipping to prepare the metal surface?</li><li>• What type of paint was used? Isocyanate exposure is a concern with CARC paint, solvent exposure for oil based. Unless spray painting, water based paints pose little hazard.</li><li>• Did individual have any acute effects from solvent exposure: irritation of skin, eye, nose, lungs; erythema, rash, or lesion at site of contact (is/was lesion bilateral); cough or difficulty breathing; difficulty in concentrating or in manual dexterity; "inebriation" or loss of consciousness?</li><li>• Does individual have chronic effects that are possibly related to paint exposure? What is this relationship?</li></ul>
<b>EXPOSURE LEVELS HISTORICALLY ENCOUNTERED</b>	<p><b>DATA IF AVAILABLE:</b> Painting of small surface areas in open spaces should not produce significant exposures. Personnel who paint extensively as part of their normal duties should already be in a surveillance program.</p> <p>Painting in enclosed spaces (like the inside of vehicles), or spray painting can produce high exposure levels.</p>
<b>AVAILABLE EXPOSURE DATA</b>	<p><b>DATA IF AVAILABLE:</b> Check for both general environmental levels and personal sampling levels. If exposure data are not available, <b>ASK</b> questions concerning potential exposure to paints and for any symptoms during or the day of painting. Also ask about any protective equipment used, especially respirators.</p>

<p><b>COMMON ACUTE AND CHRONIC HEALTH EFFECTS</b></p>	<p><u>Acute effects (short-term exposures):</u></p> <ul style="list-style-type: none"> <li>• Water based paints are unlikely to produce any symptoms from field use.</li> <li>• Oil based paints are associated with skin and eye irritation and allergic skin reactions. The other main effect would be from solvent exposure. Rapid signs and symptoms of CNS toxicity are common with exposures to high concentrations of organic solvents. Clinical findings vary from solvent to solvent; however, disorientation, giddiness, dizziness, euphoria, and confusion progressing to unconsciousness, paralysis, convulsions, and death from respiratory or cardiovascular arrest can occur.</li> <li>• CARC paint uses isocyanates and can cause irritation of the conjunctiva, respiratory distress, and is associated with sensitization-type reactions. Inhalation of isocyanates vapors can produce asthma like symptoms including constricted airways, difficulty breathing, and a dry irritant cough.</li> </ul> <p><u>Chronic effects (short-term and long-term exposures):</u></p> <ul style="list-style-type: none"> <li>• Sensitization to isocyanates can produce severe symptoms with re-exposure. Personnel with symptoms consistent with sensitization should further be evaluated by a pulmonologist.</li> </ul>
<p><b>REVERSIBILITY OF HEALTH EFFECTS</b></p>	<p>After stopping exposure, both skin and respiratory symptoms generally disappear. Symptomatic individuals generally feel much better soon after inhalation exposure is stopped and they are moved to fresh air. The effects of inhalation exposure may take several hours to completely resolve. If sensitized, symptoms may reoccur with future exposures with increased severity.</p>
<p><b>TREATMENT REQUIRED/AVAILABLE FOR TOXIC EFFECTS</b></p>	<p>The immediate treatment for any exposure is to stop the exposure (irrigate eyes, rinse skin, move to fresh air) when effects occur. For acute situations, symptomatic treatment is usually the mainstay of medical care. After emergent issues are taken care of, reducing the intensity or eliminating exposure altogether is the appropriate goal of the clinician. If the patient is truly sensitized, future exposure must be avoided. Generally, there is no medical treatment required for past routine exposure.</p>
<p><b>LONG TERM MEDICAL SURVEILLANCE REQUIREMENTS OF HEALTH EFFECTS MONITORING</b></p>	<p>If symptoms are due to solvent exposure, levels can be measured in the body during and shortly (within a few days) after exposure. There is no long-term medical follow-up for routine solvent exposure. In very rare cases where chronic CNS or PNS, or respiratory sequelae are suspected, neuropsychological testing/evaluation, or pulmonary testing/evaluation, respectively, is recommended. If sensitization is suspected pulmonary testing/evaluation is needed.</p>
<p><b>SPECIAL RISK COMMUNICATION ISSUES</b></p>	<p>Most exposures to commonly used military paints results in no effects or in mild conditions that readily reverse with prevention or treatment. In rare cases, where exposure resulted in significant respiratory problems, sensitization is a concern. Planned follow-up after severe or recurrent respiratory symptoms is necessary.</p>

Reference: Textbook of Military Medicine, Part III, Disease and the Environment, Volume 2, Occupational Health, Office of the Surgeon General, Department of the Army, United States of America, 1993.