



**Kymenlaakso
Rescue Services**

Wellbeing services
county of Kymenlaakso

Public information bulletin
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SAFETY INFORMATION BULLETIN in case of a major accident

Kymenlaakso



Electronic bulletin,
language editions (FI, SV)

Corporate operators

Operators who engage in activities that may pose a disaster hazard are located in Hamina, Kotka, and Kouvola in Kymenlaakso County. These operators are mainly centrally located in port, railway, and industrial zones.

The emergency planning zone for the Loviisa Nuclear Power Plant, itself located in eastern Uusimaa, encompasses part of Pyhtää.



Chemical storage and processing

A major accident is highly unlikely to occur, but they are nevertheless possible. Operators in the Kymenlaakso region have identified the disaster hazards associated with the storage and processing of chemicals, and are doing their best to observe disaster prevention and damage mitigation practices. The following pages list Kymenlaakso operators who are engaged in processing and/or storage of substances classified as hazardous, as well as some operator-specific circumstances that may pose a significant accident hazard.

Hazardous chemicals are transported, depending on the facility, by road, by railway car, or by ship; in some cases, pipelines may be employed as well. The chemicals are stored in purpose-built vessels and tanks in either their solid, gaseous, or liquid forms.

The rescue services possess chemical-specific mitigation equipment and guidelines which define the necessary isolation and warning limits for each potential chemical accident.

General risks in the region

Notwithstanding chemical facilities, a fire may occur anywhere, and the gases a fire emits are always toxic. It may be necessary to isolate an area with a size up to several kilometres, depending on the situation.

Natural gas mains are also present across Kymenlaakso. In the case of a natural gas leak, an ignition hazard is present in the immediate vicinity of the leak site. If the leak is ignited, the accident may impact an area even several hundred meters across depending on the main capacity. Natural gas mains will always be clearly signposted outside industrial zones.

In an accident, the environment will almost invariably be impacted alongside the damage caused to individuals and property. The environmental effects of various chemicals can be studied in more detail e.g. through the hazardous substance guidelines (OVA) published by the Finnish Institute of Occupational Health (ova.ttl.fi).

Accidents that may occur in the disaster hazard sites in the Kymenlaakso region have not been predicted to project hazardous effects to areas outside the borders of Finland.

Sites that may pose a disaster hazard

Objects whose activities may pose a disaster hazard (so-called safety analysis report sites) have been marked on the map with a red triangle ►. These facilities have been obliged to write up a safety analysis report on their operations, which has been presented to the supervising authorities. These operator-specific reports can be viewed at their premises, as can detailed information on inspections carried out on the sites and the chemicals that may be present there.

The other facilities presented here (so-called major accident prevention policy or MAPP sites) are not under the above-described obligations and no separate rescue plans have been drawn up for them. However, they are mainly co-located in the same industrial premises as disaster hazard sites and either constitute one functional whole with them or are so close to a disaster hazard site that they may be subject to collateral damage in the case of an accident.

Hamina



Advario Finland Oy
Öljysatamantie 10



BASF Oy
Kaasusatamantie 6

Liquid chemical storage

Advario Finland Oy operates a terminal in Hamina with permits to process and store various chemicals, renewable fuels, and their raw materials. The terminal is specialised in the storage and processing of methanol.

Potential hazards:

A leak or a fire at the tanker loading point, the tank wagon shunting yard, or inside the embankment of storage tanks may impact the premises of adjacent operators. Such an event may cause the emission of a significant quantity of harmful or toxic fire gases or other gases. The extent of the warning limit (25-500 m) is specific to the chemical being processed.

More information about our operations:

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Latex plant

BASF Oy is a manufacturer of styrene-butadiene and styrene acrylate latexes. The production process is a batch process, with manufacture of the final product taking place inside a reactor under carefully controlled conditions. In the factory premises, chemicals being handled include acrylic acid, acrylic nitrile, butadiene, butyl acrylate, and styrene.

Potential hazards:

Gaseous or liquid emissions may occur due to malfunctions of the processing equipment, storage tank leaks, as well as leaks in the material transport pipelines. The uncontrolled polymerisation of monomers may cause a tank to rupture and pose the hazard of an explosion. Fire gases that may be emitted from fires that occur at the production facility or in chemical transport pipelines are partly toxic and harmful.

Acryl nitrile may explode or ignite within about 5 metres of a leak site. In the case of a large leak, immediate isolation measures must be put in place 50m in all directions, as well as 150 m downwind. The chemical may cause irritation symptoms in those exposed up to 1000m downwind. Butadiene may explode within 30-40 m of a leak site. In the case of a large leak, immediate isolation measures must be put in place 50 m in all directions, as well as 100 m downwind. In the case of leaks involving acrylic acid, butyl acrylate, and styrene, isolation measures must be taken 25 m in all directions.

More information about our operations:

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BB Logistics Oy
Gerhardinväylä 8B

Chemical storage facility

The BB Logistics Oy Hamina terminal stores and processes nickel concentrate. The product is delivered to the terminal by train and transported further by lorry or ship.

Potential hazards:

The nickel concentrate is not combustible nor does it enhance combustion. The product is not explosive. The nickel concentrate is highly toxic to aquatic life and causes long-term harm. Nickel concentrate dust may, when breathed in, cause cancer, and damage the lungs through long-term or repeated exposure. It may also cause an allergic skin reaction. The most major accident risk is a potential leak of nickel concentrate into the sewer system.

More information about our operations:

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FGG Finngas GmbH
subsidiary in Finland
Kaasusatamantie 3

Liquified gas terminal

FGG Finngas GmbH is engaged in the processing and storage within pressurised containers of combustible, partially harmful to health, non-odorised liquified gases, as well as light, combustible, liquid hydrocarbons.

