

Acidification

A chemical reaction that lowers the pH level in lakes, groundwater and soil due to the effects of nitric acid, which is formed from nitrogen oxides (see definition), and sulfuric acid, which is formed from sulfur dioxide. Acid precipitation on the surface of foliage directly affects plant life. Biodiversity in lakes and waterways decreases. Acidification increases the solubility of heavy metals and aluminum in the soil, which can inhibit root growth. Acid rain attacks iron structures and objects of sandstone, limestone and marble, such as statues and facade ornamentation.

Acetate Acetic acid (CH₃COOH)

Used by airport operators to deice takeoff and landing strips, as a more environmentally friendly alternative to urea (see definition). Contributes to nitrification/eutrophication.

ATK (Available Tonne Kilometers)

Available (offered) capacity for passengers and cargo expressed in metric tonnes, multiplied by the distance flown.

Biofuel

Solid or liquid fuel derived from organic matter, primarily plants.

CAEP (Committee on Aviation Environmental Protection)

Technical committee of the ICAO (see definition) charged with developing and establishing rules and recommending measures to reduce the environmental impact of aviation.

Carbon dioxide (CO₂)

A colorless gas that is formed in combustion of all fossil fuels, The airline industry's CO₂-emissions are being reduced through a changeover to more fuel-efficient aircraft, something that is also desirable from a financial standpoint since lower fuel consumption automatically means lower costs.

Carbon monoxide (CO)

A toxic and combustible gas formed by incomplete burning of substances containing carbon, e.g. fossil fuels.

Certification requirements

The ICAO's minimum requirements for certification of aircraft types, such as limits for noise and emissions of carbon dioxide, nitrogen oxides and hydrocarbons.

CFCs (Chlorofluorocarbons)

Certain halogenated hydrocarbons, best known under the trademark Freon.

CO₂

Carbon dioxide (see definition).

Concession

Official permit to conduct certain operations, often designed to ensure compliance with environmental protection requirements and appropriate utilization of natural resources.

Chapter 2, 3

Certification standards for noise according to the ICAO's document Annex 16. Specifies the maximum permitted noise levels. Chapter 3 means a lower noise level than Chapter 2, and the coming certification standard Chapter 4 denotes a lower noise level than Chapter 3.

DAC (Double Annular Combuster)

A technology that reduces nitrogen oxide emissions from aircraft engines.

ECAC (European Civil Aviation Conference)

A forum for cooperation and coordination between European national authorities in matters related to civil aviation.

Ecoefficiency

A term launched primarily by the environmentally-oriented business organization WBCSD. Ecoefficiency is defined as a tool that companies can use to measure their environmental performance relative to how market demands are met and the company's financial performance is improved. The goal of ecoefficiency is to generate qualitative growth where value is created instead of transforming unnecessary volumes of material and energy into waste.

Ecosystem

An ecological system encompassing all life and living environments within a defined area.

Emission

Dispersal of a substance into the air, water or soil.

ENTAF (Environmental Task Force)

A work group within the IATA that deals with environmental issues.

EPNDB (Equivalent Perceived Noise)

A unit commonly used in an aviation context to express the average perceived noise level. (See also Noise.)

Fossil fuels

Fuels consisting of organic carbon and hydrogen compounds in sediment or underground deposits - especially coal, oil and natural gas.

Freon

See CFCs.

GCD (Great Circle Distance)

A definition of the shortest flight distance between two points, taking the curve of the earth's surface into account.

Germicides

Chemicals used to kill or prevent the growth of harmful microorganisms such as bacteria, virus or fungus. Added to the sanitizing liquid in aircraft lavatories reduce the risk of infection.

Glycol

An alcohol that is sprayed on the aircraft in cold weather to prevent ice formation. Today, a non-toxic propylene glycol is used. Some 80% of the glycol runs off the aircraft when applied, and seeps into the ground unless collected. A further 15% is emitted into the air and thus dispersed in the vicinity of the airport. The airports are responsible for collecting the glycol runoff for re-use,

Greenhouse effect

Carbon dioxide and other gases trap and reradiate incoming solar radiation that would otherwise be reflected back into space. The problem is that emissions of greenhouse gases have increased. Most scientists agree that heavy human use of fossil fuels is causing global warming. Carbon dioxide is formed in combustion of all fossil fuels, but burning of biofuels only emits an amount of carbon equal to that absorbed during growth, producing no net emissions. However, use of coal, oil and natural gas produce a net increase, since they release carbon that has been bound in the earth's crust. The freon substitute HFC, methane and nitrous oxide are other powerful greenhouse gases. Other gases that contribute to the greenhouse effect are CFCs (see definition), methane and nitrous oxide.

Halons

A collective name for halogenated hydrocarbons and, specifically, a brand name for a fire extinguishing agent.

HCs

Hydrocarbons (see Volatile organic compounds).

Heavy metals

Certain high density metals, such as cadmium and mercury, that have both acute and chronic toxic effects.

Hydrocarbons

See Volatile organic compounds.

IATA (International Air Transport Association)

The UN cooperative body for around 270 of the world's airlines.

ICAO (International Civil Aviation Organization)

The UN's agency for international civil aviation. One of its functions is to develop internationally binding norms for commercial aviation.

Insecticides

Chemicals that are used to combat insects.

IPCC (Intergovernmental Panel on Climate Change)

An expert panel established by the United Nations Environment Program UNEP and the World Meteorological Organization WMO to assess the consequences of human-induced climate change.

