Strong partners in SOFC technology.

Convion Ltd., Fraunhofer IKTS and Plansee SE have one common goal: to contribute to the breakthrough of SOFC technology as a future form of affordable, reliable, and clean energy. From interconnects, through ready-to-install stacks up to SOFC systems: For each step in the SOFC development our network has the right partner at hand. Contact us!

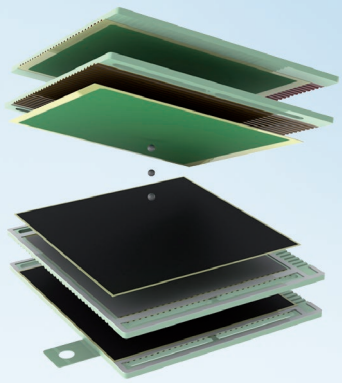
Convion C50 SOFC system

In February 2015 Convion started operation of a new, highly innovative cogeneration system using MK351 stacks produced by Fraunhofer IKTS.
The Convion C50 SOFC system can be operated with natural gas or biogas. It has nominal power output of 58 kW with 53% electrical efficiency and over 85% total energy efficiency. Depending on the fuel gas, there are low or no CO_2 emissions.
The C50 is suited for out- or indoor installations and does not require water connection. Operation parallel to the grid or in an island mode secures critical loads in case of power outages. As modular units, C50 power modules can be installed in a parallel configuration, facilitating installations with higher power output.
The manufacturing of the product has been successfully finalized and the validation with 20kW net power has been started.

Convion currently seeks to commercialize the new product and to bring it to the market with interested partners and to showcase the future of distributed power generation.

MK351 stacks from Fraunhofer IKTS

The MK351 stack design was jointly developed by Fraunhofer IKTS and Plansee. It consists of only a few component parts and allows for a simple and automated assembly. All stack components withstand high temperatures, system and temperature cycles. A perfect matching of components to each other allows the desired high power density of the cell and the required cycle stability. Currently, the performance degradation of a stack integrated in a hot box is < 0.7%/1000 h. This value was confirmed by several experiments including long-term test with over 18,000 hours of operation.

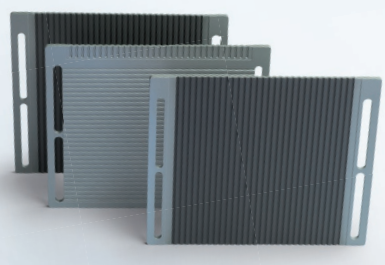


Fraunhofer IKTS and Plansee offer a license of latest background technology and IP for the MK351 stack design, so that interested companies will be able to start commercial production of such stacks.

CFY interconnects from Plansee

CFY is a chromium-base alloy containing 5% iron by weight as well as traces of yttrium. The physical properties of the CFY alloy make it ideal for use in high-temperature fuel cells. The coefficient of thermal expansion is adapted to match that of the high-performance electrolyte based on fully-stabilized zirconium oxide, for example 10ScSZ or 8YSZ.

Plansee CFY-interconnects are based on a scalable, cost-effective powder-metallurgical net-shape production, which significantly reduces production costs through a high degree of automation and high material yields.



Beside MK351 interconnects, Plansee produces several CFY interconnect designs for customers worldwide in pilot and industrial lines. The Plansee team will be delighted to give you more in-depth information.

convion

Fraunhofer IKTS

PLANSEE

Convion is a leading fuel cell system provider committed to commercializing fuel cell products in a power range above 50kW for distributed power generation. Convion was established in 2012 and continues SOFC system development and commercialization work originating from Wärtsilä's fuel cell program. Since year 2000 the core team has developed and operated several generations of 20kW and 50kW SOFC power units fuelled by natural gas, biogas and methanol. Commercialization of the first 50kW units is planned for 2015.

The Fraunhofer Institute for Ceramic Technologies and Systems IKTS develops high-performance ceramic materials; industrial preparation processes using powder technology, wet chemistry and precursors; prototype components and systems. For 20 years Fraunhofer IKTS has been involved in fuel cell research and is now one of the leading research centers in the field of high-temperature fuel cells. Fraunhofer IKTS is one of 60 institutes of the Fraunhofer-Gesellschaft in Germany. The majority of the 20,000 staff are qualified scientists and engineers, who work with an annual research budget of 1.8 billion euros.

Plansee is a world-leading manufacturer of products made from refractory metals and composite materials. For high temperature fuel cells Plansee develops and manufactures interconnects and metal supported solid oxide fuel cells. The privately owned company has been manufacturing innovative powder-metallurgically processed high performance materials for over 90 years, and covers the whole production process, from the raw material to the finished product. The company employs materials experts, product developers and local technical sales staff to provide customers all over the world with all the help and assistance they require.

What can we do for you?
For more information, please contact us:

Convion Ltd.
Tekniikantie 12 - 02150 Espoo - Finland - Erkko Fontell
Tel.: +358 40 7544 389 - erkko.fontell@convion.fi - www.convion.fi

Fraunhofer IKTS
Winterbergstraße 28 - 01277 Dresden - Germany - Dr. Mihails Kusnezoff
Tel.: +49 351 25537 707 - mihails.kusnezoff@ikts.fraunhofer.de - www.ikts.fraunhofer.de

Plansee SE
Metallwerk Plansee-Straße 71 - 6600 Reutte - Austria - Stefan Skrabs
Tel.: +43 5672 600 3317 - stefan.skrabs@plansee.com - www.plansee.com

convion

Fraunhofer IKTS

PLANSEE

Edition: April 2015