





BASF
The Chemical Company

### inge GmbH: Competence in water





- We develop, produce and sell leading-edge ultrafiltration membranes and subsystems which are based on our own, patented technology
- Our products "Made in Germany" are the key components for more than 500 large water treatment plants around the world
- Strong existing relationships with blue chip customers (e.g. Siemens, GE, Veolia, LG, ...)
- 90 employees (as of Oct. 2012)
- In August 2011, inge became part of BASF, the world's leading chemical company



## **BASF – The Chemical Company**



- BASF is the world's leading chemical company
- Sales 2011: EUR 73.5 billion
- Employees (December 31, 2011): 111,141
- 6 Verbund sites and about 370 production sites
- With the acquisition of Ciba in 2009, BASF has become a leading supplier of water treatment chemicals
- Since 2012 BASF is bundling all its products for the water industry in the "Water Solutions" business unit.





## BASF's strong expertise in offering chemistry enhanced process solutions



Solid Liquid Separation



Corrosion Inhibition



Scaling Inhibition



Biofouling Control



- Coagulants and flocculants for water and waste water treatment
- Polymer design expertise (molecular weight, charge, architecture, product form)
- Application expertise in water, waste water and sludge treatment processes

 Advanced corrosion inhibitors and formulations to protect cooling, boiler and process water circuits

- Alternatives to metal salts
- Analytical capabilities to predict and analyse corrosion phenomena

- Antiscalants, dispersants and chelating agents with superior performance
- Cleaning formulations and procedures
- Analytical expertise, predictive tools, pilot facilities
- Application knowhow in boiler, cooling and membrane applications

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- Chemicals to control slime, bacteria, fungi and algae growth
- BASF's biocide technical and regulatory team supports customers
- Solutions to save energy and protect health

inge heart of gure water

### inge Milestones

45m<sup>2</sup> dizzer® 5000

UF module

hydrodynamically optimized

Test certificate according to the German KTW guideline on the use

of plastics in contact with drinking water



Disease Control and Prevention Biggest drinking water plant in Switzerland with a capacity PoU/ PoE project with Pentair USA First municipal drinking water of 17.600 m<sup>3</sup>/d project in Germany SWRO projects in Italy and Abu Dhabi with 24.000 or 40.000 m<sup>3</sup>/d Multibore® Membrane First Pool water project Seven capillaries in one fiber in Germany: 6.000 m<sup>3</sup>/d T-Rack® - ultra-compact UF-rack Max. stability and integrity with dizzer 5000plus modules 50% less footprint flexibility Opening of the Chinese office 50m<sup>2</sup> UF module dizzer® 5000plus Drinking water certification NSF 2008 2010 2007 2003 2001 2005 2009 2000 2004 Distribution partners in more than 15 countries Dalian Petrol chemistry and Beijing airport projects Certification in conformity with 36.500 or 14.500 m<sup>3</sup>/d with DIN EN ISO 9001:2000 Year of foundation Waste water project

Ukraine: 48.000 m3/d

Certificate China Center for

Renewed certification according to DIN EN ISO 9001:2008

110.000 m<sup>3</sup>/d SWRO project in Tangshan, China

T-Rack® vario – UF rack with separate filtrate headers 60% less footprint, maximum



inge became part of BASF Group

First project for the oil industry (drilling rig) with 62.000 m<sup>3</sup>/d

65.000 m<sup>3</sup>/d project for a paper mill in China

Multibore® Membrane 2nd Generation Optimized geometry and surface properties

60m2 UF module dizzer® XL 0.9 MB 60 Maximum membrane area / lowest operating costs



