



## Seeing the light: what's new in reflective materials?



Moderator: Sophie Bramel

### Speakers

Ralf Dekkert - Transnational Sales Manager 3M

Bernard Cugerone - founder JRC-Reflex

Uli Jenter - CEO Regine IQtrim

Mike Parson - Vice-President Safe Reflections, Inc.

performance days – munich – november 3, 2015

- ▶ From safety feature to design perk, retro-reflective materials light up a garment as no other material does.
- ▶ How do they work?
- ▶ What technologies reflect light?
- ▶ What is the best way to use reflective fabrics and trimming?
- ▶ What new developments may change the way these smart, light-catching materials are used?

Reflective print dresses  
Anrealage - SS 2016



# Brief overview of subjects covered

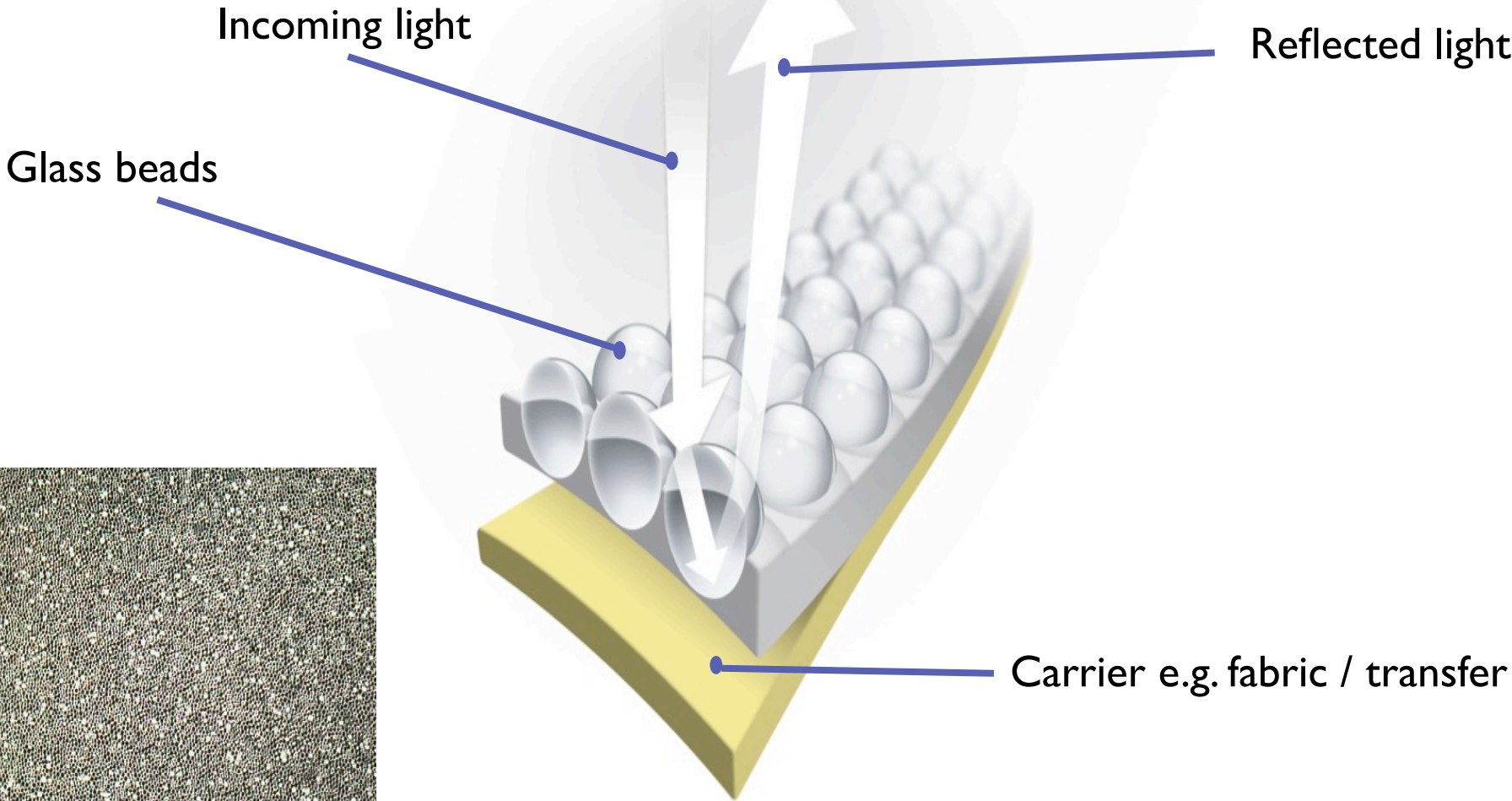
---

- ▶ **Sophie Bramel:** US company 3M invented the first retro-reflective materials, can you tell us more about how they function?
- ▶ **Ralf Dekkert:** The glass beads are the basis of the performance of retro-reflective materials. 3M materials contain between 30,000 to 40,000 glass beads in 1 square centimetre. Incoming light is reflected by the glass beads back to the source. The glass beads are backed with a silver or aluminium material that creates the mirror effect.
- ▶ **Sophie Bramel:** Many buyers and users do not fully understand how retro-reflective materials function and how to gauge their quality. What is Safe Reflections doing to help raise awareness?
- ▶ **Mike Parson:** The Reflect Your Gear programme that we have developed has been launched in the US and will be coming to Europe. There are a number of key points we recommend when using reflective materials.
  - ▶ 1. Understanding brightness: Brightness varies depending on the quality of the material. There are four different categories of brightness (see slide). Always use the same flashlight to judge a material.
  - ▶ 2. Placing reflective materials on clothing or accessories. You want to make sure you pick places on the body that a driver will identify as a person. Extremities are important, as the driver's brain will recognize a person by their movement. Also remember to consider the body from a 360° point of view. Most automobile accidents happen from the side.
  - ▶ 3. How much and where reflective material is placed on a garment. We recommend separating reflective materials. You want to spread them out to get more value: it improves durability, gives more stretch, improves hand and creates the over glow effect.