Potential hazards:

Liquified gas emission (butane, propane, butadiene). An emission from a tank wagon of 20 tonnes will last nearly 3 hours and cause an ignition hazard within about 100 metres from the leak site. An emission of up to 100 tonnes can be caused by the rupture of a storage tank, causing an ignition hazard 600 metres away. Such a gas emission may result in an explosion or a fire that has the potential to lead to a loss of life as well as significant material damage within the terminal premises or outside them. An accident at a lorry or railway carriage loading and unloading point may result in a fire and a consequent BLEVE explosion, which may eject debris at a distance of up to 600 m.

More information about our operations:

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Fintoil Hamina Oy
Kaasusatamantie 8

Biorefinery

Fintoil Hamina Oy uses a fractional distillation method to, through thermal energy and partial vacuum, refine tall oil into crude fatty acid, tall oil resin, tall oil pitch, and crude sulphate turpentine. A separate process also produces resin soap.

Potential hazards:

The most significant risks have been identified as a potential hot oil leak or a fire in the crude sulphate turpentine tank or a loading site. The radiant heat caused by such a fire does not pose a danger to facilities adjacent to the refinery. A leak in the liquid nitrogen vaporisation system may cause a nitrogen cloud to be emitted with an area of effect of less than 100 m.

More information about our operations:

production manager Timo Saarenko
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Hamina LNG Oy
Terminaaliranta 5

LNG terminal

The Hamina LNG Oy LNG terminal receives shipments of liquified natural gas (LNG), stores it, distributes it by lorry and ship to other operators, and re-gasifies it for entry into transfer and distribution pipeline networks. Liquified natural gas is mainly composed on methane (CH₄). It has been liquified through cooling natural gas to a temperature of -163 °C. When liquified, the natural gas consumes only about 1/600 of the volume an equal mass would in gaseous form. The terminal has a maximum capacity of 30,000 m³ LNG.

Potential hazards:

Liquified natural gas is odourless, colourless, non-toxic, and non-corrosive. In its liquid form, it is neither explosive nor combustible. If allowed to warm, LNG will vaporise into natural gas, and when re-gasified, is lighter than air and disperses quickly. The most serious hazards at the LNG terminal are observed in situation where a cloud of natural gas vapour emitted as a result of a LNG leak may ignite. If such ignition occurs, the flash fire caused by the ignition of the gas cloud may cause danger as far as 350 m outside the terminal area. The isolation limit is 750 m. The brief flash fire will quickly retreat to the source of the leak and become a pool or jet fire. Neither of these will have an appreciable impact outside of the terminal premises.

More information about our operations:

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North European Oil Trade Oy (NEOT)
Öljysatamantie 7

Fuel terminal

North European Oil Trade Oy operates in loading, unloading, and offering temporary storage of liquid petrochemical and chemical products.

Potential hazards:

A major fuel leak in the context of the loading of tank wagons, unloading a ship, tanker loading, or other activity may pose an accident risk. A fire in a storage tank, inside its embankment, or at loading/unloading sites may pose a risk to adjacent operators. Gas emissions from a fire may spread to the area of the port and the City of Hamina.

More information about our operations:

terminal manager Mika Käätä
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Oy Hacklin Hamiko Ltd
Pajamäentie 3

Chemical storage facility

Oy Hacklin Hamiko Ltd stores environmentally hazardous chemicals. The products are brought to the storage facility in containers and carried out in closed lorries. The products are not refined in any way nor are their containers opened during storage. The stored products are not flammable, combustible, combustion-enhancing or explosive.

Potential hazards:

The stored products are highly toxic to aquatic life and cause long-term harm. A major chemical leak during container unloading, lorry loading, or storage may pose the risk of an accident where the products are emitted into the sewer system or into nature. A fire at the storage facility may cause toxic smoke to affect the port and the vicinity of the facility; contaminated water from firefighting efforts may also be emitted to the environment.

More information about our operations:

Chief Executive Officer Pasi Luoma
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Oy Teboil Ab
Öljysatamantie 8 & 14

Oil and chemical terminal

The Oy Teboil Ab Haminan terminal undertakes storage and loading and unloading operations of methanol, naphtha, diesel oils, heavy fuel oils, plant oils, and additives. The products are delivered to the terminal by ship, tanker lorry, and tank wagon. Export is by ship. Transportation and heating fuels are delivered to clients primarily by tanker.

Potential hazards:

A leak or a fire at the tanker loading point. A fire in a tank or inside the embankment area of the tanks or at the unloading point of tank wagons may spread to the premises of adjacent actors. Large amounts of methanol and naphtha are in temporary storage at Storehouse 2. A fire and a potentially consequent tank or railway wagon explosion may cause serious damage to adjacent operators. The smoke issuing from a fire may affect an area of hundreds of metres, even kilometres, depending on the prevailing weather and wind conditions. A leak caused by the breakdown of a marine loading arm may cause an onboard fire or serious environmental damage.

More information about our operations:

terminal manager Tero Kähkönen
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Prefere Resins Finland Oy
Palokankaantie 11

Formalin plant and glue factory

Prefere Resins Finland Oy is a manufacturer of formaldehyde, adhesive resins, and hardeners for the mechanical wood processing industry as well as the insulation wool and paper industries. The factory site is used for storing and processing substances including formalin, phenol, urea, melamine, methanol, as well as various acids and bases.

Potential hazards:

A runaway phenolic resin reaction may result in a thermal explosion, causing a pressure wave and flying debris that pose a hazard to the immediate environment. A fire in a methanol storage tank or a pool surrounding it may result in an explosion. Any explosion can cause harm to humans as well as severe environmental damage.