ISO 14000

A series of international environmental standards developed by the International Organization for Standardization. The general guiding principles for ISO 14000 are identical to those in the quality standard ISO 9000. There are several environmental standards in the ISO 14000 family, such as for environmental management systems (ISO 14001), environmental labelling, environmental audits and life cycle analyses.

Load factor

Percentage of available cargo capacity that is utilized during a flight.

N-ALM

The Nordic Working Group for Environmental Issues in Aviation, composed of civil aviation, environmental and communication authorities and airlines in the Nordic countries.

Nitrogen oxides (NO_x)

Formed in all combustion in aircraft engines since the high temperature and pressure cause the atmospheric nitrogen and oxygen to react with each other, mainly during takeoff and ascent when the engine temperature is at a maximum. With effect from 1996 the ICAO has tightened the requirements for nitrogen oxide emissions, and these are expected to be made even stricter. New engines with double annular combustors (DAC), for example, reduce emissions by up to 40% compared with the previous generation of engines.

Noise

Environmentally detrimental, undesirable sounds. The environmental impact of air traffic in the form of noise is primarily of a local nature. (See also EPNDB, Chapter 2, 3)

Nox

Nitrogen oxides (see definition)

Nutrification

From having originally been a local phenomenon in which farming has given rise to nutrification on limited tracts of land, this problem has now expanded to the regional scale as increasingly large areas are affected by nitrogen fallout from the air.

As a result of increased nitrogen levels and rapid growth, leaves and needles to age faster and fall, trees become more sensitive to frost and resistance to parasites decreases. Algae and other microorganisms begin to appear, e.g. on needles and tree trunks, and nitrogen-seeking-

ing vegetation eventually dominates the ecosystem, fundamentally altering the biological composition. Nitrogen oxides in water form nitrates, which decrease the quality of drinking water when they seep into the groundwater.

The addition of nitrogen also causes imbalances in waterways, leading to increased production of biological material that consumes a great deal of oxygen during decomposition, and the deoxygenation that may then arise kills fish and shellfish living at the lake bottom. Nitrogen-seeking vegetation proliferates at the expense of other plants, and one well-known phenomenon in recent years is the mass-proliferation of certain marine algae.

Oil aerosols

Oil emitted from the aircraft engines during operation under high pressure. Upon contact with air they form a fine mist, which is then broken down primarily into carbon dioxide.

Ozone (O₂)

90% of all atmospheric ozone is found in the stratosphere at an altitude of between 10 and 50 km above the earth's surface, where it forms a protective layer that deflects ultraviolet radiation. Use of halogenated hydrocarbons such as freon lead to depletion of the ozone layer. Aircraft emissions of nitrogen oxides in the stratosphere also contribute to this depletion.

Particles

Particulates: 1. Fine liquid or solid particles such as dust, smoke, mist, fumes, or smog, found in air or emissions. Particles found in the air we breathe vary greatly in size. The greatest health hazard from particles comes from the smallest ones - less than 10 microns (10 µm or 10 micrometres). The amount of exposure to pollutants is often measured in units of micrograms of substance per cubic metre of air (µg/m³).

Photochemical

Of or relating to a process, reaction, etc., caused by absorption of solar radiation.

Route sector

Classification of flights according to different types of traffic - such as scheduled or charter flights - and geographic orientation, e.g. Scandinavia or Europe.

RTK

(Revenue Tonne Kilometers), utilized (sold) cargo capacity expressed in metric tonnes, multiplied by the distance flown.

Slot

The time allotted to a flight for takeoff or landing at an airport.

S₀₂

Sulfur dioxide (see definition).

Stratosphere

Part of the earth's atmosphere (see definition) between 10 and 50 km above the earth's surface.

Sulfur dioxide (SO₂)

Formed in combustion of fossil fuels. A colorless gas with an acrid odor that is toxic when inhaled in large quantities. Aviation fuel contains a minute proportion of sulfur, and, accordingly, causes only minor emissions of this substance. The same applies to the "green" diesel used in ground vehicles. In the airline industry, as many other industries, sulfur dioxide emissions come largely from oil-fired heating.

Sustainable development

When mankind satisfies its needs to today, it does so without limiting the opportunities for future generations to satisfy theirs.

Tonne kilometers

The number of transported metric tonnes of cargo multiplied by the distance flown.

Triazol

Organic aluminum compounds, often used as additives to glycol to prevent corrosion and as a fire retardant. Triazols are long-lived and non-degradable, and are absorbed by living organisms.

Troposphere

The lowest layer of the atmosphere (see definition) extending to an altitude of 10 km above the earth's surface.

Urea

A urine substance synthetically produced from carbon dioxide and ammonia that is used by airport operators for deicing of runways. Contributes to nitrification/eutrophication. See also Acetate.

Volatile Organic Compounds (VOCS)

Emitted during incomplete combustion of fossil fuels - in aviation mainly when the engines run at low speed and the temperature in the combustion chamber is low. This category also includes all types of solvents that evaporate from detergents and paints, among other things. With effect from April 1, 2002, only aircraft with low VOC emissions will be permitted in the EU.

Weighted landings

A term used to express the work input per departure, depending on the aircraft type and route sector. Based on SAS's most common aircraft type (MD-81), which has been assigned a weighted landing value of 1.0. A smaller aircraft that requires a lower work input will have a lower value and a larger aircraft will have a higher weighted landing value.

Wet lease

When airlines lease in aircraft including personnel for operation in scheduled traffic. The flights are made

using the leased a., line's flight numbers. A dry lease is the other version, where only the aircraft are leased in.