

Airbus is an active board member of the Air Transport Action Group (ATAG) which sets goals and mobilises action on strategic aviation issues such as climate change through involvement throughout the industry (*i.e.* with other manufacturers, airlines, airports, air traffic management).

Aviation is a global industry and requires global solutions. ICAO, a specialised agency of the UN, has a proven track record of delivering robust aviation environmental standards and guidance (*i.e.* air quality, noise, CO₂). Airbus has shown a long-term commitment to support the need for global civil aviation governance, with ICAO as its corner-stone, working together with stakeholders across the aviation industry and with the relevant governmental agencies.

Airbus, with the rest of the aviation industry, has supported the ICAO agreements in 2016 on the CO₂ standard and Carbon Offsetting & Reduction Scheme for Aviation (CORSIA), the new international carbon offsetting scheme for aviation.

Airbus continues to proactively support emissions and noise reduction once its aircraft go into service. This could be through fuel efficiency services, weight saving projects, retrofits (*i.e.* sharklets) and ground operations (*i.e.* eTaxi). In 2015, Airbus launched the Sustainable Aviation Engagement Programme, establishing long-term cooperations with various Airbus operators to offer ways to reduce their environmental footprint.

Clean Sky was at the time of its launch the largest European research programme funded by the EU, developing innovative, cutting-edge technology aimed at reducing CO₂, gas emissions and noise levels produced by aircraft. As part of this programme, Airbus developed the Bluecopter concept, which demonstrates a number of fuel saving and noise reduction technologies. It is already the quietest helicopter worldwide in its category, and also the first to reach the noise category A+. The demonstrator underwent a stringent flight test campaign until April 2017 in order to validate the effectiveness of the technologies developed in the frame of the CleanSky programme.

In September 2017, the Company used a modified A340 aircraft to test the laminar flow concept developed by Clean Sky. The BLADE project aims to reduce wing friction by 50% and reduce CO₂ emissions by up to 5%.

2. Environmental Concerns

Regulated substances across its products' lifecycles

Aerospace manufacturing, operations and maintenance rely on certain regulated substances to achieve a high level of quality, safety and reliability accounting for lengthy product lifecycles. Some of these substances are or may in the future be classified as substances that may pose a risk to human health or the environment. These type of risks depend on many factors such as the category of classification, but also the operational use of these substances under applicable laws/regulations laying down occupational exposure limits, and the lifecycle stage of the products.

If a substance not yet identified is classified in the future as one that may pose a risk to human health or the environment, this may give rise to substantial costs for Airbus to manage it, including, for example, research and development (whether alone or in cooperation with other stakeholders) of suitable alternatives, testing, qualification and certification costs. Any reputational risk and potential claim against Airbus that may result will also need to be managed.

Airbus continues in its activity (also in cooperation with industry stakeholders) to identify new technologies and solutions that avoid use of substances classified as posing a risk to human health or the environment, whilst satisfying airworthiness, certification and performance requirements. Airbus also engages with suppliers to promote the adoption of a similar approach through regular communication and, more widely, by working together with the aerospace industry to promote worldwide harmonisation of regulations and ways of working, taking into account the sector's safety and lifecycle specificities.

Airbus identifies, tracks and declares regulated substances. The Company has already substituted certain substances of concern or developed replacement technology where suitable alternatives have been found, such as some ozone-depleting substances (ODS), fluorinated gases, or substances of very high concern (SVHCs) under the European regulation REACH. On top of all applicable regulatory requirements, more than 100 substances have been targeted by Airbus for substitution and the Company is always looking for new solutions. For example, Airbus Commercial Aircraft launched the Airbus chromate free project in 2006. The project has so far delivered substitution solutions for a considerable number of usages and continues efforts to substitute the remaining ones. One of the first steps was to deploy chromate-free surface protection systems, with among others, operational changes and replacement within Airbus' production lines. Over 100 suppliers are now "qualified" to use chromate-free pickling before anodisation.

Within IAEG, Airbus contributed to the creation of the IAEG "Aerospace and Defence Declarable Substances List" (AD-DSL) and the associated declaration standard (IPC-1754). The AD-DSL provides an initial common list of chemicals/substances identified and reviewed by IAEG as used within the aerospace and defence supply chain and thus will make it easier to work with regulatory agencies to appropriately manage regulated substances and chemicals used in manufacturing.

Surface modification by laser is a new technology developed by Defence and Space to replace the use of substances for some processes, notably for pre-treatment before bonding. This technology is now available for some Space Systems applications and is planned to be implemented into the serial production of flight hardware for New Generation Synthetic Aperture Radar satellites (NGSAR).