

Air China Launches China's First Test of Biofuel Flight

Thanks to the successful teamwork by Air China, PetroChina, Boeing and [Honeywell UOP](#), China's first airplane demonstration test using sustainable aviation biofuel was launched in Beijing Capital International Airport on October 28, 2011, based on the energy cooperation between China and the US. During the perfect test flight launch at this airport, the B747-400 passenger plane which is still in service was driven by aviation biofuel, the teamwork fruit of PetroChina and UOP.

The leader of the crew for this flight was Mr. Zheng Weimin, the Deputy Managing Director of Air China Fleet. With abundant flight experience, he has been awarded for many flight safety honors. Also, Zheng served on the first charter flight for Chinese evacuation in Libya with a B747. Captain Zhang Rongbin is the Deputy Director of the Flight Crew Subdivision IV of Air China Fleet. He made a prominent performance in Chinese evacuation in Libya too, and served on the important charter flight for the Olympic Games twice. Mr. Yuan Hang was the chief copilot, a young airman model in subdivision IV, having twice served in Chinese evacuations in Libya.

The crew made an elaborate preparation before the test flight. They made specific studies in order of the process requirements on fuel ingredients, the differences to traditional fuels, impact possibilities to flight and special occasion management. Through iterative exercises in simulators, the crew was getting more familiar with such circumstances. All of this contributed important information for the success of the test flight.

The feedstock for this test launch is derived from the jatropha material base of PetroChina. With the technology of UOP, the crude oil of jatropha could be transformed into aviation biofuel. In order to accord with both the standard of GB6537 and ASTM D7566-11 simultaneously, China Aviation Oil mixed aviation biofuel with traditional aviation kerosene by a proportion of 50:50. Boeing and P&W are the technology support providers for aircraft and engine, respectively.

The quality of aviation biofuel may meet or even surpass the current aviation oil standard. Aviation biofuel can work properly after being directly mixed with traditional fossil-fuel, neither aircraft nor engine needs to be refit, and neither storage nor transportation facility needs to be built or rebuilt. At present, the Federal Aviation Administration (FAA) of the US has ratified the standard of ASTM D7566-11. Therefore, any mixed aviation biofuel according to this standard can be used on business flights immediately. With such advantage, aviation biofuel may replace traditional fossil-fuel. The great pressure brought by the oil shortage would be reduced if aviation biofuel was industrialized. Presently, the second-generation biofuels are mainly jatropha, camelina, salt plant and microalgae. These non-food sources do not compete with food crops for land or water. Also, many aspects should be taken into account in the process of aviation biofuel development, such as biodiversity protection, regional economic development promotion and more employment opportunities. Therefore, many industries include carriers and energy suppliers, and aircraft and engine manufacturers are working together now to accelerate the development and industrialization of sustainable aviation biofuel.

For a long period, electricity, solar power, hydrogen power, nuclear power and many other new energy resources are limited for use on business flights to ensure flight safety, the primacy of the industry. Hence the only replaceable energy resource for aviation is biofuel. The application of biofuels in aviation would be a brand new environmental protection technology as well as instrument which may play a significant role in the business of aviation emission reduction, energy crisis management, as well as a sustainable industry development.

In recent years, Air China has committed itself to green flight of what energy-saving and emission reduction is highly valued. Through fleet optimization, second dispatch and a series of other actions, the operation efficiency is advanced, aviation kerosene is saved, and exhaust emission is dwarfed. Aiming at energy-saving and emission reduction, Air China created the Energy and Environment Test System in 2009 by itself, inaugurated its Green Flight in 2010, joined the Sustainable Aviation Fuel Users Group (SAFUG) and became the first carrier that launched the airplane demonstration test flight for biofuel in China in 2011.