#### Ultrafiltration is the most versatile solution



#### Water Sources



Ground, Lake and Surface Water



Sea Water





Waste Water

#### **Applications**







Municipal Treatment



Industrial Treatment





Domestic PoU / PoE

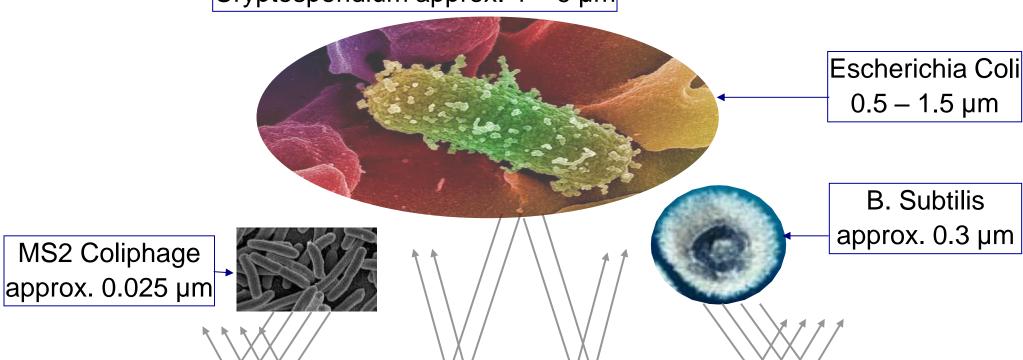


### How it works - Pore size and efficiency



Giardia approx. 8 – 15 µm

Cryptosporidium approx. 4 – 6 µm



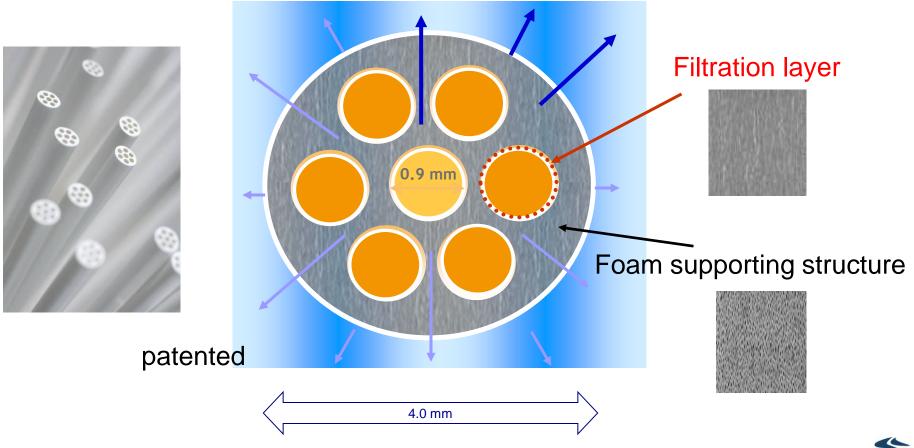
Pore Size UF approx. 0.02 µm



## The core technology – inge's Multibore® Membrane



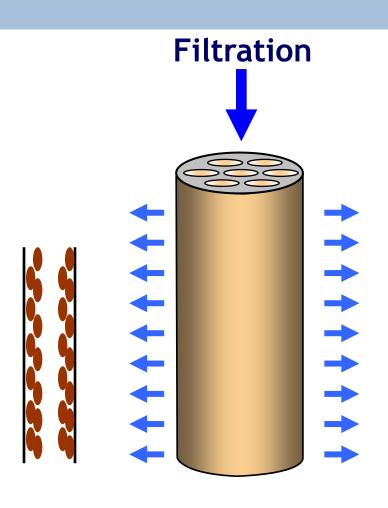
#### Flow of water during filtration

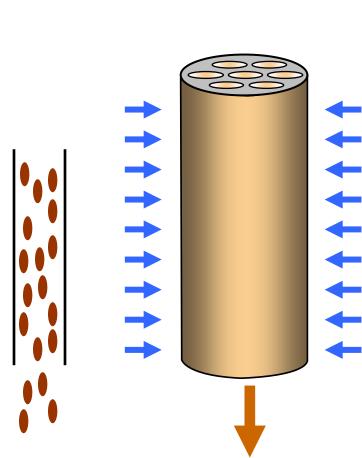




## Working principle In-Out filtration





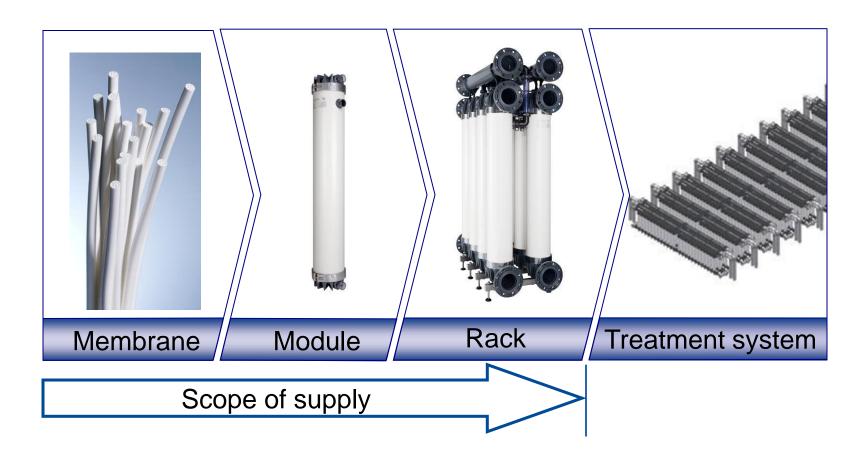


**Backwash** 

real of Spore water

## A highly scaleable solution







## Innovative Rack concepts – the inge T-Rack®



- Integrated module & rack design
- Extremely compact
- Modular, highly scalable
- One stop solution
- Plug'n play assembly at site
- Operation of each row as separate filtration line possible





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#### Product innovation: T-Rack® vario



T-Rack® vario	Conventional rack	
1.4 m width	1.9 m width	
4.1 m length	5.5 m length	
2.4 m height	2.5 m height	
5.9 m² footprint	10.6 m <sup>2</sup> footprint	
Reduced footprint		
More compact solution		

- footprint savings of up to 60%
- cost savings in civil works
- cost savings in piping

## inge's solution: superior technology offering significant cost benefits







- Superior mechanical and chemical strength of membranes
- High system reliability and safe operation
- Hydro-dynamically optimized modules guarantee highest performance
- Compact rack-design enables costeffective, integrated solution and reduces required floor space



Substantial savings in CAPEX & OPEX



### Global presence







• Greifenberg, Germany

#### inge sales offices

- · Beijing, China
- Paris, France
- Mumbai, India

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- Istanbul, Turkey
- Dubai, UAE

#### Agents & distributors

- Australia
- Australia
- Brazil
- China

- Israel
- Korea
- South Africa
