

NORIT NV

For immediate release

Brewery of the Future – Norit innovations at Brau Beviale Nürnberg 2008

From 12-14 November Messe Nürnberg in Germany is again the venue for Brau Beviale, one of the most important exhibitions in the field of brewing and beverage processing. Norit 'leading in purification' – one of the major exhibitors at Brau Beviale – is using this important event to launch a number of innovations in beer and beverage processing, process and wastewater technologies, utilities, energy management and quality control. In addition, Norit's 90th anniversary will be celebrated and some spectacular achievements in supporting our global customers to meet their ever demanding sustainability targets will be announced.

No deficiency. Norit. Just sustainability

Norit supports its clients as they move forward to rise to the environmental, health and safety challenges of the future. Today's brewing and beverage industries are driven by customer loyalty, cost optimization, and sustainability. The large number of mergers and acquisitions are changing the landscape. Regional quality standards and key performance indicators are suddenly benchmarked on a worldwide scale. More than ever, economical and/or environmental circumstances have a deep impact on investment decisions.

High costs for raw materials, water, energy, CO₂ and logistics in certain geographical areas force our customers to change their investment philosophy and optimize their economy of scale. This can be seen in the recent decisions of some important brewing groups to design and construct multiple three to five million hectoliter Greenfield operations instead of enlarging existing Brownfield plants to 10 or even 15 million hectoliter.

Brewery of the Future

Norit's innovative technologies such as valves, membrane technology for water utilities, CO₂ systems, cold block systems and Diatomaceous Earth (DE)-free Beer Membrane Filtration are combined in the most advanced, efficient and sustainable brewery concept in the world.

During the exhibition, results obtained at two Greenfield operations in Europe and China will be presented. By introducing non-stop brewing, a continuous flow, high gravity brewing, and a maximized use of membrane filtration, significant savings are realized on raw material usage and energy consumption. The highly automated brewing and beer processing process requires minimum labor. A compact footprint with an ideal brewery layout lowers investments to an absolute minimum, still guaranteeing a high quality beer.

Beer & Beverage Processing

With 22 full-scale **Beer Membrane Filtration** plants running today, Norit is the undisputed world market leader in DE-free filtration of beer. Norit's **High Gravity Brewing** is used to increase production. Norit Südmo is presenting its **P³ sealing material** for aseptic valves, which stands for performance times three: high pressure stability, high temperature resistance, and high chemical resistance. Norit Südmo **SteriPro** is a fully automated filtration unit for particle reduction and sterile filtration of bottled water and soft drinks, with automatic steaming, chilling and integrity testing.

Norit Activated Carbon developed **Norit CAP SUPER-WJ** to meet decolorization requirements for beverages and juice often combined with Norit X-Flow ultrafiltration membranes.

Utilities – Energy reduction and CO₂ as refrigerant

Norit Haffmans presents the results of the first large-scale CO₂ cooling plant utilizing **CO₂ as a refrigerant**, which creates a safer environment because it is non-corrosive, non-toxic and non-flammable. Furthermore, the good thermodynamic properties of CO₂ enable cost savings by up to 30% compared to NH₃ as a coolant. With Norit Haffmans' Heat Recovery System **LiquiVap** energy consumption of CO₂ Recovery Plants can be reduced by up to 60%.

Quality Control Support

Norit Haffmans is launching its **Inpack c-TPO**, which determines the total oxygen content in bottles or cans by measuring the dissolved oxygen and the head space oxygen content of the packaged product in one single measurement. In addition, Norit Haffmans is introducing the **o-DGM**, a portable device for very fast and stable in-line oxygen measurement.

Process and Wastewater

Process and wastewater treatment are crucial in any industry to meet the ever-growing quality demands as well as the ever-tightening regulations against the lowest possible cost. More than ever re-use of wastewater is becoming a feasible and affordable solution to reduce water consumption. Norit offers its extensive knowhow in wastewater and process water treatment to breweries, malt houses and to the beverage, dairy, pharma and food industries around the world.

Norit **Airlift™ MBR** is the ultimate technology for treating wastewater in a clean and safe environment. Norit's non-breaking and non-fouling tubular membranes operate at high fluxes and require a small footprint by keeping the membranes outside the bioreactor (side-stream). For larger capacities with a higher solid load Norit **Crossflow MBR** technology is successfully applied. At Brau Beviale, references are presented from different breweries and malt houses in Europe and Central America.

Norit 'leading in purification'

Norit 'leading in purification', founded in 1918, develops and applies state-of-the-art purification technologies to help society, through our clients, meet environmental, health and safety challenges, and work towards a sustainable future. The Norit Group, headquartered in The Netherlands, supplies consumables, components, systems and solutions, based on proprietary technology in every step of the water and beverage value chains. More than 8 percent of the world's population – over half a billion people – already consumes water purified by Norit!

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