Danish Power Systems®

HTPEM
Fuel Cell Technology
Danish Power Systems specializes in the development and manufacture of the core component of fuel cells, the membrane electrode assembly (MEA).

HTPEM (High Temperature Polymer Electrolyte Membrane) fuel cells can use all fuels – methanol, diesel, natural gas - that can be converted into a hydrogen containing gas. The conversion is performed through a reformer.

The fuel cells are operated at 140-180°C. At this temperature the catalyst is highly active and not poisoned by impurities in the fuel, e.g. carbon monoxide. This is made possible by using PBI (polybenzimidazole) as the ionic conducting membrane material. PBI is a thermally highly resistant material and less expensive than the membrane materials used for traditional PEM fuel cells.

The higher temperature eliminates problems associated to the water balance and facilitates less system complexity. Surplus heat from the fuel cells can be used for further electricity generation and heating or cooling purposes due to the high temperature.

The MEAs can be manufactured in many different sizes depending on the customer requirements.

We always have the customer in focus, and we believe that collaboration and good relations are of crucial importance for the deployment of the HTPEM fuel cells.
Products

Dapozol® Membranes
Dapozol® membranes produced from high molecular weight polybenzimidazole (PBI)
Research on chemical and physical modifications for improvement of the membrane properties:
- Synthesis of PBI and derivatives
- Cross-linking
- Blends
- Composites

Dapozol® Membrane Electrode Assemblies
Production of Dapozol® MEA’s for HTPEM with an area in the range of 10 - 400 cm²
Characteristics:
- Pt based catalysts
- Carbon based electrode material
- Edge reinforcement for easy implementation

Membrane and MEA Performance
Acid doped membranes with excellent chemical, thermal and mechanical stability
High proton conductivity at 140-200°C and nearly zero water drag:
- Temperature of operation up to 200°C
- No humidification required
- Very high CO tolerance above 150°C
MEA lifetime and durability:
> 15,000 hours by continuous operation
> 140 start-up cycles during 7,000 hours

Our special competencies
Electrode materials
Membrane materials
Electrolysis components
Materials science in general
Training
Consultancy
The High Temperature PEM fuel cell technology delivers clean energy and very high efficiency. Danish Power Systems delivers world class and customised critical MEA components. Danish Power Systems is a research based production company founded in 1994, working in the fields of energy and chemistry. Our mission is to promote and develop environmentally sustainable technology to the benefit of our business partners.

Danish Power Systems is a member of:
- The Danish Partnership for Hydrogen and Fuel Cells
- The Danish Academy of Technical Sciences
- Confederation of Danish Industry
- Netwerk Brennstoffzelle & Wasserstoff NRW
- American Chemical Society
- The Electrochemical Society
- Materials Research Society
- Korean Electrochemical Society
- The New Energy World Industri Grouping (NEW-IG)

Danish Power Systems, the DPS-logo and Dapozol® are registered trade marks.

For a confidential consultation and further information, contact:

**Danish Power Systems**

*Main Office:*
**Danish Power Systems ApS**
Egeskovej 6C, DK-3490 Kvistgaard, Denmark
Phone: (+45) 4587 3934 Fax: (+45) 4587 3933
E-mail: daposy@daposy.com Web: www.daposy.com

**DPS International:**

*China - Sales agent:*
**Kunshan Sunlaite New Energy Co., Ltd.**
Tuspark, No.1666, Zucong Zhi South Road,
Kunshan, Jiangsu P.R. China
Zip code: 215347
Phone: (+86) 512-57019792 (+86) 17715160662 Miss Chen
Fax: (+86) 512-55119102

*South Korea - Sales agent:*
**IoneerCell, Inc.**
C-313, Sangmyung University, 31 Sangmyungdaegil, Dongnam-gu Cheonan, Chungnam 330-720
Republic of Korea
Phone: (+82) 41-550-5315 Fax: (+82) 41-550-5313
E-mail: ioneercell@gmail.com Web: www.ioneercell.co.kr

*India - Sales agent:*
**Vispadh Group**
15721, S3, Ashok Shri Kamakshi 4th Street, Lakshmi Nagar
Nanganallur, Chennai - 60061
Tamil Nadu
India
Phone: (+91) 9841542653 Mail: vispadhgroup@yahoo.com