



## Just the Facts...

## Toxic Industrial Chemicals - Medical

65-029-0503

<b>GENERAL INFORMATION</b>	<p>The term "toxic industrial chemical" refers to a variety of chemicals used by industry in various processes, created by industry for various purposes, or released to the soil water or air by industry as byproducts of either. Any chemical can be toxic or harmful in some dose, and the more concerning of these chemicals are those that have harmful effects in relatively low doses when in air or in contact with skin or eyes. In the U.S., a variety of laws regulate the manufacturing of chemicals, and the emissions of industry. In other parts of the world, many of these laws may not be in place to regulate industry. For that reason, emissions (such as the air that leaves smokestacks) may have concentrations of chemicals that are higher than allowable in the US. The potential exists that troops located downwind or near such industry could be exposed to levels that may impact their health.</p> <p>Toxic industrial chemicals may pose a risk when they are stored in large quantities in one location. An act of sabotage, or an accident can result in a large release into the air, which can be breathed in by those nearby, or travel some distance. An example would be a release of chlorine gas from a large tank into the surrounding air. Current military directives recommend that troop camps not be located near industrial facilities or storage sites when possible to minimize this risk.</p>
<b>ROUTINE USES IN THE DEPLOYED SETTING</b>	<p>Various chemicals such as fuels and cleaners may be used by troops in deployed settings and there are a variety of fact sheets on these substances. The industrial chemicals of concern here are those that may be present in air, water or soil from the industry in the vicinity. Additionally, certain locations such as airstrips may have fuels spills or other chemical exposures from past activities.</p>
<b>PERSONAL PROTECTIVE EQUIPMENT (PPE) and COUNTERMEASURES AVAILABLE FOR DEPLOYED PERSONNEL</b>	<p>In general, no protective equipment is needed to protect from troops from general environmental exposures. Base camp assessments are performed to evaluate potential hazards at a site, and sampling is conducted if there is a question regarding the hazard or risk. In certain cases, recommendations may be made to avoid certain areas, for example, avoiding the soil near a past oil spill. Routine hygiene and hand washing is always recommended.</p>
<b>HISTORICAL EXPOSURE LEVELS</b>	<p>In settings where the general (ambient) air is a potential concern, air samples are taken and analyzed for large classes of chemicals. This was done extensively in Bosnia and in many regions of the Gulf. In the Gulf during the first war, oil well fires were a potential hazard and particles of sand and dust were also a potential hazard. These levels have been looked at and are not thought to be a large health risk to deployed troops. In the current deployment, oil well fires are not a large problem, but the sand/particulate levels are always high in the Gulf. There are individual fact sheets on sand and dust available. Many chemicals have been measured in air at many sites and the levels found are very low, and not much different than would be found in air around US cities.</p>
<b>AVAILABLE EXPOSURE DATA</b>	<p>If a soldier has been at a site with poor air quality (near industrial facilities, etc) there may be concerns about the air. Some locations, such as SHUIBA port were extensively evaluated and reports and summaries are available from CHPPM. For the most part, short-term health risks were small and reversible and troops were generally aware of this. Long-term health risks have not been identified based on sampling results. Sampling results are compared to the Military Exposure Guidelines (MEGS) in USACHPPM TG 230. These represent acceptable exposure concentrations for a variety of chemicals for both short and long exposure periods.</p>

<p><b>SIGNS &amp; SYMPTOMS OF ACUTE AND CHRONIC EXPOSURE</b></p>	<p>Since toxic chemicals are a large group of compounds, it is difficult to identify specific signs and symptoms. In general, however, the most common signs and symptoms of exposure to air with unsafe levels of chemicals would be irritation of eyes and nose, cough, increased mucous production or shortness of breath. Exposure to chemicals through soil or water would be uncommon. Water is evaluated before it is okayed for drinking.</p>
<p><b>REVERSIBILITY OF ACUTE AND CHRONIC HEALTH EFFECTS</b></p>	<p>Any respiratory or irritation symptoms should resolve within a few day of exposure. In some locations, air quality can change day to day with the weather and wind patterns.</p>
<p><b>TREATMENT REQUIRED/AVAILABLE FOR EXPOSURE</b></p>	<p>There is no particular treatment needed.</p>
<p><b>LONG TERM MEDICAL SURVEILLANCE REQUIREMENTS</b></p>	<p>When extensive sampling is done, the need for any specific actions or follow-up is relayed to units and providers. As of this time, no specific long-term surveillance has been recommended based on sampling results.</p>
<p><b>RISK COMMUNICATION ISSUES</b></p>	<p>In areas where industry or past activities are thought to pose a potential risk to troops from toxic industrial chemicals, recommendations to avoid these locations or station troops elsewhere are the best choice. If troops must be located in an area where such potential hazards exist, sampling is often conducted to identify the need for specific recommendations.</p> <p>To date, sampling has not indicated that troops face any significant risk from toxic industrial chemicals in the environment. In the few instances where hazards were identified, recommendations were made to minimize the potential risks.</p>