


## Killer contents


Tobacco smoke contains over 4,000 chemicals including five regulated hazardous air pollutants, 47 regulated hazardous wastes, more than 60 known carcinogens and more than 100 chemical poisons. For many of these cancer-causing contents there is no safe level of exposure. Here is a selection:



Chemicals in tobacco smoke	Hazards to human health	Extreme warnings	Industrial and other uses
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1-aminonaphthalene	Cancer-causing.		Dyes, rubber, weed control.
2-aminonaphthalene	Cancer-causing.	No safe exposure limit.	Industrial use is restricted.
2-naphthylamine	Causes bladder cancer.		Dyes, rubber.
3-aminobiphenyl	Causes mutation in micro-organisms.		
4-aminobiphenyl	Very potent cause of bladder cancer.	No safe level.	No longer used for industry.
7h-dibenz [c,g] carbazole	May cause cancer. May cause reproductive damage.	Very hazardous. No safe level of exposure.	
Acetaldehyde	May cause cancer. Irritant to eyes, skin and lungs. Causes growth retardation, malformation and death in animal foetuses. Increases absorption of hazardous chemicals in tobacco smoke in lungs.		Adhesives, cosmetics, mirror silver, leather tanning, fuel, dyes, plastics.
Acetic acid	Causes burns.	Avoid all contact.	Vinegar.
Acetone	Affects central nervous system. High concentrations can cause narcosis and unconsciousness.		Solvent, varnish remover, synthetic resins, paints.
Acetonitrile	Massive doses cause loss of consciousness, violent convulsions, paralysis, and death. Inhalation causes breathing difficulties, headaches, vomiting, chest and abdominal pain, convulsions, vertigo, thyroid changes, irregular heart beat, unconsciousness and death. Long-term exposure may affect liver, kidneys, and nervous system.	Danger! May be fatal if swallowed, inhaled or absorbed through skin.	Acrylic fibres, polystyrene.
Acrolein	Cancer-causing. Breathing large amounts causes lung damage, emphysema and death. Intensely irritating to eyes and throat.	Very hazardous. Acute toxicity. No safe level of exposure.	Pesticide, herbicide, plastics, Polyurethane, Tear gas, resins.
Acrylonitrile	Cancer-causing. Causes eye irritation, blistering of the skin and dermatitis. Also headaches, nausea and asphyxia. Affects the nervous system. Can deform a foetus.		Synthetic fibres, resins, plastics, furnishings, bottle manufacture.
Ammonia	Causes headaches, nausea, and intense burning of the eyes, nose, throat and skin. Contributes to chronic liver disease.		Bleach, cleaning agent, hydrolyses oils and fats.

	<b>Chrysene</b>	Cancer-causing in animals and humans.		
	<b>Cresol</b>	Damages central nervous system, liver, kidneys, pancreas and cardiovascular system. Vapour is an irritant to eyes and throat. Severe burns to all areas of contact. Exposure causes headaches, nausea, vomiting, high blood pressure, blood-calcium imbalance and tremors.	Poison! Danger! May be fatal if swallowed, inhaled or absorbed through skin. Corrosive.	Disinfectants, resins, dyes, fumigants, explosives.
	<b>Crotonaldehyde</b>	Severe irritant to the eyes, throat and skin. Can cause cancer.		Warning agent in fuel gases.
	<b>DDT</b>	Cancer-causing. Damages the liver. Temporarily damages the nervous system. Reduces reproductive success and can affect development.	Very hazardous compound to ecosystems and human health.	Pesticide.
	<b>Dibenz[a,h]acridine</b>	Cancer-causing. Possible irreversible effects	One of the most hazardous compounds to ecosystems.	
	<b>Dibenz[a,h]anthracene</b>	May cause cancer.	Avoid all contact! Very hazardous to ecosystems and human health.	
	<b>Dibenzof[a,i]pyrene</b>	May cause cancer. May cause heritable genetic damage.	Very hazardous to human health.	
	<b>Dioxane</b>	Cancer-causing. Increases white blood cell counts and urinary protein. Causes liver changes.		
	<b>Ethylbenzene</b>	Causes tightening of the chest and dizziness. Irritates throat and eyes.		Solvents, fuel, styrene.
	<b>Formaldehyde</b>	Can cause leukaemia, Hodgkin's disease and cancer in the lung, throat, mouth, liver, bone, skin, prostate, bladder, kidneys and eyes. Irritant to eyes, nose, throat and lungs. Causes phlegm, bronchitis, asthma, breathlessness, chest colds, dizziness, diminished dexterity, insomnia and unusual thirst.	Very hazardous compound to ecosystems and human health.	Fertilizer, dyes, disinfectants, germicides, preservatives, embalming fluid.
	<b>Formic acid</b>	Damages the cardiovascular and digestive systems, as well as liver, kidneys, nervous system, lungs and skin.		
	<b>Hexamine</b>	Some allergic rashes.		Rubber, adhesives, hair spray, deodorizers, fire lighters.
	<b>Hydrogen cyanide</b>	Large doses can cause unconsciousness, followed by violent convulsions, paralysis, protruding eyeballs, dilated pupils, foaming mouth and asphyxiation and death. Causes blindness and damage to optic nerves and retina. Chronic exposure causes eye irritation, nausea, vomiting, breathing problems, weak pulse, confusion and vertigo. Damages liver and thyroid.	Acutely poisonous.	Fumigation, insecticide, electroplating, metallurgy, photography.
	<b>Hydrogen sulphide</b>	Paralyses the sense of smell. Ability to detect the gas via smell rapidly diminishes. Can cause death.	Very toxic.	
	<b>Hydroquinone</b>	Eye injury, skin irritation and damages central nervous system.		Rubber, photography, paints varnishes, motor fuel.
	<b>Isoprene</b>	Irritation of the skin, eyes and mucous membranes.		
	<b>Lead</b>	Cancer-causing. Soluble in body fluids when inhaled. Low-level absorption increases blood pressure and causes anaemia. Long-term exposure may lead to kidney disease. Affects sperm formation, development of foetuses and causes irreversible damage to intellectual development in children.		Alloys, paint pigments, storage batteries, glass, plastics, ceramics.
	<b>Methanol</b>	Causes blindness and death.	A doctor should be contacted immediately.	Bus, rocket and jet fuel.
	<b>Methyl ethyl ketone</b>	Nose, throat and eye irritations.		Solvents, resins, rubbers, glues, lacquers, leatherette.
	<b>Methyl isocyanate</b>	Causes coughing, chest pain, severe breathing difficulties. asthma, lung oedema, emphysema.	One of the most hazardous compounds	Caused the Bhopal disaster.

