

# *Toxic Chemical Compounds*

## **Toxic Industrial Compounds – the Threat is Out There**

Toxic mass casualty events are one of the major challenges of both national and local health authorities. Such events are usually considered to be accidental, but in recent years we have witnessed a global increase in terrorism of all sorts, including the use of toxic chemicals. A wide variety of chemicals could be made, stolen, or otherwise acquired for use in such an attack. Possible targets include industrial chemical plants, reservoirs, and transport vehicles. While chemical weapons were considered to be the major threat in the past, most experts consider toxic industrial compounds and commercial products to be a more imminent threat today.

The toxic effect of a chemical varies greatly, depending on several factors, including the toxicity of the compound, its volatility and concentration, the route of exposure, the duration of the exposure, and the environmental conditions. The release of toxic chemicals in a closed space could deliver doses high enough to injure or kill a large number of people. In an open area, a toxic chemical cloud would become less concentrated as it spreads, leading possibly to numerous mild casualties.

Signs of exposure could include similar clinical signs and symptoms in all casualties, for example choking or eye irritation. The symptoms of exposure to most toxic chemicals would appear in minutes to hours. For highly toxic chemicals,

lethal or immediately life-threatening effects could be seen close to the point of release (where the concentration is highest), while severe to moderate symptoms could be seen at some distance. Immediate medical treatment is required for those exhibiting signs and symptoms of exposure to toxic chemicals. In some of the cases, specific antidotes should be used.

We bring here a series of short reviews on toxic industrial compounds, some of which are more common than others. The aim of this articles series is to increase the awareness of the medical staff to the threat imposed by these toxic compounds, by highlighting the clinical effects and the immediate medical treatment needed, including relevant antidotes. We also describe both accidental and intentional events involving these compounds in the last decades. This series was written by members of the Chemical, Biological, Radiation and Nuclear Medicine Branch in the Medical Corps of the Israel Defense Force. We hope it will help us to be better prepared against the threat of chemical terrorism.

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