More information about our operations:

site manager Ilari Varhimo
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St1 Oy
Terminaalitie 4

Bioethanol plant

The St1 Oy Hamina plant manufactures bioethanol products.

Potential hazards:

A fire in the tanks, their embankment, or the tanker loading point may spread to the premises of adjacent operators.

More information about our operations:

terminal manager Mika Käätä
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www.kymenhva.fi



Regeneration plant

STR Tecoil Oy reprocesses used lubrication oils for re-refining. The end result of the refining process is an API Group II+ base oil, which can be used as a raw material in the manufacture of lubricants. Byproducts of the regeneration process include light fuel oil and bitumen. Chemicals used at the plant include lime, hydrogen peroxide, and hydrogen. All storage tanks are protected within embankments.

Potential hazards:

A fire in the storage tank of used lubricant, an explosion at the process or hydrogen plants, an oil spill into the sea during the loading or unloading of a ship. A widespread lubricating oil fire will generate large amounts of toxic gases. An explosion in the processing facility may cause a widespread fire in the area with a resultant emission of toxic fire gases. Depending on the wind conditions, the necessary isolation limit may be several hundred metres with a warning limit of several kilometres. In the case of a leak of the heat transfer fluid used at the refinery, the hot oil will vaporise into a cloud that poses a hazard to health. Depending on the wind, the necessary isolation limit may be several hundred metres with a warning limit of several kilometres.

More information about our operations:

Chief Executive Officer Jussi Vakkuri
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STR Tecoil Oy
Paksuniementie 15-17



Chemicals terminal

Wibax Logistics Oy is engaged in the temporary storage, unloading, and loading of liquid oil and chemical products.

Potential hazards:

A possible chemical leak from a storage tank may result in the risk of an accident. The area of harmful concentration (htp 15 min) arising from a large pool of methanol may, in the appropriate circumstances, extend as far as 600 m away. The ignition of heavier-than-air vapours is possible dozens of metres away from a leak site. A fire in a storage tank and/or within the embankment may endanger adjacent operators. A fire may result in burn injuries to exposed humans within a radius of about 120 metres.

More information about our operations:

terminal manager Juho Eriksson
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Wibax Logistics Oy
Terminaalitie 5



Latex plant

Trinseo Suomi Oy manufactures styrene butadiene and styrene acrylate latexes. Chemicals including, but not limited to butadiene, styrene, butyl acrylate, acryl nitrile, and acrylic acid are stored or processed in the plant premises.

Potential hazards:

Gaseous emissions may result from, for example, a breakdown in the reactor or other processing equipment, storage tank leaks, as well as leaks in the transfer piping for liquified butadiene or styrene. Butadiene may ignite 30-40 m away from the leak site. Acryl nitrile may ignite within about 5 m of the leak site. The warning limit, inside which acryl nitrile exposure may result in harm to human health, is 900 m. When warming up, acrylic acid may begin to polymerise, resulting in an intense explosion. In the case of a leak, immediate danger is posed within 25 m.

More information about our operations:

plant manager Juha Rantanen
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Trinseo Suomi Oy
Palokankaantie 1

Kotka



Advario Finland Oy
Kuusisaarentie 679

Liquid chemical storage

Advario Finland Oy engages in the storing and processing of various chemicals, renewable fuels, and their raw materials in its terminal within Mussalo liquid bulk port.

Potential hazards:

A leak or a fire at the tanker loading point, the tank wagon shunting yard, or inside the embankment of storage tanks may impact the premises of adjacent operators. Such a situation may result in significant emissions of harmful or toxic fire gases or other gases. The warning limit varies (25 to 500 m) by particular chemical.

More information about our operations:

terminal manager Merje Einmann
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Dongwha Finland Oy
Mercatorintie 8

Impregnation plant

The Dongwha Finland Oy impregnation plant is located inside the industrial premises of MM Kotka-mills Oy. The plant refines paper by impregnating it with a phenol formaldehyde resin. The impregnated products are utilised in the manufacture of laminates and the coating of plywood boards. The most hazardous chemicals employed at the site are phenol formaldehyde resins, methanol, and natural gas.

Potential hazards:

A major fire caused by hazardous chemicals, methanol, or phenol formaldehyde resins, which may cause toxic gases to be emitted into the environment. The isolation and warning limit is 600 m.

More information about our operations:

Chief Executive Officer IlJun Son
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KOTKAMILLS

Paper and board mills

The Kotkamills factories (MM Kotkamills Boards Oy and MM Kotkamills Absorbex Oy) manufacture kraft paper and packaging board. The Absorbex and paperboard production lines process and store hazardous chemicals. Dangerous chemicals used and generated in production include sulphur dioxide, lyes, turpentine, biocides, hydrofluoric acid, and methanol. The power plant and other processes use natural gas as a fuel. Additionally, chlorine

MM Kotkamills Boards Oy
MM Kotkamills Absorbex Oy
Norskankatu 6

is processed at the company's water works at the Langinkoski pumping station.

Potential hazards:

The sulphur dioxide used to bleach the mechanical pulp may cause the risk of a major accident. The spread of a gas cloud is effectively limited by the enclosed storage facility where the storage tank is located and where the sulphur dioxide is unloaded from tankers. The storage facility contains an emergency gas scrubber system to partially neutralise any sulphur dioxide leak. In the case of a major sulphur dioxide leak (several kg/s), an immediate isolation limit of 300 m in all directions and a warning limit of 1000 m downwind are to be established. In the case of a major chlorine leak (0.3 kg/s) an immediate isolation limit of 50 m in all directions and a warning limit of 300 m downwind are to be established.

