

April 13, 2020

Green Earth Institute Co., Ltd.

Japanese first ever bio-jet fuel completed
-Bio-jet fuel made from used clothing passes ASTM international standards-

Green Earth Institute Co., Ltd. has been working on the production of bio-jet fuel in cooperation with Japan Airlines Co., Ltd.

On March 23, the fuel produced from used clothing passed the ASTM international standard (ASTM D7566 Annex5 Neat) *.

By passing this international standard, this bio-jet fuel can be mixed with conventional jet fuel and used for commercial flights.

While the commercialization of bio-jet fuel is progressing worldwide, this is the first time that a commercially available bio-jet fuel has been completed in Japan **.

The characteristic of this bio-jet fuel is the so-called “all domestic bio-jet fuel”, which is made from used clothing collected in Japan and completed with domestic technology using existing facilities in Japan with the cooperation of multiple domestic companies.

It is also the first case in Japan to make isobutanol, a raw material for bio-jet fuel, from cotton fiber, a non-edible biomass, using microorganisms that have made amino acids from sugar cane and corn.

Although the target of quantity was not reached as the result of various challenges in manufacturing with using only existing facilities, thanks to many project members such as Japan Airlines Co., Ltd., JEPLAN, Inc., The Research Institute of Innovative Technology for the Earth (RITE), we were able to succeed in producing the first domestically produced bio-jet fuel.

We received the report on March 23 that our bio-jet fuel passed all specifications for bio-jet fuel.

Leveraging this bio-jet fuel manufacturing experience, we will establish mass production technology and lead to commercialization as soon as possible.

Bio-jet fuel made from non-edible biomass is expected to contribute to solving global warming problem without causing food crisis.

GEI will continue to work toward the realization of a world that does not increase CO2 emissions through the development and commercialization of green chemicals made from biomass.

Project Members and Cooperating Organizations

<Project Members>

- ◆ Japan Airlines Co., Ltd.
URL : <https://www.jal.com/en/>
- ◆ JEPLAN
URL : <https://www.jeplan.co.jp>
- ◆ Research Institute of Innovative Technology for the Earth (RITE)
URL : <http://www.rite.or.jp>
- ◆ Green Earth Institute Co., Ltd.
URL : <http://gei.co.jp/en/>

<Cooperating Organizations>

- ARAKAWA CHEMICAL INDUSTRIES, LTD.
- Inoue Perfumery MFG. Co., Ltd.
- KOATSU CHEMICAL INDUSTRIES, LTD.
- Japan chemical research Co.Ltd.
- University of Toyama, Professor Noritatsu Tsubaki
- Nakagawa Bussan Co., Ltd.
- NIPPON REFINE CO., LTD.

(note)

*ASTM D7566:

Standard Specification for Aviation Turbine Fuel Containing Synthesized Hydrocarbons
Annex5. ALCOHOL-TO-JET SYNTHETIC PARAFFINIC KEROSENE (ATJ-SPK)

** According to our research, this is the first domestic bio-jet fuel that has passed the
ASTM D7566 standard.