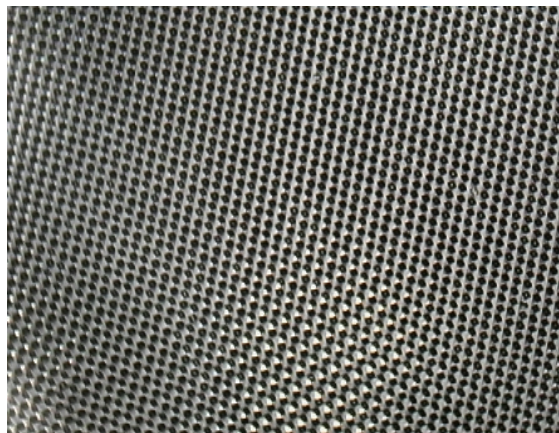
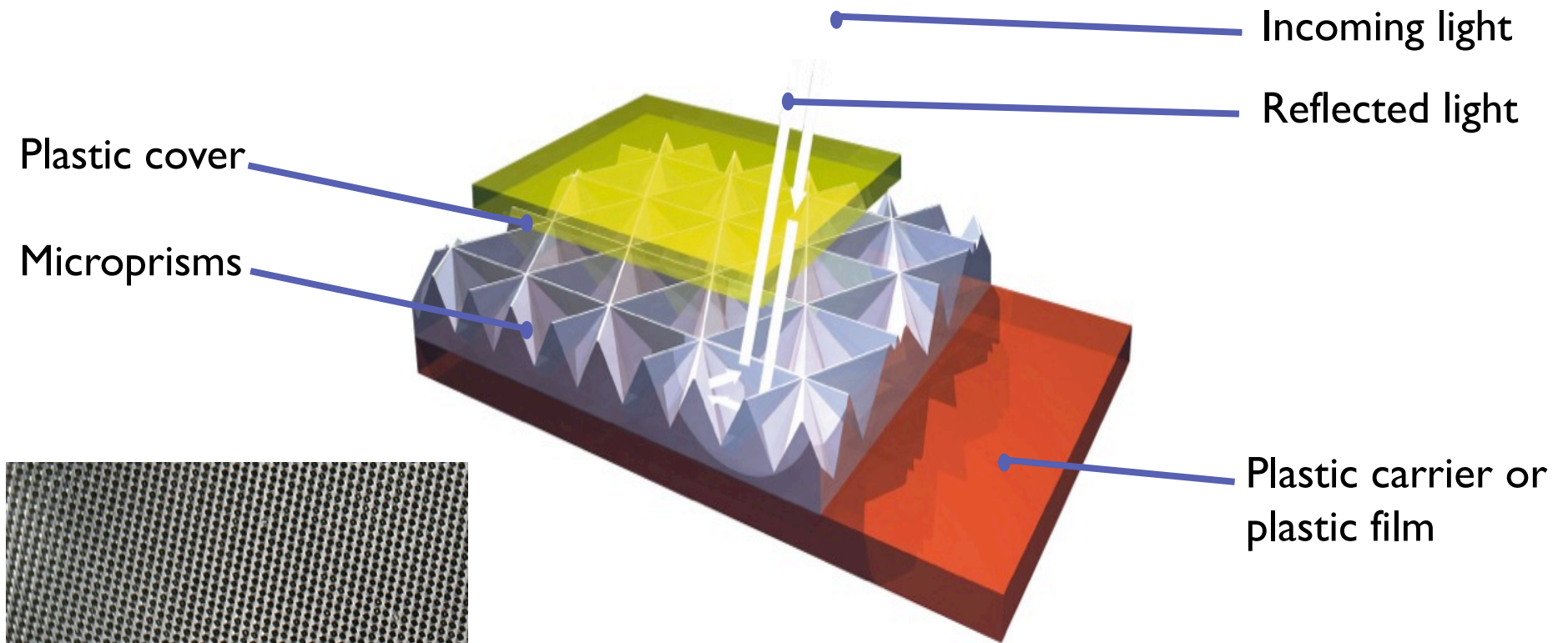
# Retroreflection

Set up of glass bead material



# Retroreflection

Set up of high gloss / prismatic material



# Safe Reflections Positions

---

## How to design with Reflective Material?

1. Brightness Levels
2. Placement
3. Size, Design or Shape
4. Durability

# Safe Reflections Position 1 – Brightness

## What Brightness to use?

Reflective brightness ( $R_A$ ) is a measurement of how much light is reflected back.

There are four different brightness levels on the market:

1. **Cosmetic** –  $<30 R_A$  – Reflective at less than 3 meters and provides no increase in visibility.
2. **Low Brightness** –  $30 R_A$  to  $100 R_A$  – Will only provide a slight increase in visibility at 30 meters or less **AND** when used in large amounts.
3. **Medium Brightness** –  $100 R_A$  to  $200 R_A$  – Visible at moderate distances from 30 meters to 100 meters.
4. **High Brightness** –  $200 R_A$  to  $500 R_A$  – Used to increase visibility at significant distances ( $>100$  meters).

