Risks

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Table of contents

Accident handling industrial hazardous chemicals **3**

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Threat assessment: The occurrence of a major accident in enterprises handling hazardous chemicals is unlikely. Compared to the previous assessment, the risk level has not changed.

Map of hazardous and major accident risk enterprises

Ohtlike ja suurõnnetuse ohuga ettevõtete kaart

In Estonia, there are 66 establishments classified as higher-risk (A and B category) enterprises where various hazardous chemicals are handled. The majority involve the handling of flammable liquid fuels and gases (43.9%), fertilisers (15.2%), the storage of explosives and pyrotechnic products (9%), shale oil (7.6%), and toxic gases (4.5%). From the perspective of major accidents, the enterprises with the greatest potential impact are generally those located in densely populated areas or in their immediate vicinity.

There is a total of 283 establishments in Estonia categorised as C-level hazardous enterprises. The majority consist of retailers and wholesalers of flammable liquid fuels (petrol stations) and gases (gas installations) (78.5%), ammonia-based cold stores (8.5%), wholesalers of hazardous chemicals (2.5%), galvanic plants (1.4%), and storage facilities for pyrotechnic products and ammunition.

The causes of major accidents in enterprises handling hazardous chemicals include leaks, fires, and explosions. The general underlying reasons are:

- Human error: violations of various safety requirements, negligence, poor design of buildings or equipment (including protective measures), and design faults.
- Technological failures: defective equipment, non-functioning of technical protection measures, wear and tear of equipment, failures, and ageing of plant and pipelines.
- Natural forces: flooding, heavy rainfall, lightning, wind, low or high temperatures, earthquakes/landslides.

- ✓ Accidents caused by interruptions in electricity, heat, water, or communications.
- ✓ Malicious activities: arson, deliberate explosions, and cyberattacks.

THREATS

- ✓ The proportion of establishments found to have non-compliances has increased over time. In 2024, deficiencies were identified during 84% of site inspections. In the past two years, non-compliances have increased particularly in relation to problems in chemical storage facilities, expired mandatory documentation, shortcomings in fire safety compliance, and insufficient attention to staff training and the conduct of exercises.
- ✓ Extreme weather conditions, such as heatwaves and heavy rainfall, may increase the risk of chemical leaks.

ACTIONS

- ✓ The Consumer Protection and Technical Regulatory Authority (TTJA), in cooperation with the Rescue Board, has developed and deployed a chemicals module within TTJA's Supervisory Information System (JVIS). Through this module, enterprises handling hazardous chemicals can submit applications for operating permits under the Chemicals Act, as well as mandatory documents for processing and approval. By March 2025, over 57% of all required documents had been submitted through the chemicals module.
- ✓ Technological solutions have helped enterprises reduce the risk of major accidents. For example, smart sensors and artificial intelligence are used to detect and prevent risks. In addition, advanced materials have been introduced which are more durable and safer for storing chemicals. Automation and robotics are also increasingly used in the handling of hazardous chemicals, reducing human exposure.

GUIDELINES

A chemical accident may be indicated by the activation of sirens in a hazardous or high-risk enterprise, the smell of chemicals, an unexplained feeling of illness, or being in the vicinity of a vehicle involved in an accident bearing hazardous cargo markings.

In the event of a chemical accident:

- ✓ Avoid contact with chemicals.
- ✓ Take shelter indoors.
- ✓ Protect your respiratory system.
- ✓ Follow instructions provided through official channels.

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