



**IoLiTec** is an **award-winning, dynamic, innovative** and **goal-oriented company** whose activities go far beyond the production and sale of ionic liquids.

Today, IoLiTec offers a **standard product range of currently about 100 selected ionic liquids** for various applications (e.g. synthesis, catalysis, analytics, electroplating, heat and refrigeration engineering, biotechnology, sensor technology) **15 key intermediates** and **80 nano materials** (Oxide, nitride, carbide and metal powders as well as carbon based particles) that are available in gram quantities but also on a multikilogram scale. In addition to the steadily growing standard portfolio, IoLiTec has put a **strong focus on R&D services and custom syntheses** in the field of ionic liquids since its formation in 2003.

IoLiTec works with partners not only in the chemical industry but also in many other different sectors, e.g. engineering, electrical and automotive industries. IoLiTec's international customers are small and medium-sized companies as well as global players.

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The foundation of **IoLiTec's Special Chemistry division** in the middle of 2004 was the consequence of an increasing demand for **high quality materials**. We focus on the **production of high purity Ionic Liquids**.

Our **standard portfolio** consists of more than **100 Ionic Liquids** in purities from **97% to 99+%** that can be supplied from **lab-scale to pilot-plant scale**.

By far most Ionic Liquids are based on the **imidazolium-cation** in combination with many different anions, but we also have **ammonium-, sulfonium-, pyrrolidinium-, pyridinium- and piperidinium-based Ionic Liquids** in our portfolio.

Common **anions** are e.g.:

- tetrafluoroborate
- thiocyanate
- dicyanamide
- trifluoromethanesulfonate
- bis(trifluoromethylsulfonyl)imide

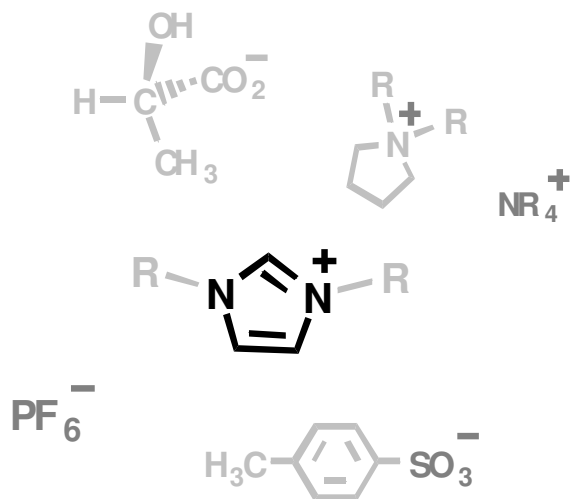
With respect to customer's needs we offer to complete our portfolio a variety of useful **precursors** and **key-intermediates**:

- Li-bis(trifluoromethylsulfonyl)imide
- N- Alkyl-imidazoles
- Triflic acid derivatives

**One of IoLiTec's core-competences** is the **systematic development and synthesis of new, commercially not available Ionic Liquids** for specific applications.

At our **well equipped laboratories** in Denzlingen/Germany we are able to supply **every patent-free Ionic Liquid** that is known from literature or that predictably can be synthesized on a **scale from 50 g up to 10 kg**.

**With our experience we'll find the right Ionic Liquid for your application!**



# Sensor-Technology

The worldwide computing power grows continuously with high rates. Today we find computers in a number of industrial and consumer applications, where they control complex processes. Specific sensors submit computers already information about physical and/or chemical properties. A modern car e.g. uses data from sensors for pressure, temperature, composition of waste-gas and horizontal position.

The development of sensors for new application fields has become a major challenge. In this context, Ionic Liquids are exceptionally well suited electrolytes for a number of electrochemical sensing applications:



## Resistive Humidity Sensors:

Ionic Liquids show a **very high sensitivity against water**, making it possible to detect changes of **0.001%RH**. In combination with our immobilization-system, response times as low as 2.5 s are possible (Introduction: Q3/06).

## Amperometric Sensors:

The wide electrochemical window of ILs allows the oxidation and/or reduction of analytes, making them the electrolyte of choice for amperometric sensors.

## Custom-Sensor-Services:

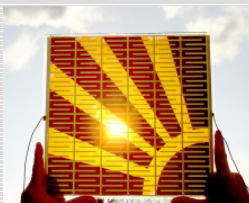
IOLITEC offers custom development of electrochemical gas sensors based on our **IOLISens®**-technology.

## Contact Sensor-Technology:

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# Energy & Cleantech

Within IoLiTec's Energy & Cleantech division, the company's **interdisciplinary know-how** is the key to developing **novel applications** based on the unique chemical and physical properties of ionic liquids, thus generating both **technological and ecological advantages**. IoLiTec's current activities are concerned with various aspects of the generation, transport and storage of energy. In addition, IoLiTec is currently expanding its activities to include **biotechnological applications**.



The Energy & Cleantech division is thematically divided into two subsections:

## (1) thermodynamic applications

- phase change materials (PCMs)
- sorption cooling media
- heat carriers

## (2) electrochemical applications

- dye-sensitised solar cells (DSSCs)
- electrolytes for lithium ion batteries
- materials for fuel cells

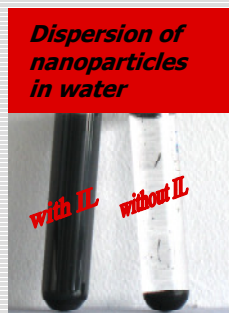
If you are interested in any of these applications, please do not hesitate to contact us!

## Contact Energy & Cleantech:

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# Nanotech/Coatings

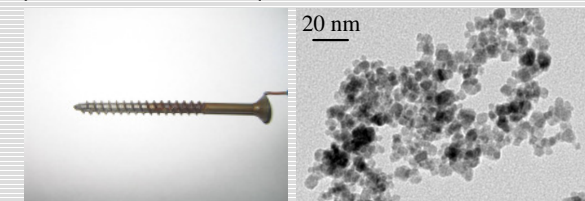
Ionic liquids represent a very interesting class of solvents for nanotechnology applications. Their chemical and thermal stability, nonvolatility, good ionic conductivities and large electrochemical give them remarkable properties used in different applications.



When used as synthesis media for inorganic nanoparticles in electrochemistry, some fine, non-aggregated and monodisperse nanoparticles can be obtained. Iolitec offers a selection of these kind of nanopowders as well as standard metal oxide nanopowders, metals, carbides, nitrides and carbon-based nanoparticles.

Ionic liquids also represent a new class of dispersants for nanoparticles suspension. Please contact us for dispersions studies of nanoparticles in aqueous or organic solvents.

Ionic liquids are also used as electrolyte in electrodeposition processes. They represent a very interesting class of electrolytes for metals that cannot be electrodeposited from water like aluminium. Iolitec would be glad to offer its consulting services concerning electrodeposition processes in ionic liquids.



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