		haemorrhages, bronchial pneumonia and death. Irritation of the eyes, nose, throat and skin.	to ecosystems and human health.	
	<b>Nicotine</b>	Mild poisoning causes nausea, vomiting, diarrhoea, headache, sweating, dizziness and confusion. Irritates the eyes and skin. High levels can affect the cardiovascular and central nervous systems, resulting in convulsions and respiratory failure.	Avoid exposure of pregnant women. In all cases consult a doctor!	Tobacco, insecticides, tranquilizing darts for wildlife.
	<b>Nickel</b>	Causes cancer. Chronic irritation of the upper respiratory tract or bronchial asthma. Chest infections and pulmonary oedema.		Stainless steel, electroplating, alloys, coins, alkaline batteries.
	<b>Naphthalene</b>	Damages or destroys red blood cells causing haemolytic anaemia. Damages the liver and kidneys. Causes nausea, headache, fever, vomiting, convulsions and coma. Irritation of eyes, skin and bladder.		Mothballs.
	<b>NAT (n-nitrosoanatabine)</b>	Possibly cancer-causing.	No safe level of exposure!	
	<b>Nitric acid</b>	Causes headaches, breathing difficulties and bronchitis. Irritation of eyes, mucous membranes and skin. Causes dental erosion. Acute exposure causes serious breathing problems, circulatory collapse, corneal ulcers, throat burn, gastritis, oesophageal and gastric burns and damage to blood vessels.		Corrosives, explosives.
	<b>NNK 4-(methylnitrosamono-1-3-pyridyl-1-butanone)</b>	Cancer-causing, particularly in the lungs.		
	<b>NNN (n-nitrosornicotine)</b>	Cancer-causing. May cause reproductive damage.	No safe level of exposure!	Only found in tobacco.
	<b>Phenol</b>	Damages the lungs and central nervous system, liver, kidneys, heart and circulation. Can induce convulsions. Irritating to skin and eyes.		Disinfectants, germicidal paints and slime inhibitor.
	<b>Polonium - 210</b>	Damages DNA, causes cancer and death.	1 million times more toxic than cyanide.	
	<b>Propionaldehyde</b>	Severe irritation of respiratory system, skin and eyes.		
	<b>Pyridine</b>	Cancer-causing. Damages the liver and kidneys. Causes gastro-intestinal upset. Irritant to skin and eyes. Depresses the central nervous system. Causes headaches, nervousness, insomnia and nausea. Reduces male fertility.		Solvents, resins and pesticides.
	<b>Pyrrolidine</b>	Harmful if swallowed or inhaled. Irritating to eyes, throat and lungs.	Danger! Causes burns to any area of contact.	
	<b>Quinoline</b>	Causes genetic mutations and increases risk of cancer. Can damage the retina of the eye and the liver. Allergic reactions can occur. Irritant to eyes, nose, throat and bronchial tube.		Dyes, catalysts, insecticides, herbicides, corrosion inhibitors and preservative.
	<b>Resorcinol</b>	Irritant to the skin and eyes.		Tanning, photography, resins dyes, laminates, adhesives.
	<b>Styrene</b>	Possibly cancer-causing. Causes pneumonitis, which can be fatal. Irritant to eyes and skin. Causes headaches, fatigue, dizziness, nausea. Reduces manual dexterity and slows reaction time.		Plastics, coatings, polyesters Resins, synthetic rubbers.
	<b>Toluene</b>	Long-term low-level exposure results in headaches, weakness, loss of appetite, menstruation problems, reductions in intelligence and psychomotor skills. Higher exposure results in encephalopathy, depression, impaired coordination, dizziness, nasal discharge and drowsiness. Possible reproductive toxin.		Rubber, oils, detergents, resins, adhesives, inks and dyes and explosives.
	<b>Urethane</b>	Cancer-causing. Can damage the kidneys and liver and induces vomiting, coma, and haemorrhages.	More hazardous than most chemicals.	Pesticides and fumigants.
	<b>Vinyl chloride</b>	Cancer-causing. Irritates the nose, throat and lungs. Causes breathlessness, headaches, nausea, dizziness and fatigue. Can cause Raynaud's syndrome.	Very Hazardous to ecosystems and human health.	PVC.

