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Statement  
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Ladies and gentlemen,

Dr. Wernicke has pointed out in his statement that the process industries are working to replace fossil with renewable resources. But there is a very important, essential resource that cannot be substituted or replaced: Water.

Water is essential for all life on earth. It is also an important resource for many industries where water is used for multiple purposes: Cleaning, heating or cooling, steam, for transport, as raw material, as solvent or as part of a product. Industry accounts for about 5 to 20 % of worldwide freshwater withdrawals, but the proportions vary by region: While in North America and Europe, industrial water withdrawal reaches 50 %, in Africa it is as low as 4 %. In China, in 2007 industrial water withdrawal accounted for about 23 %. However, industrial activities are increasing, water resources are limited, and water is polluted in many regions worldwide. 90 % of the water is discharged after use and contains anthropogenic as well as recalcitrant substances. China is no exception: The tremendous increase of industrial activities is causing surface water pollution, and scarcity of water is a serious issue in some regions. This is one reason why water treatment is a very important topic at this AchemAsia.

As neither population nor industry can exist without sufficient water of good quality, industrial water recycling is essential both for sustainable water management and for efficient industrial production.

What can we do to secure our water supply? There are already some practical examples:

Paper mills are a notoriously water-intensive industry. In Germany, the wastewater production of the paper industry decreased from 1974 to 2001 by 75 %. It could be demonstrated on an industrial scale that zero discharge is feasible if multistep biological treatment in combination with sulfur extraction is installed. However, this is limited to recycled paper products and sites with special requirements due to the required investment and operation costs.

The food industry is especially sensitive towards water recycling due to hygienic risks and acceptance. Modern breweries require about 4 m<sup>3</sup> water per m<sup>3</sup> beer produced. Of these, 2.5 m<sup>3</sup> are discharged as wastewater. This results in high costs and in addition, in some places water availability becomes limited. Therefore, some breweries have installed membrane processes based on micro- and ultrafiltration and reverse osmosis to recycle 10 to 15 % as service water. However, there is still need for further research and development because the economic operation of these plants is difficult. The wastewater composition varies strongly and they are installed “end of pipe” under suboptimal conditions.

If the wastewater composition is known, water recycling can be improved by implementing production integrated processes. For this, highly selective and reliable separation techniques are needed. You will certainly find some examples in the exhibition, and industrial water treatment is a major part of the congress program, too. Biological processes also play an important role. Combined processes involving fungi, iron reducing and oxidizing microorganisms are under development for the production integrated elimination of recalcitrant substances.

In the 11<sup>th</sup> Five-Year Plan, the Chinese government has given water treatment and water management priority with planned investments of 332 billion RMB. Many research activities on different aspects of water treatment are existing, and it will be very interesting to exchange concepts and ideas on these technologies here at AchemAsia,