

Solar Frontier Achieves World Record Thin-Film Solar Cell Efficiency: 22.3%

Record cell independently verified by the Fraunhofer Institute

Tokyo – 8th December, 2015 – Solar Frontier, the world’s largest CIS solar energy provider, has set a new world record for thin-film solar cell efficiency. In joint research with the New Energy and Industrial Technology Development Organization (NEDO) of Japan, Solar Frontier achieved 22.3% conversion efficiency on a 0.5cm² cell using its CIS technology. This is an increase of 0.6 percentage points over the industry’s previous thin-film record of 21.7%. The Fraunhofer Institute, Europe’s largest organization for applied research, has independently verified this result.

“This is a proud achievement for Solar Frontier and a significant advancement for our CIS technology. This is the first time that CIS has crossed the 22% efficiency boundary – a level not yet surpassed by any other thin-film or multi-crystalline silicon technology,” said Satoru Kuriyagawa, Chief Technology Officer of Solar Frontier. “We achieved our latest record through improvements to the CIS absorber layer and junction formation process. This latest advancement brings us a step closer toward realizing Solar Frontier’s long-term goal of exceeding 30% efficiency using CIS.”

Kuriyagawa continued: “We would like to express our gratitude to the CIS research consortium organized by NEDO, which includes the National Institute of Advanced Industrial Science and Technology (AIST), for supporting this joint NEDO project. Solar Frontier will continue to stand at the forefront of research and development, transferring new discoveries into mass production and delivering higher energy yields and lower energy costs to all customers.”

“Solar Frontier is proud to be a technology leader in the solar energy industry,” said Atsuhiko Hirano, CEO of Solar Frontier. “Increasing conversion efficiency is a key component in driving down the total lifetime cost of solar energy for homeowners and businesses.”

In addition to conversion efficiency, there are several factors that determine how much energy a solar module will ultimately generate in real-world conditions and, subsequently, its lifetime cost. Solar Frontier’s CIS modules generate more energy (kilowatt-hours per kilowatt-peak) compared to crystalline silicon in real-world conditions.

Building on its latest research achievement, Solar Frontier will continue to advance its CIS technology in pursuit of its vision: a future where solar energy enables a cleaner, more comfortable lifestyle for all.

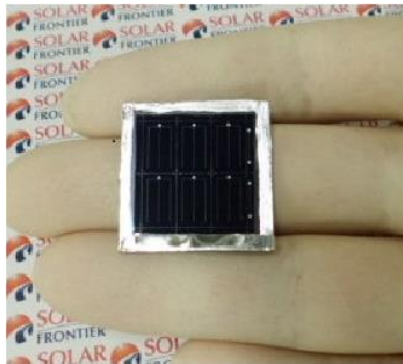


Photo : CIS thin-film cell (0.5cm²)

About Solar Frontier

Solar Frontier K.K., a 100% subsidiary of Showa Shell Sekiyu K.K. (TYO:5002) (“Solar Frontier”), has a mission to create the most economical, ecological solar energy solutions on Earth. Building on a legacy of work in solar energy since the 1970s, Solar Frontier today develops and manufactures CIS (denoting copper, indium, selenium) thin-film solar modules for customers in all sectors around the world. Solar Frontier’s gigawatt-scale production facilities in Miyazaki, Japan, integrate compelling economical and ecological advantages into every module: from lower energy requirements in manufacturing to the higher overall output (kWh) of CIS in real operating conditions. Solar Frontier is headquartered in Tokyo, with offices in Europe, the U.S.A., and the Middle East. Visit www.solar-frontier.com for more information.

Showa Shell Sekiyu K.K.

Showa Shell Sekiyu K.K. is listed on the Tokyo Stock Exchange and has roots dating back more than 100 years in the downstream energy business.

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