

ACTIVITIES CARRIED OUT IN HAZARDOUS ESTABLISHMENT

The Refinery produces high-quality products. Crude is supplied from the Būtingė Terminal to the Refinery by a pipeline. For better utilization of the Refinery's capacity, other feedstocks – straight-run fuel oil, vacuum distillate, gas condensate – delivered by rail and road are processed. The Company continues improving the quality of its products and the efficiency of processing. Currently, the Refinery produces unleaded gasoline 98 and 95, gasoline with ethanol (grade 95), gasoline with ETBE (ethyl tert-butyl ether), summer and winter diesel, diesel with FAME (fatty acid methyl ester), winter grade 2 diesel, dyed agricultural diesel, fuel oil, JET-A1, liquefied automotive and domestic petroleum gas, paving, roofing and construction bitumen, bitumens up to the requirements of EU standards, elemental sulphur and emulsified fuel. The design capacity of the Refinery is 15 million tons of crude per year. It actually processes 8-9 million tons of crude per year.

DANGEROUS SUBSTANCES AND MAIN HAZARD PROPERTIES

Crude and petroleum products as well as chemicals and their mixtures used in process units may harm human health and the environment and are therefore considered hazardous substances and classified according to various hazard classes and categories. The quantities of many dangerous substances meet or exceed the requirements set in the List of Dangerous Substances and Mixtures, the Description of Established Qualifying Quantities and Criteria for Classifying Substances and Mixtures as Dangerous.

Substances presenting high danger



Crude oil – highly flammable liquid and vapor easy to ignite by brief contact with an ignition source; if inhaled, its hydrocarbons affect the human body as a drug of abuse, and can cause dysfunction and diseases of the nervous system, cardiovascular, respiratory and digestive systems, with the effect manifested as general narcotic toxicity, headache, weakness, increased fatigue; the substance is carcinogenic, and suspected of causing cancer or fatal if swallowed and enters airways. Toxic to aquatic life with long-lasting effects.

Liquefied petroleum gas – colorless gas that has unpleasant specific odour and is highly flammable, it can explode when heated, an explosive air-gas mixture may form in the environment. If inhaled, the hydrocarbons affect the human body as a drug of abuse, and can cause dysfunction of the nervous and cardiovascular systems. High concentrations of LPG hydrocarbons, if inhaled, may cause sudden loss of consciousness or suffocation due to the lack of oxygen. Inhalation of low concentrations of gas may irritate the respiratory tract, cause dizziness, nausea, weakness, headache and drowsiness.

Gasoline – a clear liquid or vapor with specific hydrocarbon odour, may cause specific target organ toxicity, if inhaled or swallowed may lead to death, cause cancer and genetic defects, is irritating to skin, eyes and respiratory tract. Toxic to aquatic life with long-lasting effects.

Jet fuel, diesel – clear liquid or vapor with specific hydrocarbon odour, vapor is irritating to eyes and respiratory tract, if swallowed and inhaled may cause chemical pneumonia or even death, toxic to aquatic organisms with long-lasting effects.

Fuel oil – black flammable viscous liquid with specific hydrocarbon odour, may cause acute toxicity, harmful if inhaled, may cause specific target organ toxicity, may cause damage to organs through prolonged or repeated exposure. It is very toxic to aquatic organisms with long-lasting effects, may cause long-term adverse effects on soil.

Emulsified fuel – black flammable viscous liquid with specific hydrocarbon odour, may cause acute toxicity, harmful if inhaled, may cause specific target organ toxicity, may cause cancer, suspected of damaging fertility or causing harm to the unborn child, may cause damage to organs through prolonged or repeated exposure, very toxic to aquatic organisms with long-lasting effects, may cause long-term adverse effects on soil.

Hydrogen sulfide – highly flammable gas with rotten egg odour, causes acute toxicity, strong poison that may cause the paralysis of the central nervous system and death if inhaled. It is easy to smell very small amounts of this gas in the air, if inhaled may cause metallic taste in mouth, lacrimation, strong heartbeat, pain in the chest, suffocation, nausea, vomiting. Gases accumulate at lower altitudes, in ditches, cavities, wells. Especially hazardous in confined spaces. Hazardous to aquatic environment and very toxic to aquatic organisms.

Methanol (methyl alcohol) – colorless liquid with spirit odour, may cause acute toxicity, toxic when inhaled or in contact with skin, vapor is irritating to respiratory tract, may cause headaches, abdominal pain, nausea, diplopia, damage to optic nerves, if swallowed in small amounts (5-10 ml) may cause blindness, if swallowed in larger quantities (30 ml) may cause death.