More information about our operations:

fire and site security chief Erkki Länsimies
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Nurminen Logistics Services Oy
Siikasaarentie 78

General cargo warehouse

Nurminen Logistics Services Oy stores, on behalf of its clients in the commercial and industrial fields, flammable, toxic, oxidizing, corrosive, irritating, and harmful chemicals. These include e.g. 50-70 % hydrofluoric acid, nitric acid, organic peroxides, combustible liquids, and biocides. These products are stored in small-volume packaging, such as containers, bags, IBCs, and cartons. The products are delivered to the warehouse by lorry and by shipping containers, and sent out by lorry. No manufacture, refining, or packaging of the chemicals takes place at the warehouse.

Potential hazards:

As a result of an accident, significant emissions may affect the surroundings. In the case of a fire, the warning limit may be, depending on the weather conditions, up to 700 m. In the case of a hydrofluoric acid leak, immediate isolation must be implemented 50 m in all directions and 250 m downwind.

More information about our operations:

terminal manager Lauri Torkkeli
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Oy M. Rauanheimo Ab
Rompintie 182

Solid chemical storage

The Oy M. Rauanheimo Ab Mussalo chemical storage facility provides services related to the storage of hazardous chemicals. Storage operations include product reception, warehousing, and delivery. The products being stored are solid nickel and chemical products, packed in sealed bulk bags, hazardous to the



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environment and health. The warehouse may also store harmless chemicals (e.g. talcum). The warehouse also handles calcium oxide and sulphurous granulate in bulk.

Potential hazards:

In the case of a fire, toxic or otherwise harmful fire gases may spread to a large area. The effects of the most likely accident scenarios are limited to the warehouse premises.

More information about our operations:

security chief Jarkko Vaarakallio
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Puma Energy Finland Oy
Jämskäntie 7

Storage vault

Puma Energy Finland Oy processes and stores diesel fuel in a rock vault facility. The diesel is unloaded from tanker ships by pipeline directly into the rock vault. During storage, excess water leakage is removed at defined intervals by pumps equipped with oil-water separation gear.

Potential hazards:

A spill caused by a ruptured loading hose may cause a fire on the pier or environmental pollution. A fire in the pier area may spread to the premises of other operators. Such a situation may result in a significant emission of harmful or toxic gases. A leak in the diesel transfer pipeline may cause environmental damage.

More information about our operations:

storage manager Rauno Väisänen
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Stanoil Oy
Näkintie 62

Liquid chemical terminal

The Stanoil Oy Mussalo terminal has a permit to process and store various chemicals. The terminal is specialised in the storage and processing of methanol.

Potential hazards:

An explosion in an empty or nearly empty methanol storage tank would cause severe damage to the premises of adjacent operators as well. A leak at an unloading point and a pool fire at the embankment have the potential to spread to the tank wagon on the port railway. The harmful concentrations emanating from a large pool of methanol may, depending on the weather, reach as far as 600 metres.

More information about our operations:

Chief Executive Officer Nikita Ushakov
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Tanking Terminal Kotka Oy
Rompintie 44

Methanol terminal

Tanking Terminal Kotka Oy unloads, stores, and loads methanol.

Potential hazards:

A methanol leak occurring in the context of unloading, on-loading, or other terminal operations may cause an accident hazard. A fire may result in serious damage to the surroundings.

More information about our operations:

Chief Executive Officer Nikita Ushakov
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Vihmerä Ky
Kehätie 86

Pickling plant

Vihmerä Ky engages in the surfacing of acid-resistant and stainless steels at their pickling plant located in Karhula Industrial Park. Pickling is a process to remove the low-chromium oxide layer deposited on the steel by welding, restoring the surface properties of stainless and acid-resistant steel. Chemicals handled in this process include hydrofluoric acid 70 % (pickling tank), sodium hydroxide, Avesta Cleaner, and Avesta RedOne (pickling spray).

Potential hazards:

Fire or a leak from the pickling tank into the soil. The pickling process is conducted indoors. The production premises where chemical processing takes place are not linked to the public sewer system.

More information about our operations:

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Kouvola



Carpenter Engineered Foams Oy
Nevantie 2

Foam plastic factory

The Carpenter Engineered Foams Oy factory manufactures polyurethane foam for industrial purposes and consumer goods. The factory processes and stores toluene isocyanate (TDI), classified as acutely toxic.

Potential hazards:

In the case of a fire, hazardous gases may spread to a distance of about 110 metres. TDI will, when evaporating into the atmosphere in the context of a chemical leak, cause irritation to the eyes and the respiratory tract in the vicinity of the leak site. In larger concentrations, the vapours may cause bronchitis or asthmatic effects. The respiratory symptoms may begin only after a delay of several hours after exposure. TDI is classified as a substance hazardous to the environment.

More information about our operations:

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CH-Polymers Oy
Siilotie 7

Chemical plant

CH-Polymers Oy is located at the Kaipainen industrial zone and manufactures polymer-based bonding agents for the paper and packaging, paint and coating, and nonwoven fabric industries. The closed production process involves several flammable and toxic chemicals.

Potential hazards:

An accident risk affecting areas outside the plan may be caused by toxic gases that may potentially spread into the environment in the context of a chemical leak, automobile accident or fire. Particularly hazardous chemicals in this regard are: vinyl acetate, acrylate, and styrene monomers, as well as acryl nitrile, which is used in the manufacture of some products. The warning limits for each chemical are specific to the chemical, e.g. acryl nitrile 900 m, styrene 50 m.

More information about our operations:

chief of operations Timo Heimola
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Chemistry with a purpose.
Better every day.

Kemira Chemicals Oy
Patosillantie 5

Chlorine dioxide water solution production plant

Kemira Chemicals Oy manufactures chlorine dioxide, which is then dissolved into a water solution and delivered to the UPM Kymi pulp mill via pipeline. As intermediate products, sodium chlorate and hydrochloric acid are generated. Additionally, sodium hydroxide and hydrochloric acid are processed and stored in the plant premises.

