## Scenario 9-C: Paint stripping factory

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| **Scenario 9-C: Paint stripping factory** | |
| **Complexity of the scenario: moderate** | |
| **Possible application of the scenario: Topics 4.1, 5.1, 5.2, 5.6 and 6.1** | |
| **Scenario description:** | |
| gray industrial water purifierTwo factory workers were found unconscious on the ground floor of a paint-stripping factory.  The possible cause of the accident seems to be a suspected chemical leak that released toxic fumes. The colleague of the two unconscious workers, who found them, makes the emergency call.  Upon arrival at the scene, the first two ambulance attendants who had rushed in were unprotected and started to feel headache, chest pain, eye irritation and other symptoms. Fire crews were at the scene wearing protective clothing.  Later investigations lead to the conclusion that the workers had mixed some chemicals, different to the normal process, causing the release of methylene chloride.  **Things to consider:** Methylene chloride is mostly used as a solvent in paint strippers and removers; as a process solvent in the manufacture of drugs, pharmaceuticals, and film coatings; as a metal cleaning and finishing solvent in electronics manufacturing; and as an agent in urethane foam blowing.  At room temperature, methylene chloride is a clear, colorless liquid with a pleasant odor. It is volatile, producing potentially toxic concentrations at room temperature. Methylene chloride may cause asphyxiation in enclosed, poorly ventilated, or low-lying areas.  The principal route of human exposure to methylene chloride is inhalation of ambient air. Inhalation exposure to extremely high levels can be fatal. Acute inhalation exposure to high levels of methylene chloride in humans has resulted in effects on the central nervous system including decreased visual, auditory, and psychomotor functions, but these effects are reversible once exposure ceases. Manifestations of acute exposure include mental confusion, fatigue, lethargy, headache and chest pain. Methylene chloride also irritates nose, throat, eyes and skin at high concentrations. A number of human studies reveal that the nervous system is perhaps the most important target of acute methylene chloride toxicity.  Odor is not an adequate warning property for methylene chloride.  Persons exposed only to methylene chloride vapor do not pose risks of secondary contamination. Persons whose clothing or skin is contaminated with liquid methylene chloride can cause secondary contamination by direct contact or through off-gassing vapor.  Sources:  Based on a 19 August 1999 incident in the UK.  <https://www.icheme.org/media/7176/substances-mtop-details.pdf> (Page 110)  <https://pubchem.ncbi.nlm.nih.gov/compound/dichloromethane>  <https://www.cdc.gov/niosh/idlh/75092.HTML>  <https://wwwn.cdc.gov/TSP/MMG/MMGDetails.aspx?mmgid=230&toxid=42>  <https://www.epa.gov/sites/default/files/2016-09/documents/methylene-chloride.pdf>  <https://pubmed.ncbi.nlm.nih.gov/8465711/>  Ronald De Groot, Gerard A. Van Zoelen, Marianne E. C. Leenders, Antoinette J. H. P. Van Riel, Irma De Vries & Dylan W. De Lange (2021), *Is secondary chemical exposure of hospital personnel of clinical importance?,* Clinical Toxicology, 59:4, 269-278, DOI: 10.1080/15563650.2020.1860216 | |
| **Application: First alarm (Topic 4.1)**  **Target audience: DO, FB, (M)P, AS** | **Learning objective:** To recognize signs of a potential CBRN release and (initiate first) respond(ers).  **Aim:** The dispatch officer interacts with the caller to identify the likelihood of a possible CBRN release and to know which information should be shared with the chain of command. Use of METHANE and Four W’s protocols. |
| Example: |  |
| **Application: Arrival on scene (Topic 5.1)**  **Target audience: FB, (M)P, AS** | **Learning objective:** To recognize how to carry out an on-site risk assessment, zoning of the area, and isolation and registration of victims.  **Aim:** The first responders arrive on scene, perform a risk assessment, talk with the caller, perform a reconnaissance of the incident scene and discuss actions. They apply METHANE, establish zoning, isolate people and pet animals, initiate evacuation, register persons. |
| **Example:** |  |
| **Application: Forensic awareness (topic 5.2)**  **Target audience: FB, (M)P, AS, EMS, GP** | **Learning objective:** To recognize how to carry out your work without forensic disruption of the scene.  **Aim**: The responders discuss the possible forensic value of the materials found on the scene and preserve the evidence. |
| **Example:** |  |
| **Application: medical treatment and triage (topic 5.6)**  **Target audience: FB, (M)P, AS, EMS, GP** | **Learning objective:** To recognize how to apply appropriate medical care towards patients involved in a CBRN incident.  **Aim:** The responders assess the medical conditions of the victims, perform triage on the victims and recommend possible treatment. |
| **Example:** |  |
| **Application: Alarm Protocol (topic 6.1)**  **Target audience: DO** | **Learning objective:** To differentiate a possible CBRN incident (from normal incident) and to carry out appropriate procedures & protocols.  **Aim:** The dispatch officer interacts with the caller and relays necessary information to the responders moving towards the scene. |
| **Example:** |  |