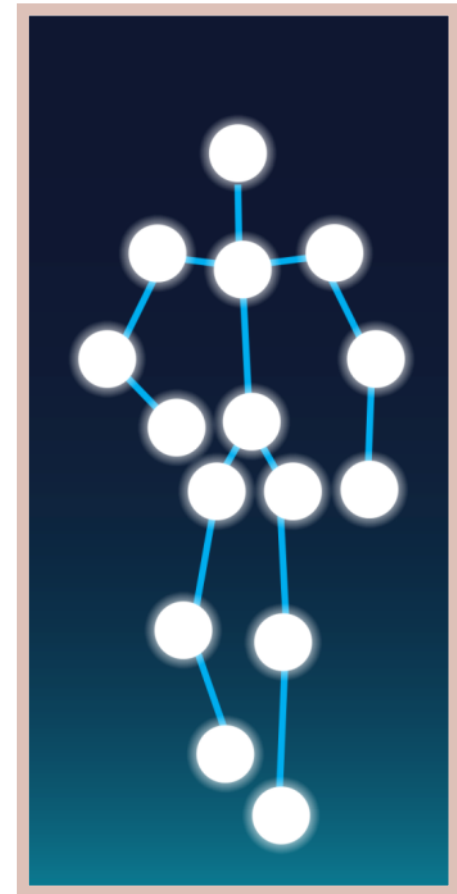


SAFE REFLECTIONS

# Safe Reflections Position 2 – Placement

## Where should the reflective material be placed?

1. Outline the Human Form
2. Viewable from all angles – 360 degrees
3. Highlight the extremities to show motion





# Safe Reflections Position 3 – Amount

## What size parts should be used?

1. More smaller parts are better
2. Segmentation offers lots of benefits
  - Improved Breathability
  - Improved Wash Durability
  - Improved Stretch
  - Improved Hand
  - Maintains Brightness (Over glow)



# Safe Reflections Position 4 - Durability

## What is the right wash for durability?



- Wash performance vary greatly based on the fabric.
- Different reflective materials are developed to meet different wash requirements.
- Test your fabric and wash requirements with your reflective Supplier.
- Always make sure you are using the correct reflective for the fabric.



# New products in development

---

- ▶ **Sophie Bramel:** What new products is Regine working on and presenting here at Performance Days?
  - ▶ **Uli Jenter:** We convert reflective materials. The fashion designers we work with generally want to make good-looking products. The safety element is important of course, but the design element is essential as well. 35 years ago Regine started working with transfers and 40 years ago we started working with elastics. We then merged the two technologies together and started to make reflective and stretch trimming, piping, etc. Our range now includes colored reflective materials as well.
  - ▶
  - ▶ **Sophie Bramel:** JRC-Reflex was one of the first companies to offer reflective materials in many colours, including black, can you tell us more about how this innovation came to be?
  - ▶ **Bernard Cugerone:** Our palette now has more than 240 different colours, they are applied on 4-way stretch materials. We make many customised products for our customers who are mainly in fashion. This is the key focus of our company. Our clients want reflectivity as well as high fashion. They want to match the colours of the fabric with the reflective elements.
  - ▶
  - ▶ **Sophie Bramel:** I understand dual effect products are a key feature of many Regine IQTrim products?
  - ▶ **Uli Jenter:** One of our newest developments is a product we call Invisible Visible. By day it is almost invisible and by night it is very visible. Other new products include an elastic transparent stripe that reflects light and is placed over a sublimation print. It also offers a discreet look and adds a functional property to any fabric ground.
- 



