



## Primary product

Measuring the colour of foods during their production is extremely useful to many manufacturers but it used to be prohibitively expensive for most. Then a Franco-German-Czech partnership pioneered a cheaper solution in EUREKA project E!4054.

**Horst Harrer seems a fairly typical German small business owner. His company Harrer & Kassen, which he started 20 years ago in the south-western town Langenbrand, employees nine workers to develop measuring devices for industry. However, his growth horizon makes him stand out from the crowd. In 2006, his company's yearly turnover was 1 million euros and, despite the crisis, he aims to make double that in 2010.**

Part of the secret of his company's expansion is due to a new product developed as a EUREKA project - an instrument to measure colour which can help monitor production processes, particularly of foods. Harrer has found even after just one initial visit to China, he is already receiving lots of interest in this colour spectrometer from sugar factories there. "The potential is enormous," he says. "There is one province alone which has 110 sugar plants."

It was about two years ago that Harrer spotted the niche in the market which would help his company and two European partner firms grow their businesses. Polz, a long-standing Czech

distributor for Harrer, a specialist in analysing colour in the paper and transmissible film industries, told Harrer's company it often received requests to measure colour in other industrial processes. There was nothing suitable on the market that was reliable and affordable.

The pair decided to work together to develop an accessibly priced colour

reflected from an illuminated object. In existing systems the light receiver and the digitiser (which converts a signal into a digital reading) are in one unit and flash illumination is used to light the product during the reading of the light spectrum (the colour) which means that readings have to be made in a short time period and repeated weekly. The partners decided that the light receiver and the digitiser should be

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spectrometer. Harrer & Kassen turned to a company it had worked with before in France – EDIT – to develop the software for maintaining and analysing the colour readings and the trio decided to carry out their research as a EUREKA project, helping them to secure financing in their respective countries.

Measuring colour is done by collecting and quantifying the amount of light

separated and the light spectrum should be transmitted through a fibre optical cable. They used a system of constant illumination to make the reading more stable.

The partners drew on three years of previous research they had carried out developing a product which controlled the composition of fats and proteins during a production process. Unlike



other colour spectrometers on the market, the partners wanted to give factories an instrument that could be used on production lines – rather than exclusively in laboratories – so that factory lines could be closely monitored and adjusted in real time.

The challenges of developing that were considerable, recalls Yann Franchet, who runs EDIT. “In a laboratory you have a protected environment and you adapt that to the colour spectrometer,” he says. “In the factory, in the winter it can be cold and in the summer hot, there is dust and so on, so you have to adapt the colour spectrometer to the conditions in the factory.”

The research involved numerous mathematical formulas, close liaison between the partners and extensive

able to see three values corresponding to the colour and to see those on their computer in order to say ‘my product is okay’,” says Franchet.

The colour spectrometer opens up fresh markets for each of the three partners. “We have postponed commercialisation a bit because of the crisis but once things improve we will make a push to sell the colour spectrometer,” says Franchet. While Polz sees expansion in its home market, the Czech Republic, and Slovakia, EDIT intends to target customers in France, Spain and Latin America, particularly sugar factories and dessert manufacturers.

The product is particularly useful in sugar refineries since monitoring the colour of sugar can help monitor a centrifugal process used to produce the

is a complementary product to some of our others, so clients who already buy from us will buy this from us if they’re already making an order,” says Harrer.

But, above all, it is the potential of the colour spectrometer to take these European companies into brand new markets which is especially exciting. “The effect on us if we really step into China would be hard to measure,” says Harrer.

We are a small company and to be able to advertise the EUREKA label has been great.

**Horst Harrer** - Harrer & Kassen GmbH, Germany



testing. But finally a successful prototype was developed for a product which could be manufactured and sold at 25,000 euros, instead of the 100,000 euro cost of other colour spectrometers on the market.

EDIT’s software allows different types of factories to set the machine to control the colour they want. “The user will be

final sugar product. Whiter sugar also fetches a higher price.

Harrer & Kassen has already sold the product to a company in Mexico which produces sheet metal of a specific colour as well as to a Czech sausage maker to control the colour of its sausage casings. “One of the important things for us is that the colour spectrometer

Project participants:  
Germany, France, Czech Republic

Budget > 0.79 MEuro  
Duration > 23 months

Contact  
Dr. Horst Harrer  
Managing Director  
Harrer & Kassen GmbH  
Am Heschen, 6  
75328 Langenbrand  
Germany  
Tel. +49 7084 92 48 10  
info@harrer-kassen.com  
www.harrer-kassen.com/



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