	<b>Anthracene</b>	Dust may irritate eyes, throat, nose or lungs. May cause allergic reactions. Possibly cancer-causing.	More hazardous than most chemicals.	Insecticide, fungicide, dyes, pigments, plastic, plant growth hormone.
	<b>Arsenic</b>	Sore throat, lung irritant, darkens skin with corns and warts on palms, soles and torso. Increases risk of cancer of the lung, skin, bladder, liver, kidney and prostate as well as cardiovascular disease. Acute exposure causes nausea, vomiting, diarrhoea, loss of appetite, shaking, cough and headache.		Pesticides, wood preservative alloying additive, glass.
	<b>Benz[a]anthracene</b>	Cancer-causing and a mutagen.		
	<b>Benzene</b>	Long term exposure can cause blood disorders from anaemia to leukaemia and other cancers. Short-term exposure causes headaches, breathlessness, irritability, dizziness, nausea, convulsions and loss of consciousness. Irritant to eyes, nose, throat and lungs.		Was used in inks, rubber, paints, lacquers, paint remover, gasoline additive.
	<b>Benzo(a)pyrene</b>	Causes bladder, skin and lung cancer. A mutagen. May damage the developing foetus. Decreased reproductive capacity for males and females.	Hazardous compound. Consult a doctor! Avoid all contact! Avoid exposure for pregnant women.	No industrial uses.
	<b>Butane</b>	High concentrations may cause asphyxiation, paralysis and loss of consciousness. Low concentrations cause dizziness, headache, nausea and loss of co-ordination.		Component of liquefied petroleum gas, lighter fuel.
	<b>Butadiene</b>	Cancer-causing. Irritates mucous membranes. Causes narcosis at high levels of exposure. Developmental and reproductive toxicant.	Very hazardous to human health and ecosystems.	Synthetic rubber, nylon carpet backing, latex adhesives.
	<b>Butanedione</b>	Respiratory irritant.		
	<b>Butanone</b>	Severe burning and irritation of eyes, nose, throat and skin. Causes headache, dizziness, nausea, vomiting, fatigue, loss of coordination, insomnia, numbness in hands and feet, irregular heart beat, fainting, unconsciousness also stomach pain and diarrhoea.		Lacquers, paint removers, cements, adhesives, cleaning fluids, celluloid.
	<b>Butyraldehyde</b>	Irritant to eyes, nose, throat, lungs and skin. Causes dizziness.		Resins, solvents, plasticisers.
	<b>Cadmium</b>	Cancer-causing, particularly for lung and prostate. More dangerous by inhalation than by ingestion. Skin and eye irritant. Causes breathlessness, chest pain, flu-like symptoms and acute pulmonary oedema. Long-term exposure, even low concentrations can cause kidney damage or cancer.		Protective coating on metals, batteries, nuclear reactors television phosphors, PVC.
	<b>Carbazole</b>	Cancer-causing.		Dyes, agrochemicals.
	<b>Carbon disulphide</b>	Reproductive and developmental toxicant.		Rayon, cellophane, solvent, insecticide, fumigation.
	<b>Carbon monoxide</b>	Replaces oxygen in the blood, causing suffocation. Mild CO poisoning is like flu. Serious poisoning leads to difficulty breathing and death. Increases risks of low birth weight, perinatal death or mental retardation.		Fuel combustion.
	<b>Carbon tetrachloride</b>	Damages liver, kidneys and nervous system. Causes intoxication, headaches, dizziness, nausea and vomiting. In severe cases, coma and death.		
	<b>Catechol</b>	If inhaled with benzo[a]pyrene (in tobacco smoke), can cause cancer. Increases blood pressure. Irritant to the throat and skin. Higher doses cause kidney damage and convulsions.	Poison!	Solvent, dry cleaning fluid.
	<b>Catecholamine</b>	Linked to diseases and syndromes such as: hyperactivity, hypotension, Brunner syndrome, neonatal hypotonia and seizures, phenylketonuria, multiple endocrine neoplasia and neurofibromatosis.		Photography, rubber, dye, oil, insecticide, ink.
	<b>Chromium</b>	Cancer-causing. Can induce an allergic reaction.		