

Insight into Annex I



**Ministry of Environment and Water,
Bulgaria**

Structure of Annex I

- Part I - Categories of substances and preparations not specifically named in Part II
 - Based on generic toxicological, physical-chemical or ecotoxicological properties
 - Characteristic endpoints – LD₅₀, LC₅₀, EC₅₀, flashpoint, etc.
- Part II – Named substances
 - Substances of high concern /TDI, Methyl isocyanide, phosgene, chlorine/
 - Widely used substances /ammonium nitrate, LPG, petroleum products/
- Explanatory Notes

Annex I – Named Substances

Substance	Threshold
Ammonium nitrate	10,000/5,000/2,500/50
Potassium nitrate	10,000/5,000
Chlorine	25
Ethylene oxide	50
Hydrogen	50
Toluene diisocyanate	100
Sulphur trioxide	75
Lead alkyls	50
Phosgene	0.75
Methyl isocyanate	0.15
Liquefied extremely flammable gases (including LPG) and natural gas	200
Petroleum products: gasolines and naphthas; kerosenes (including jet fuels); gas oils (including diesel fuels, home heating oils and gas oil blending streams)	25,000

Ammonium Nitrate

- Threshold – 10,000/5,000/2,500/50 t.
- Identification
 - CAS No – 6484-52-2
 - EC No – 240-827-6
- Hazard Classification
 - Oxidising, decomposes at 210°C, with evolution of toxic fumes of nitrogen oxides, it may explode under confinement and high temperatures, forms heat or shock sensitive explosive mixtures with a wide range of substances (e.g. organic fuel, powdered metals, acetic acid, sugar), can react vigorously with reducing materials, ignites on contact with a number of substances, for instance sodium chloride.
- Uses
 - Production of fertilisers and explosives.

Potassium Nitrate

- Threshold – 10,000/5,000 t.
- Identification
 - CAS No – 7757-79-1
 - EC No – 231-818-8
- Hazard Classification
 - Strong oxidizer, Harmful if swallowed, May cause reproductive disorders.
- Uses
 - Fertilizer, Food preservation, fire stabilizer, heat treatment of metals, Glass industry.

Chlorine

- Threshold – 25 t.
- Identification
 - CAS No – 7782-50-5
 - EC No – 231-959-5
- Hazard Classification
 - Toxic by inhalation, Irritating to eyes, respiratory system and skin, Very toxic to aquatic organisms.
- Uses
 - manufacture of synthetic rubber and plastics (polyvinyl chloride, neoprene), chlorinated hydrocarbons, hydrogen chloride, metallic chlorides, also used for water purification, in processing of food and in shrinkproofing wool.

Ethylene Oxide

- Threshold – 50 t.
- Identification
 - CAS No – 75-21-8
 - EC No – 200-849-9
- Hazard Classification
 - May cause cancer, May cause heritable genetic damage, Extremely flammable, Toxic by inhalation, Irritating to eyes, respiratory system and skin.
- Uses
 - chemical intermediate for ethylene glycol (intermediate for the manufacture of polyester), nonionic surfactants, glycol ethers, ethanolamines, triethylene glycol and polyethylene glycol, used as a fumigant for foodstuffs and textiles, for sterilising instruments and as an agricultural fungicide.

Hydrogen

- Threshold – 50 t.
- Identification
 - CAS No – 133-74-0
 - EC No - 215-605-7
- Hazard Classification
 - Extremely flammable
- Uses
 - Production of ammonia and methanol, hydrocracking, hydroforming and hydrofining of petroleum, hydrogenation of vegetable oils, hydrogenolysis of coal, reducing agent for organic synthesis and metallic ores, as oxyhydrogen flame for high temperatures, making hydrochloric and hydrobromic acids. In liquid form is used as coolant and missile fuel.

Toluene diisocyanate

- Threshold – 100 t.
- Identification
 - CAS No – 91-08-7, 584-84-9, 26471-62-5
 - EC No – 202-039-0, 209-544-5, 247-722-4
- Hazard Classification
 - Very toxic, Irritating to eyes, respiratory system and skin, Limited evidence of a carcinogenic effect, May cause sensitization by inhalation and skin contact, Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 - Explosive in the form of vapour when exposed to heat or flame, when heated to decomposition it emits toxic fumes of nitrogen oxides.
- Uses
 - manufacture of polyurethane foams, elastomers and coatings. Crosslinking agent for nylon 6

Sulphur Trioxide

- Threshold – 75 t.
- Identification
 - CAS No – 7446-11-9
 - EC No – 231-197-3
- Hazard Classification
 - Oxidising agent, toxic by inhalation and corrosive to skin, eyes and mucous membranes, fire risk in contact with organic materials, combines with water, forming sulphuric acid and evolving light and a large amount of heat. Violent reactions also with e.g. acetonitrile, formamide, dimethyl sulphoxide, iodine, metal oxides.
- Uses
 - Sulphonation of organic compounds, especially nonionic detergents, and for solar energy collectors.

Lead Alkyls

- Threshold – 50 t.
- Identification
 - Triethyl lead, tetraethyl lead and tetramethyl lead
- Hazard Classification
 - toxic to the central nervous system, cumulative poison, experimental teratogens and have effects on reproduction, When heated to decomposition they emit toxic lead fumes.
- Uses
 - used as octane enhancers for petrols, also in ethylation operations

Phosgene

- Threshold – 0,75 t.
- Identification
 - CAS No – 75-44-5
 - EC No – 200-870-3
- Hazard Classification
 - Very toxic by inhalation, Causes burns.
- Uses
 - Chemical intermediate for toluene diisocyanate, methyl isocyanate, diphenylmethane-4,4'-diisocyanate, chloroformate esters, diethyl carbonate, dimethyl carbamoyl chloride, polymethylene polyphenylisocyanate, polycarbonate resins. Also used for manufacture of dyes, pesticides and herbicides.

Methyl Isocyanide

- Threshold – 0,15 t.
- Identification
 - CAS No – 624-83-9
 - EC No - 215-605-7
- Hazard Classification
 - Highly flammable, Harmful by inhalation, Harmful in contact with skin, Harmful if swallowed. Reacts violently with e.g. water (polymerisation, exothermic reactions). Container may explode violently in heat of fire. When heated to decomposition, hydrogen cyanide, nitrogen oxides and carbon oxides may be produced.
- Uses
 - intermediate in the manufacturing of N-methylcarbonate ester and N-methylurea insecticides and herbicides.

Liquefied extremely flammable gases (including LPG) and natural gas

- Threshold – 200 t.
- Identification
 - LPG: colourless flammable, noncorrosive, nontoxic gas obtained as a by-product in petroleum refining or natural petroleum manufacture, e.g. butane, propane, propene and their mixtures.
 - Natural gas: colourless flammable, asphyxiant gas composed of 85% methane, 10% ethane, the balance being made up of propane, butane and nitrogen.
- Hazard Classification
 - Extremely flammable, Risk of fire and explosion.
- Uses
 - LPG: domestic, industrial and automotive fuel, in welding, brazing and metal cutting, and as an intermediate.
 - Natural gas: fuel and cooking gas, in ammonia synthesis, petrochemical feedstocks, carbon black manufacture.

Petroleum products: gasolines and naphthas; kerosenes (jet fuels); gas oils (diesel fuels, home heating oils and gas oil blending streams)

- Threshold – 25000 t.
- Identification
 - Complex mixtures of hydrocarbons
 - Concawe Guidance Notes
- Hazard Classification
 - Flammable, Toxic for the environment
- Uses
 - Fuels and solvents