

Greater safety by electroluminescent display foils on satchels

New product drives Evonik Industries to enter fast-growing market segment

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At this time of the year young children are setting off to school or coming home when it is mostly dark or semi-dark outside. That journey may be quite dangerous, as drivers often find it hard to see the small children when visibility is poor. In 2004 alone, there were 59,384 traffic accidents involving schoolchildren in Germany, with 78 of them dying from injuries sustained. The youngest pupils are particularly at risk, because their visual and acoustic senses are not yet fully developed.

“For younger elementary school pupils their journey often seems like a kind of dangerous obstacle course where they have to pick their way between parked vehicles along roads where they can’t see clearly. Everything is very hectic and there is a lot of noise around”, states a report produced by the Berlin accident insurance fund. In Berlin alone, around 3,100 elementary school children were involved in what were at times very serious traffic accidents on their way to and from school in 2003. “Bright clothing and reflective panels on school satchels go some way towards keeping schoolchildren safe”, the German Traffic Watch recommends. Even better than reflective panels would be systems that light up automatically, practically ruling out the risk of drivers failing to spot the children.

That is where Evonik Industries comes into play. The new industrial German group, leading in the field of specialty chemicals, is seeking to beat the safety problem with a brand new product for which it has recently applied for a patent. The innovation is centered on an electroluminescent display foil – a high-tech development that Creavis Technologies & Innovation, Evonik’s innovation forge, has been working to advance for several years.

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Broad application areas, new markets

Electroluminescent foils, EL foils for short, have many applications today, ranging from backlighting for displays to advertising and through to aviation, where they are used for safety purposes that include emergency exit lighting.

EL foils are a small yet rapidly growing market segment. The global market currently is around 20 million euros. Evonik expects to hold approximately a five percent market share in EL foils next year.

Michael Schulze, in charge of marketing and sales at Creavis, believes there is a need to act. "EL foils can be used to provide school satchels with additional safety features", he explains. These foils should be applied to the back of the satchel. The outstanding features of the EL foils prompted him to think about using them for this purpose, since all the components –starting from the base electrode to an electric resistor and the actual light emitting layer through to an electrode on the surface made of indium tin oxide – can be printed in large volumes using inkjet or silk screen printers. With layers less than 1 millimeter thick, EL foils ideally combine the properties of a two-dimensional, unbreakable yet cold light source. Light is emitted as a result of printable pigments that light up when an electric field is applied.

High luminosity, low energy consumption

The luminescent foil requires very little energy – one set of two AA batteries provides minimum 30 hours of use. "Despite the low energy requirements, the foil offers high luminosity without glare", emphasizes Creavis researcher Dr. Anna Prodi-Schwab. On top of this, because EL foils are extremely flexible they can display different colours that range from orange to blue green, depending on individual likes. A chip can also be integrated into the electric circuit, which will enable the products to flash on and off.

There is no longer anything standing in the way of Evonik marketing its innovation. "The product is available on the German market now", Schulze explains. He would like to launch EL foils on the market not

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only in the form of new school satchels with the foils built-in, but also as an add-on set complete. "The new luminescent foils will help make conditions as safe as possible for our children", Schulze emphasizes. So there is now a good chance that mother and father can soon feel less anxious as they send their little ones off on their trip to school.

Company information

Evonik Industries is the creative industrial group from Germany which operates in three business areas: Chemicals, Energy and Real Estate. Evonik is a global leader in specialty chemicals, an expert in power generation from hard coal and renewable energies, and one of the largest private residential real estate companies in Germany. Our strengths are creativity, specialization, continuous self-renewal, and reliability. Evonik is active in over 100 countries around the world. In its fiscal year 2006 more than 43,000 employees generated sales of about Euro 14.8 billion and an operating profit (EBIT) of over Euro 1.2 billion.

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