# New products in development

---

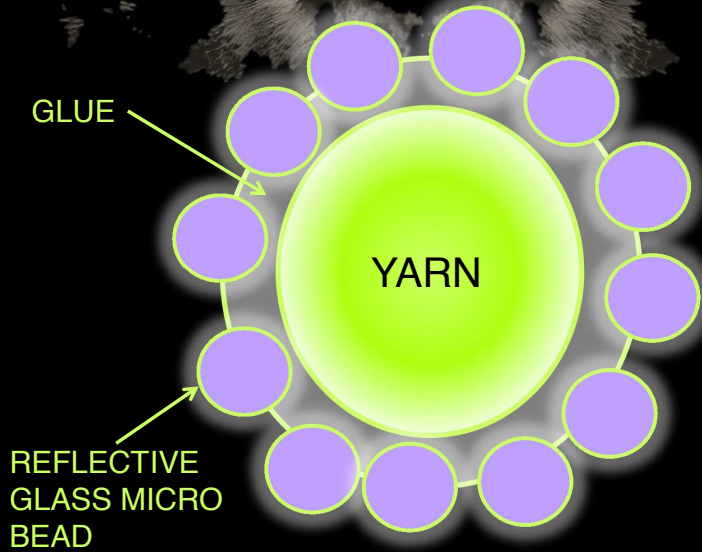
- ▶ **Sophie Bramel:** New discreet retro-reflective effects have also been developed by JRC-Reflex recently. Can you tell us how you came to develop a retro-reflective yarn and how it can be used in garments or accessories?
- ▶ **Bernard Cugerone:** This is a development that our customers requested. We developed a yarn with a spinning company that has a particular expertise in high-tech coatings. Our yarn is called Coated Reflective Yarn, or CRY. It is different from current yarn-like products in this field that are very fine tapes, not round like ours. We have patented the yarn and our patent covers the way in which the glass beads are glued to the yarn without the glue covering the beads. It is very difficult to make - which is why it is called CRY. It resists washing and wear, and it measures 400 to 900 dtex.
- ▶ Applications for this yarn include embroidery and circular knitting, which was not possible up till now. A special operation makes the yarn elastic.
- ▶ **Sophie Bramel:** What new developments is 3M working on?
- ▶ **Ralf Dekkert:** 3M produces the raw material and we've made reflective yarns for many years now. Partner mills in Taiwan weave the yarn into fabrics. One of our partners in Taiwan has found a way to make it knittable as well. 3M works closely with its converters on new solutions. The yarn is currently available in silver, colour is next in line.
- ▶ **Sophie Bramel:** What new developments are in store at Safe Reflections?
- ▶ **Mike Parson:** Brightness is a key issue for us. The colourized materials we make have 300 candle power and are very wash durable. They also stretch and can be applied on very lightweight fabrics. Our company specialises in very high quality adhesives to achieve these results.





JRC REFLEX<sup>®</sup>  
REFLECTIVE TECHNOLOGY

CRY<sup>®</sup>  
COATED REFLECTIVE YARN

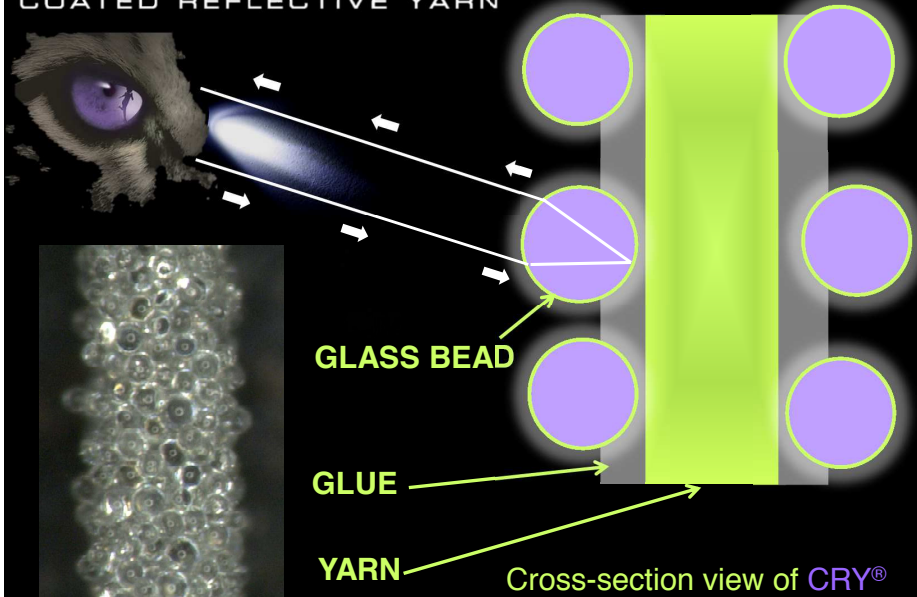


CRY<sup>®</sup> is a registered trademark of CRY sas  
Patent pending N° PCT/IB2015/001049 v10