- Spain
- Thailand / SEA
- USA

Global reach through own sales representatives and an international network of agents and distributors

### **Selected references**



Country	Capacity [m³/d]	Type of water	Market
China	110.000	Sea water	Industry
Abu Dhabi	84.000	Sea Water	Steel
China	65.000	River Water	Paper
Angola	62.000	Sea water	Oil & Gas
Turkmenistan	58.000	Sea Water	Municipal
Turkey	57.000	Sea Water	Steel
Ukraine	48.000	Waste Water / Industry	Recycling
Germany	38.400	Well Water	Municipal
China	36.300	Waste Water / Municipal	Petrochemical
Germany	30.000	Pool Water	Pool

### Management board





#### **Bruno Steis, Chief Executive Officer**

Joined the company in 2008 from Siemens Venture Capital, where he was a Senior Investment Partner for almost a decade specializing on environmental technologies. Prior Bruno Steis held a number of management positions with an international focus in the fields of sales, marketing and business development for over 15 years.



#### Dr. Peter Berg, Chief Technical Officer

is co-founder of inge and Chief Technical Officer of the company. He obtained his doctorate in Mechanical Engineering from Gerhard-Mercator University in Duisburg and is a specialist in water technologies. In addition to his university activities, Dr. Berg also spent five years working with the Insitute of Water Chemistry and Water Technology (IWW GmbH).



#### Dr. Tilo Habicher, Managing Director Finance & Strategy

Tilo Habicher has been a member of the inge GmbH Executive Board since January 2012. He is in charge of finance and strategy and is responsible for the company's links to BASF's Water Solutions business. Before joining inge GmbH, he was the director of health and environment at BASF Future Business GmbH. Habicher obtained his doctorate in chemistry from the Swiss Federal Institute of Technology Zurich (ETH Zurich) and began working for BASF in Ludwigshafen in 2000.



# Thank you for your attention!

inge GmbH Flurstrasse 27 86926 Greifenberg Germany

Phone +49 8192 997-700 Fax +49 8192 997-999

info@inge.ag www.inge.ag







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