Potential hazards:

A breakdown in the chloride dioxide transfer pipeline or a hydrochloric acid tank may result in a solution spill with an attendant gas emission, which is irritating to the respiratory tract. The gas, spreading with the wind, may cause symptoms of irritation at a distance of more than one kilometre. In the case of a leak, the immediate hazard area is limited to a few hundred metres downwind.

More information about our operations:

operating manager Kalle Malinen
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Oy Linde Gas Ab
Selluntie 1 (Kaarteenlahdentie 2.1)

VP SA plant (oxygen plant)

The Oy Linde Gas Ab Kymi VP SA plant produces gaseous oxygen used in the industrial process at UPM Kymi. The gas is piped directly into the mill's lines in gaseous form. Furthermore, in close proximity to the plant are liquid oxygen storage tanks, used by Linde to store liquid oxygen delivered by tanker from Linde's other plants. The raw material for the gas production process is the ambient air, and the plant does not cause any environmental emissions.

Potential hazards:

As the result of an oxygen accident, the accident site and its proximity may exhibit elevated oxygen concentrations, which in the case of a fire will enhance the combustion. Materials normally considered non-combustible may also combust in such circumstances. These effects will not impact areas outside the industrial zone.

More information about our operations:

plant manager Petri Lyijynen
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Solvay Chemicals Finland Oy
Yrjönojentie 2

Hydrogen peroxide plant

Solvay Chemicals Finland Oy manufactures and stores hydrogen peroxide for industrial use. The hydrogen gas required for its manufacture is extracted from natural gas at the plant site. The manufacturing process for hydrogen peroxide involves a process solution that contains combustible liquids. Small amounts of peracetic acid are stored at the plant premises.

Potential hazards:

In the case of an accident, the natural gas, the gaseous hydrogen, or the uncontrolled breakdown of hydrogen peroxide may result in an explosion, requiring an isolation limit of no more than 300 m.

More information about our operations:

plant manager Merja Partio
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StoraEnso

Stora Enso Anjalankoski Oy
Ensontie 1 & Etelätie 3

Paper and board mills

The Anjalankoski mills, the Anjala Paper Mill and the Inkeroinen Board Mill, manufacture mechanical pulp folding boxboard, printing paper for books, specialised newsprint paper, and magazine paper. Several hazardous chemicals, including sulphur dioxide, chlorine, lye, hydrogen peroxide, liquid oxygen, and natural gas, are stored and processed at the plant.

Potential hazards:

The most significant risks are posed by the sulphur dioxide, used and stored at the Anjala Paper Mill, as well as chlorine. In the case of a major emission, chlorine and sulphur dioxide gases will pose a danger to the closest residential areas. In a sulphur dioxide leak, symptoms of irritation may be caused up to 4 km from the Anjala mill. The solution released by the leak will cause a cloud of vapour to form, the development of which is strongly dependent on the prevailing outdoor temperature. The spread and dilution of the cloud are strongly influenced by the prevailing wind conditions. At the mill, the spread of the gas cloud is effectively limited by a closed storage tank building as well as a dedicated tanker hall for sulphur dioxide unloading. For chlorine and sulphur dioxide, the isolation limit is 300 m and the warning limit 1000 m downwind.

More information about our operations:

fire and safety manager Janne Tuominen
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UPM-Kymmene Oyj
Selluntie 1

Pulp and paper mill

The UPM Kymi mill manufactures bleached sulphate pulp, as well as coated and uncoated fine paper. Several chemicals classified as hazardous are stored and processed at the mill premises. Of these, chlorine dioxide water solution may pose a hazard outside the mill site.

Potential hazards:

A risk of an accident arises in the case of a potential breakdown of the chlorine dioxide water solution pipelines or tanks. The solution released by the leak will cause a cloud of vapour to form, the development of which is strongly dependent on the prevailing weather conditions. Gas being blown by the wind may cause symptoms of irritation about one kilometre downwind.

More information about our operations:

security chief Jenna Hakkarainen
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Kymenlaakso



HaminaKotka Satama Oy
Steveco Oy
Kotka (Hietanen and Mussalo port facilities)

Hietanen and Mussalo port facilities

HaminaKotka Satama Oy and Steveco Oy operate in various port facilities in Hamina and Kotka. The Hietanen and Mussalo facilities contain separated areas (IMO/IMDG areas) for the temporary storage of hazardous substances packaged in accordance with the IMDG code. The International Maritime Dangerous Goods Code (IMDG code) concerns international sea transportation. The port operator Steveco Oy supervises the IMDG areas and is responsible for the safe handling of cargo therein. They also have up-to-date information on each IMDG cargo in the port.

Potential hazards:

No IMDG cargo is seen as a likely cause of a major accident. The highest chance of an accident is evaluated to occur when a unit is being transferred or otherwise handled in the port premises or during unloading from / on-loading to a ship. Any such accident impact, however, would be limited to the local area. In the case of a fire or spillage, it is possible for smoke or chemical gases that are potentially hazardous to health to spread to a wider area, depending on the wind speed and direction.

More information about our operations:

security chief Maria Kämäräinen
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terminal manager Fabrizio Ferrara
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terminal manager Kai Peri
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Finnish Transport Infrastructure Agency

Hamina (Poitsila rail yard)
Kotka (Kotolahti-Mussalo rail yard)
Kouvola (Kouvola rail yard)

Väylävirasto
Trafikledsverket

Railway yards used for transport of dangerous goods

The Finnish Transport Infrastructure Agency (FTIA) is responsible for the development and maintenance of the state's road network, railways, and waterways. The FTIA is the infrastructure manager for rail yards designated for the transport of dangerous goods (VAK rail yards), responsible for the serviceability of the rail yards as well as the compliance to safety and quality regulations therein.