Fire smoke – a complex mixture of heated air, solid and liquid suspensions, gases, vapours, aerosols. It contains more than 300 toxic substances. Burning of

crude oil and petroleum products may produce the following toxic substances: nitrogen oxide, sulfur oxide, carbon oxide, hydrogen sulfide, solid particles; whereas hydrocarbons, in the event of incomplete combustion, may be converted to aromatic hydrocarbons (benzene, toluene and xylene), etc. Avoid smoke, if noticed. The smoke composition is variable and hard to predict, thus it may cause human suffocation due to the lack of oxygen as well as poisoning with toxic aerosols present. Specific signs of intoxication include upper respiratory tract and pulmonary edema, laryngospasms and bronchospasms, depressive effects on the central nervous system with respiration weakening and increased sensitivity to toxins.

THE NATURE AND CONSEQUENCES OF POTENTIAL ACCIDENTS, PREVENTIVE CONTROL MEASURES

After assessing all potential sources of risk or hazard in the Refinery and the potential negative consequences for human health and the environment, a map of potential hazardous zones has been drawn up from the obtained anticipated incident development data ([see the map](#)). For various reasons, release of hazardous substances, fires and explosions can occur in the Refinery's production facilities. In the event of fire, people are exposed to the thermal radiation emitted by a flame. In addition to thermal burns that can be sustained by people near the seat of fire, intoxication with combustion products is also possible. In the event of explosion, there is a risk of being injured by flying fragments as well as blast wave overpressure. In the event of atmospheric dispersion of toxic vapors, the area to be avoided is the leeward side of the dispersion where toxic concentrations may exceed the set human exposure threshold values.

In order to limit the consequences of accidents for people and the environment and to ensure a high level of protection, the Refinery ensures implementation, functioning and continuous improvement of the safety management system, which defines the roles and responsibilities of employees, identification and assessment of major hazards, operational controls applied, including automated process control systems, emergency shutdown and emergency warning procedures, change management and planning for emergencies, during which emergency response plans are tested, theoretical and practical training provided to staff and emergency services, accident and incident investigations and implementation of response actions organized, the continuous assessment of the safety management system is performed during the monitoring of the results and audits.

EMERGENCY RESPONSE

In order to prevent and mitigate the consequences of possible major accidents and to make more efficient

use of forces and material resources, a Refinery's internal emergency response plan has been developed, which provides for the procedure for the declaration of emergency hazard, the emergency response actions of the Company's employees, joint actions with special services, Company's emergency services, the procedure for the mobilization, interoperability and management of forces. The external emergency plan of Mažeikiai District Municipality available on its website www.mazeikiai.lt contains a description of actions and measures to be taken to deal with the consequences of an accident at the Refinery and outside its territory, and arrangement of notification of the population. In the event of emergency, the residents must comply with the lawful instructions of the special services and the decisions of the Mažeikiai District Municipality Commission for Emergency Situations.

HAZARDOUS ESTABLISHMENT ROUTINE INSPECTIONS

Verification of compliance of the implemented technical, organizational and administrative measures with the requirements of the Regulations, and inspection of the Refinery as the upper-tier hazardous establishment is conducted at least once every 12 months by a competent authority and state supervisory and control institutions according to approved schedule of inspections. Approved schedules and amendments thereto are available on the website of Fire and Rescue Department at www.vpgt.lt.

DETAILS OF WHERE SAFETY REPORT AND LIST OF DANGEROUS SUBSTANCES CAN BE OBTAINED

Safety report, list of dangerous substances and more information on Company's activities are available on AB ORLEN Lietuva website at www.orlenlietuva.lt.

NOTIFICATION OF RESIDENTS AND OPERATORS OF ADJACENT ESTABLISHMENTS IN CASE OF EMERGENCY OR ACCIDENT

1. In the event of accident, the responsible staff of the Refinery, in view of possibly hazardous area ([see the map](#)), which may occur in the event of release of dangerous substances or petroleum products, fire or explosion at the Refinery, will notify by wired or mobile phone:

1.1. The residents of surrounding villages (if the resident is not reachable by phone, the Company's security staff will arrive to the house of the resident by a special vehicle);

1.2. The head of the elderate, the residents of which may be at risk;

1.3. The responsible persons of adjacent establishments.