JRC REFLEX<sup>®</sup>  
REFLECTIVE TECHNOLOGY

CRY<sup>®</sup>  
COATED REFLECTIVE YARN

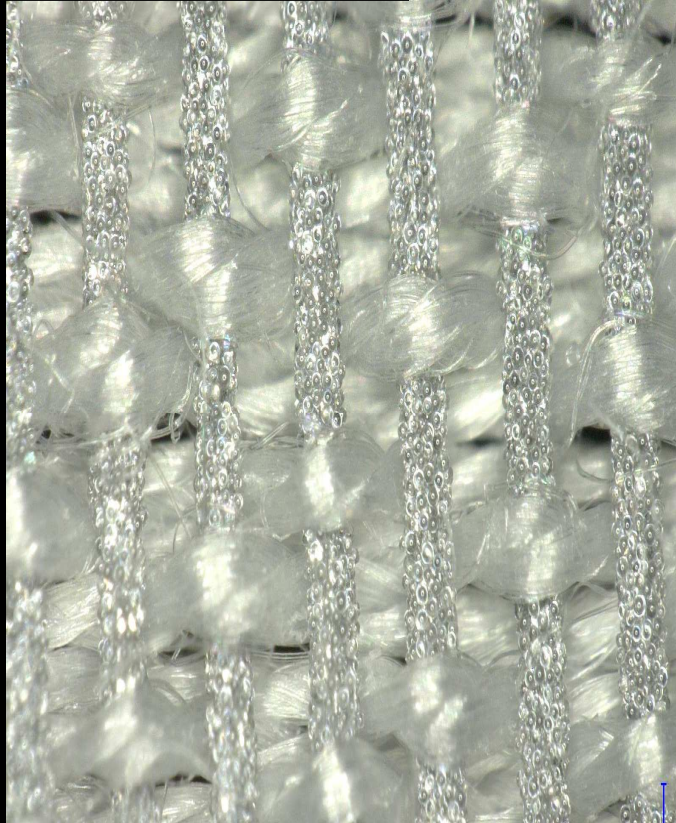


Microscope photo




**JRC REFLEX**<sup>®</sup>  
REFLECTIVE TECHNOLOGY

**CRY**<sup>®</sup>  
COATED REFLECTIVE YARN



# What's next in reflective materials?

---

- ▶ **Sophie Bramel:** High stretch coloured reflective materials are also important at Regine?
  - ▶ **Uli Jenter:** This is a strong request from the market that wants colour, not only silver. We can make transfers in any Pantone colour and they have a reflective power of more than 200 candela. This level is considered a sufficient safety feature. All colours are possible, as I said, but they will lose some of their colour intensity, they will look frosty.
  
  - ▶ **Sophie Bramel:** To conclude this panel discussion, what new developments can we expect in the future?
  - ▶ **Ralf Dekkert:** The main areas we are working on is flame retardancy, wash resistance and high brightness. Another new area is the development of high gloss PVC-free materials, high gloss is currently a hot topic, but customers no longer want PVC-based materials.
  
  - ▶ **Bernard Cugerone:** The future of our CRY yarn is elasticity, lightness and a 3D mesh. We also have another big challenge and are setting up a programme to add electricity, electronic and data transmission to our reflective yarn CRY.
  
  - ▶ **Uli Jenter:** We are working on iridescent reflective materials that, depending on the angle of vision, will change colour, from blue to red, for instance. Three-dimensionality is another hot trend, so we are looking to offer more raised textures.
  
  - ▶ **Mike Parson:** We continually seek to make products that meet the needs of new designers. Awareness of the importance of reflectivity is growing at consumer level, which we see as a positive development.
- 
- 

**Thank you for your attention**

Sophie Bramel