Operators responsible for the shipment of hazardous goods in the

railway yard are to transfer them as soon as possible to the unloading tracks specific to recipient businesses, or to transport them onwards.

Potential hazards:

A disaster risk will be present in major spillage, accident, or fire events. The isolation and evacuation limits are dependent on the material being transported, from several dozen metres to kilometres.

More information about our operations:

specialist Atte Kanerva
atte.kanerva@vayla.fi



Fortum Oyj
Atomitie 700, Loviisa

Loviisa nuclear power plant

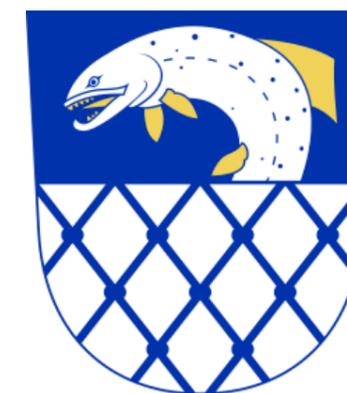
The electrical power plant is made up of two nuclear power plant unit in Loviisa, on the island of Hästholmen about 8 kilometres from the Kymenlaakso county border and Pyhtää municipality. Pyhtää is part of the emergency planning zone for the power plant.

Potential hazards:

A radiation hazard may be caused by a nuclear power plant disaster where radioactive materials are released into the atmosphere or the seawater in uncontrolled fashion. In such a situation, humans may be exposed to radiation due to airborne or fallout nuclear material, or because of radioactive substances that they have inhaled or ingested.

More information about our operations:

See the East Uusimaa Rescue Department, the Finnish Radiation and Nuclear Safety Authority, and Fortum websites.



Customer service, tel. 05 23161

www.pelastustoimi.fi/kymenlaakso

www.kymenhva.fi

Hazardous chemicals

Some of the chemicals being processed and stored in the Kymenlaakso region are highly flammable, harmful, irritating, or toxic. Chemical storage sites and transports will always be marked with the appropriate identification and warning signs so that the chemicals and their hazards are easily identifiable.



Chemical hazard pictograms:



NB! The physical and/or health and environmental hazard classification and categorization of all chemicals do not require warning signage in spite of their potentially hazardous properties. Therefore, it is vital to always study the user instructions and safety data sheets of chemicals and other substances beforehand.

Major hazardous materials transported, processed, and stored in the Kymenlaakso region:

Substance	Identification	Hazards and effects
Acrylic acid	Liquid: colourless, pungent and bitter odour.	Flammable. Harmful to aspirate, ingest, and on the skin. Toxic to aquatic life.
Acryl nitrile	Liquid: colourless. Turns yellowish under light. Somewhat sweet, pungent odour.	Highly flammable. Toxic when aspirated, ingested, and on the skin, and to aquatic life. May cause cancer.
Petrol	Liquid: yellowish, aromatic, ether-like odour.	Extremely flammable. May be lethal when ingested or aspirated. Irritating to the skin. May cause sleepiness, vertigo, procreative damage, and cancer. Toxic to aquatic life.
Butyl acrylate	Liquid: colourless, noxious odour.	Flammable. Irritating to the eyes, the skin, and the respiratory tract.
Diesel oil and naphtha	Liquid: clear or yellowish, mild smell of hydrocarbon.	Flammable. May be lethal when ingested or aspirated. Irritating to the skin. May cause damage to organs and cancer. Toxic to aquatic life.
Phenol	Solid (melted): colourless, with a pungent sweet odour. Reddens when exposed to air and light.	Toxic to aspirate, ingest, and on the skin. Corrosive to the skin and eyes.
Hydrogen fluoride, hydrofluoric acid	Liquid: colourless, strong and irritating odour.	Lethal to aspirate, ingest, and on the skin. Corrosive to the skin and eyes. May form flammable hydrogen gas.
Formaldehyde and formalin	Gas: colourless, pungent, suffocating odour. Formalin is a water solution of this chemical.	Toxic to aspirate, ingest, and on the skin. Corrosive to the skin and eyes. May cause procreative damage and cancer.
Oxygen	Gas: colourless and odourless. Pale blue when liquified.	Oxidizing. Enhances combustion and exacerbates a fire.
Chlorine	Gas: mildly yellowish, pungent odour. Orange when liquid.	Suffocating and oxidizing, exacerbates a fire. Toxic when aspirated and to aquatic life. Irritating to the eyes, the skin, and the respiratory tract.
Chlorine oxide	Gas: red-yellowish, somewhat sweet in small concentrations, noxious and foul when more concentrated.	Oxidizing, exacerbates a fire. Explosive by itself and when exposed to air. Lethally toxic to breathe in. Toxic to aquatic life. Corrosive to the skin and eyes.
Methane (natural gas, LNG)	Gas: colourless and odourless, odorized in processing (LNG: liquified).	Extremely flammable. Compressed gas, explosive hazard.
Methanol	Liquid: colourless and clear, mild odour of alcohol.	Highly flammable. Toxic to aspirate, ingest, and on the skin. Causes damage to organs.

