

# Technological Flair and Passion for the Sake of Environmental Conservation

Portrait of Dr. Gunter Krieg from UNISENSOR Sensorsysteme.

by DOMINIQUE HURET



Beauty of a family business: Dr Gunter Krieg is President, Stefanie Krieg is General Manager and Oliver is head of Marketing.

Scientist and Professor Gunter Krieg is not a newcomer. He has realized projects involving the transfer of technology from the scientific to the practical field at the Karlsruhe Institute of Technology and the Steinbeis Innovation Center for Optoelectronics and Sensors since 1980. In 1990, while continuing his activities in academia, he took the courageous step of going into business and founded his company UNISENSOR, in Karlsruhe the industrial core of Germany. A family owned company, UNISENSOR is today a medium size enterprise with 55 persons in Germany and 2 in the US associates and a subsidiary in the US.

**Dominique Huret** met him and looks back at his impressive achievements.

## From science to business with sniffing technology for the red bottle

Shortly after starting the company in the early nineties, The Coca-Cola Company brought Gunter Krieg a first robust challenge: finding a solution for making PET bottles refillable by ensuring that the bottles were not contaminated by foreign substances. This hard work set a milestone in production-integrated environmental production by introducing a measuring and analysis system specifically designed to detect foreign substances in PET returnable bottles. With optical analysis methods, the UNISENSOR system reliably identifies contaminants such as petrol, oil, cleaning products and detergents and rejects the bad bottles. This brings two benefits for the bottling companies : they can reuse the bottles meeting the highest standards of hygiene required by the food and beverage industries, and close the loop by increasing energy and resource efficiency tremendously.

## Shortly after, came the challenge of reducing raw material waste

"The annual production of some 250 million tons of new plastics requires double the amount of valuable raw materials such as oil and natural gas" explains Krieg. For him, no doubt it makes sense to go beyond merely re-using the plastics (PET bottles but also house electronic appliances) and recycle them professionally at the end of their products lives, returning them to the material cycle. It took UNISENSOR not less than 15 years of intense research to come up with a solution. "Three times we were about to stop, but working hand in hand with Industry and Research and Development we couldn't give up and finally came the sorting system POWERSORT", admits Professor Krieg.

## Visionary entrepreneur sets "bottle to bottle" standards in the recycling of plastics

Laser spectroscopy technology enables the system to accurately identify un-





of optical absorption spectroscopy allows to identify the tiniest traces of contaminants (down to sub ppb levels) using the light attenuation that these cause in the gas.

The AQUASCREEN is a compact foreign substance inspection system for large, refillable water containers with capacities of 5 to 19 liters. Broadband spectroscopy reliably detects contamination with e.g. diesel, petrol, engine oil, hydrocarbons and cleaning or washing agents in the ppm or sub-ppm range online. The system uses gas-tight sampling and can handle up to 4,000 containers an hour.

wanted foreign plastics such as PVC, nylon, silicon or contaminated particles in crushed PET material. The contamination is then removed at high speed thanks to compressed-air nozzles. The remaining good quality plastics materials can be reused by the food and beverage industry in what is called "bottle-to-bottle" recycling, opening up completely new perspectives in the area of quality control for food packaging. "Economics behind these new appliances are keys as profitability needs to be there. The system increases it for the recycling processes and can be used in all existing processes", says Krieg. "Today, there are more than 30 systems of this kind in operation across the world, processing the equivalent of 650,000 tons of recycled PET. We shouldn't forget that by cutting consumption of raw materials we are also decreasing our carbon footprint. For the moment, the Swiss and the Austrians are clearly the "best in class" but there is a system at the Close Loop facility in the UK as well."

#### After recycling, came more solutions for the beverage bottling industry and industrial gasses

Over the last ten years, a range of high tech equipments has been developed, as industry challenges needed to be addressed. So targeted at the soft drink sector, one finds the CARBOSCAN equipment. It monitors CO<sub>2</sub> quality in a precise and fully automatic online process and safeguards continuous quality throughout the production process. The method



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**Other equipment targets the printing industry in the in the field of analytics and control of consumption of identified substances.**

All these achievements could not stay unnoticed. The Deutscher Zukunftspreis is the German Federal President's Awards for Technology and Innovation. The Awards honors researchers and developers for bringing impressive proj-

ects and products resulting from first class research onto the market. This award differs from other scientific prizes by taking into account the marketability of the innovations and the associated creation of jobs. The prestigious award was granted, last October to Dr. Gunter Krieg for his life time achievement and ground braking technical solutions for environmental protection.

Key No. 85717



The Author  
Dominique Huret from Cape Decision, the expert consulting practice, is based in Belgium.

# Africa to Become Fastest Growing Beer Market in the World by 2017

**A new report expects more Africans to enter the beer market from the home brew sector, while commercial beer and premium brands forge ahead in the exploding African beer market.**

According to the report by Canadean, the African beer market is the fastest growing global beer market with an annual average growth rate of 5% between 2013 and 2017. This means the African beer market will outstrip growth in the Asian and Latin American markets, which are projected to witness a growth rate of 4% and 3%, respectively. South Africa is by far the biggest market in Africa, with an expected total volume of 30,921 th hl in 2014, followed by Nigeria with 15,200th hl and Angola with 12,790 th hl. Kevin Baker, Account Director at Canadean, says: "Africa has seen inflation fall, foreign debt shrink and GDP rise in the last few years. Moreover, population growth - once feared as a major contributor to poverty - is now perceived as an asset,

with the working age population set to outgrow that of China and India."

**Commercial beers oust dangerous 'home brews'**

Canadean finds that more African consumers will change their home brewed drinks for commercially brewed ones over the coming years. "At the moment homemade alcohol products still dominate the African market, but they pose a significant health risk. This is an incentive for consumers to move away from 'home brews' and instead turn to commercial beer," says Baker. Major international brewers have been working to create products that can compete with the unregulated alcohol market. Kenya Breweries' Senator Keg, a beer brewed from

sorghum but with the look and taste of malt beer, was the first brand specifically created to target this market.

**Major players challenged by premium brands**

African markets are highly consolidated and four brewers - SABMiller, Heineken, Castel and Diageo - account for 90% of the market. However, their monopoly is being challenged by new, emerging brands. For example, Solibra, a licence partner of Carlsberg, was effectively controlling the market in Ivory Coast until 2013, when the new competitor 'Les Brasseries Ivoiriennes' entered the beer market and managed to claim 12% of the market share in its first year.

The market's dynamic is further changed by premium brands, which witnessed an average annual growth rate of almost 12% between 2008 and 2013, compared to 6% for mainstream beer and 6% for African beer overall. "The growth of premium beers is a result of the growing middle class In Africa, who drink premium beer as a display of social status," adds Baker.

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Region	CAGR (2013-2017F)
Africa	5%
Asia	4%
Australasia	1%
East Europe	0%
Latin America	3%
Middle East North Africa	4%
North America	1%
West Europe	-1%