

Sources at airports include emissions from aircraft engines during approach, landing, taxiing, take-off and initial climb, with the principal pollutant being nitrogen oxides. Other pollutants include carbon monoxide, unburned hydrocarbons and smoke. Fortunately, however, sulphur dioxide, which is a major component of some industrial emissions, is not produced in significant quantities by aircraft engines.

As a major step in combatting this problem, ICAO, in 1981, established standards for the control of emissions through an engine certification scheme, which establishes limits for the three main gaseous pollutants from new engines.

In addition, there are limits on the production of smoke, so that engine exhausts are now required to be virtually invisible, and a prohibition on the deliberate venting of fuel from engines, which hitherto had been largely blamed for the typical kerosene smell at airports.

Because these standards are aimed at the local air pollution problem, they are based on the aircraft's landing and take-off cycle, and do not cover emissions during the cruise phase. Nevertheless, any measures taken by the engine designer to control emissions at low altitude also help to control emissions at higher altitudes.

Because of the fact that emissions near airports are subject to two opposing trends, namely the re-

**Aircraft account for an estimated 3% of the world's oil consumption and produce about 2% of man-made emissions.**

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placement of older aircraft by new "cleaner" ones and the increasing number of aircraft movements, ICAO keeps these standards under constant review. In 1993, for example the Organization reduced the permitted amounts of nitrogen oxides by 20%.

However, with the emergence of new environmental problems of a global nature to which aircraft engine emissions may be contributing, the problem of air pollution near airports can no longer be considered in isolation.

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