Substance	Identification	Hazards and effects
Sodium hydroxide (lye)	Solid: pale and odourless. Usually used in a water solution. yleensä vesiliuoksena.	Corrosive to the skin and eyes.
Sodium chlorate	Solid: white, crystalline, odourless. Salty taste.	Oxidizing, causes a fire or explosion hazard. Harmful when ingested. Toxic to aquatic life.
Liquified gases (butane, butadiene, propane)	Gas: colourless and odourless, usually liquified and odorized.	Extremely flammable compressed gas, explosion hazard.
Radioactive materials	Atom: colourless and odourless.	Hazardous to health and the environment.
Heavy fuel oil	Liquid: black, strong odour.	Combustible. Harmful to breathe in. May cause cancer and damage to organs and fetuses. Toxic to aquatic life.
Sulphur dioxide	Gas: colourless, noxious odour.	Toxic to breathe in. Corrosive to skin and eyes.
Styrene	Liquid: colourless or yellowish, syrupy. Somewhat sweet, pungent odour.	Flammable. Harmful to breathe in. Irritating to the eyes and skin. Causes damage to organs.
Hydrochloric acid	Liquid: colourless, noxious odour.	Corrosive. May cause irritation of the respiratory tract.
Toluene isocyanate (TDI)	Liquid: clear, colourless, or yellowish, pungent odour.	Lethally toxic to breathe in. Irritating to the eyes and skin. Harmful to aquatic life.
Nitric acid	Liquid: yellowish, suffocating smell. Reddish-brown when smoking.	Oxidizing, can exacerbate fires. Lethally toxic to breathe in. Corrosive to the skin, eyes, and respiratory organs.
Turpentine	Liquid: colourless or yellowish liquid, pungent smell typical of solvents.	Flammable. Harmful to the skin, eyes, to ingest and to aspirate. Potentially lethal if ingested or aspirated. Toxic to aquatic life.
Hydrogen	Gas or liquid: colourless and odourless.	Extremely flammable compressed gas.
Hydrogen peroxide	Liquid: colourless, noxious odour.	Oxidizing, fire and explosion hazard. Harmful when aspirated and ingested. Corrosive to the skin and eyes. Extremely toxic to aquatic life.
Vinyl acetate	Liquid: colourless, sweetly fruity and ether-like odour, turning into a pungent, irritating sensation.	Highly flammable. Harmful to breathe in. May cause cancer.



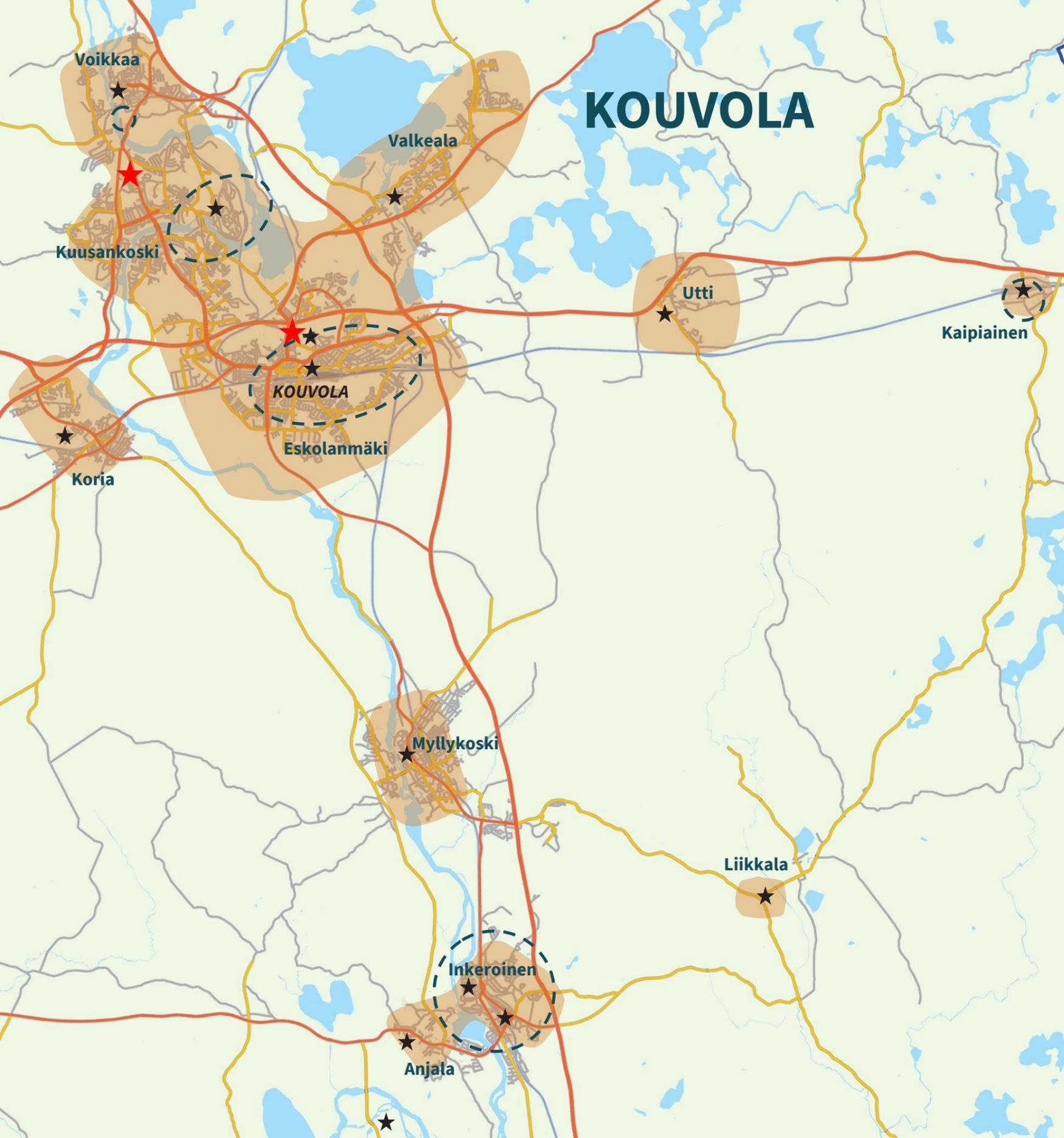
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www.kymenhva.fi



*Note that the coverage areas for public warning sirens and hazard limits for major accident hazard sites are approximate only. Aural coverage is significantly limited by e.g. weather conditions and terrain. Hazard limits for specific accident types are subject to significant variation depending on e.g. the specific accident location, weather conditions, chemical volumes and properties, as well as potential gas or smoke cloud formation.



If an accident occurs

The public authorities and operators are prepared for accidents, emergencies, and hazards all across Kymenlaakso.

Prepared in all areas

As noted previously, a major accident may occur outside of the danger zones set out in the maps above. Therefore, preparations have been made throughout the territory of Kymenlaakso.

There are five (5) full-time fire stations in Kymenlaakso (Hamina, Karhula, Kotkansaari, Kouvola, Kuusankoski), with an one-minute get-away readiness maintained around the year, every day of the year. In addition, the region has 34 contract fire brigades, whose alert personnel, fire stations, and appliances cover each municipality in Kymenlaakso. Several fire stations are also located in the municipalities of Pyhtää, Virolahti, and Miehikkälä, in territories not depicted in the above maps.

The rescue department has likewise placed public warning sirens also in areas not depicted on the maps, so that warning of potential danger can be transmitted to as many as possible as quickly as possible. Sirens are located not only in Hamina, Kotka, and Kouvola, but also close to key residential neighbourhoods in Pyhtää, Virolahti, and Miehikkälä, as well as e.g. on Kaunissaari island in Pyhtää.

Host Nation Support (HNS) practices
 The rescue department is also prepared to render and receive assistance to and from abroad in major disasters and crises.



Through cooperation

Major accidents that may endanger Kymenlaakso might, despite preparation and prevention, also originate from outside Kymenlaakso. This is why the public authorities and many operators engage in broad-based cooperative efforts on both a national and international basis. For example, the Loviisa Nuclear Power Plant located near Pyhtää also includes Pyhtää in its emergency planning zone. The East Uusimaa Rescue Department, the Finnish Radiation and Nuclear Safety Authority, and Fortum have compiled a separate safety information bulletin and instructions in case of a radiation hazard, which can also be found at the Kymenlaakso Rescue Department website, pelastustoimi.fi/kymenlaakso.

*Note that the coverage areas for public warning sirens and hazard limits for major accident hazard sites are approximate only. Aural coverage is significantly limited by e.g. weather conditions and terrain. Hazard limits for specific accident types are subject to significant variation depending on e.g. the specific accident location, weather conditions, chemical volumes and properties, as well as potential gas or smoke cloud formation.



Kymenlaakso Rescue Services

Wellbeing services
county of Kymenlaakso



The **test signal** is a continuous tone lasting seven seconds.



The **public warning signal** is a rising and falling tone lasting one minute.



The **all-clear signal** is a continuous tone lasting one minute.

Instructions when you hear a public warning siren

All are obliged to follow the instructions and requirements set out by the public authorities.

In a hazard or emergency situation, the public authorities will warn the public of a threatening, acute danger using a **public warning signal** and an **emergency warning message**. A public warning signal is issued through the fixed public warning sirens as well as mobile sirens mounted on vehicles. The sirens are primarily placed where the largest number of people reside or move. They are meant in principle to warn individuals who are outdoors and may not be clearly audible indoors. The public warning siren system does not cover all areas.

An emergency warning message is read out loud on the radio and displayed at Teletext page 112, as well as through a text crawl near the top of the TV screen is necessary. The emergency warning will also be published through the 112 Suomi and Yle apps as well as on the web at pelastustoimi.fi and 112.fi.

OUTDOORS



1 Go inside and follow the instructions below. If you cannot get inside, check the wind direction and go parallel to the wind to escape the gas cloud.



2 Try to reach high ground. Toxic gases will often sink.



3 If you find yourself in contaminated air, move slowly and breathe through a moist cloth.

INDOORS



1 Close doors, windows, ventilation hatches and air conditioning.



2 Turn on your radio and TV. Calmly wait for instructions and follow them.



3 Only call if you need immediate help. Follow information on the 112 app.



4 Try to get to the upper floors of the building if possible.



5 Remain indoors. Breathe through a moist cloth if you smell gas.

Civil defence shelters protect human life against e.g. explosive and fragmentation effects, collapsing structures, pressure waves radiation, and materials hazardous to health – but only after they have been prepared and stocked. Shelters must be maintained to a standard where they can be made ready for service within 72 hours by order of the rescue authorities.

After hearing a public warning siren, the most important thing to do is seek shelter indoors, wait for additional instructions, and follow them. Without being prepared for use, a civil defence shelter may be the most dangerous place in the building e.g. in a gas hazard situation, as many toxic gases are heavier than air. The rescue services authority can, if necessary, carry out a **protective evacuation**, an urgent measure to direct and assist people to a sheltered location away from a danger zone.

Preparing for disruptions and crises

Electrical blackouts and water failures, breakdowns in Internet or banking functionality, natural disasters, pandemics, military conflict... If something unexpected happens, it may be too late to learn things and stock up for the emergency. The preparation and actions of each individual impact on our collective performance.



Start preparing on time: **Preparedness guide** (suomi.fi)

112 Suomi application



Act for safety – download an app which helps get help to the right place in emergencies and crises. In the app, you can also find on-call numbers for non-urgent needs for help, and can receive official bulletins and emergency warning directly to your phone.

More information: 112.fi/112-suomi. Also familiarise yourself with the other potential safety and emergency call features your phone may have before you need them.