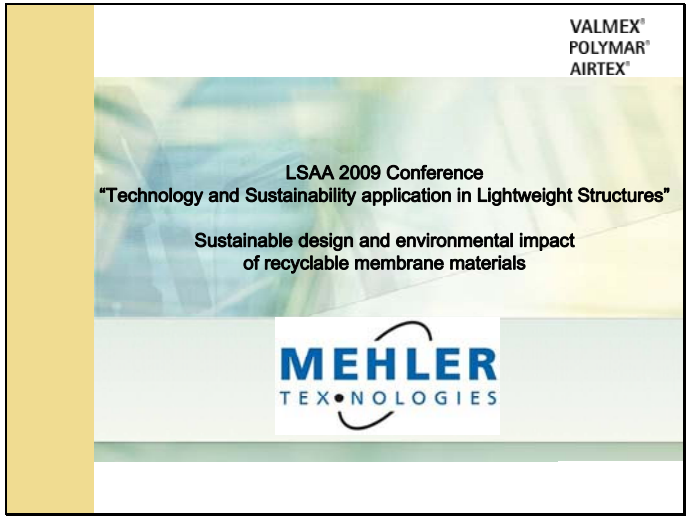
Folie 1



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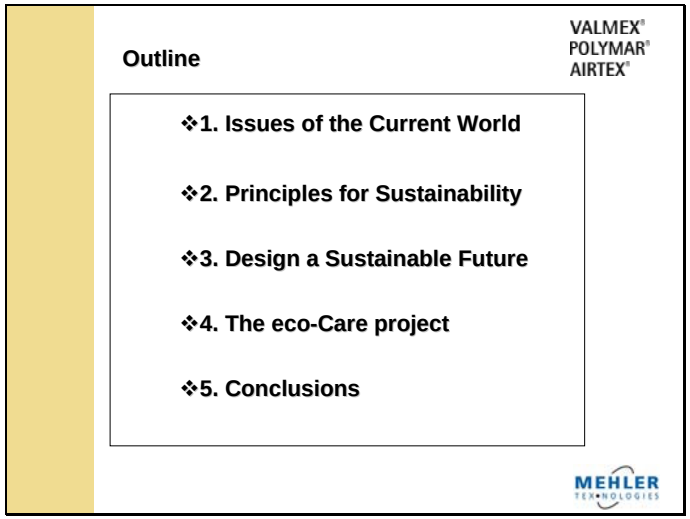
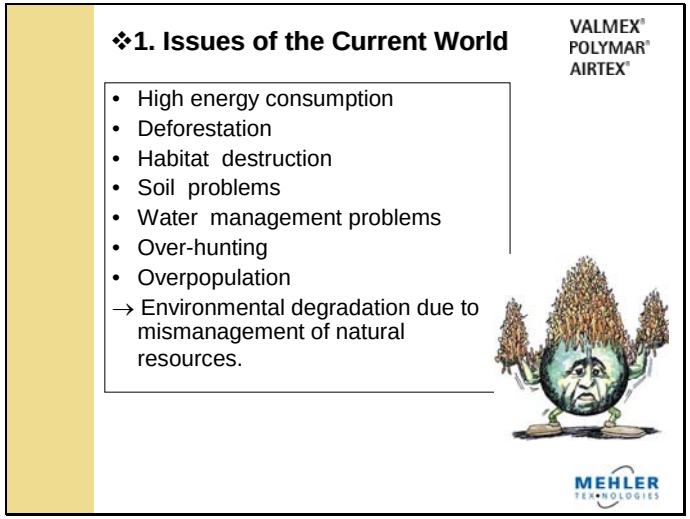


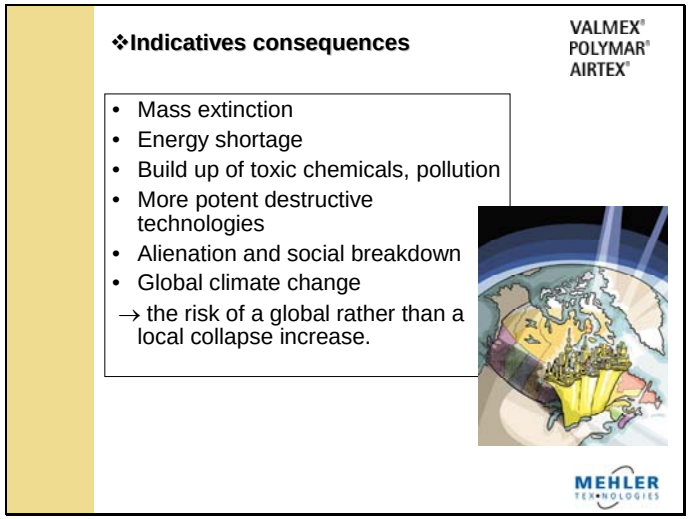
(Greetings).... my presentation is based on the analysis of Sustainable design and environmental impact of recyclable membrane materials. That's the overview points

Folie 3



Our times are to be consider the logical consequences of wrong handled civilization progress. The natural resources are been fully exhausted by inappropriate and unconsidered usage, which leads to following problematics…

Folie 4



As consequences to this inconsiderate consumption and the human severity in modeling anything for the own current use with less care of the consequences, global problems are arising…

Folie 5

❖**Critical points overview**

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- Overpopulation
- Overconsumption
- Resources depletion
- Wastes and pollution

→ Degenerative pattern generated by egocentric living style and money-driving economy

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As finally we can see every day, the modern society is running in a no exit way, where the problems generated by ourselves are to be considered a destructive and irreversible heritage to next generations. Problems like the here listed points are to be considered generated by wrong way of thinking.

Folie 6

❖**..for the future**

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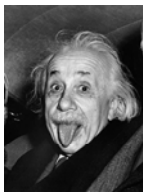
"We cannot solve problems using the same thinking that created them."
- Albert Einstein



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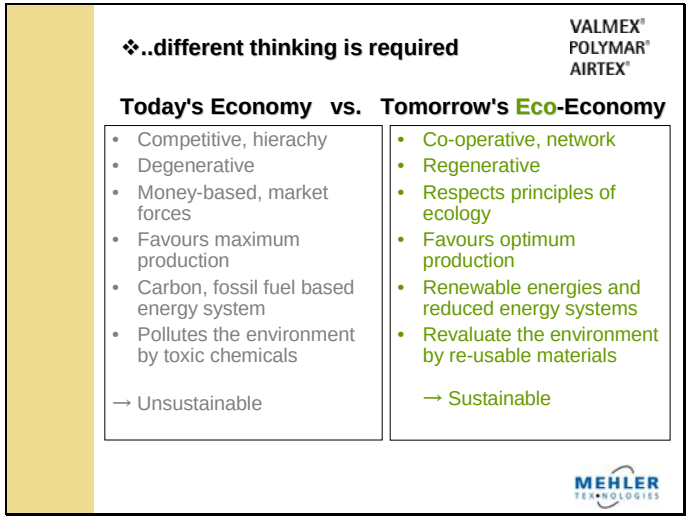
So therefore for the future…..

Folie 7



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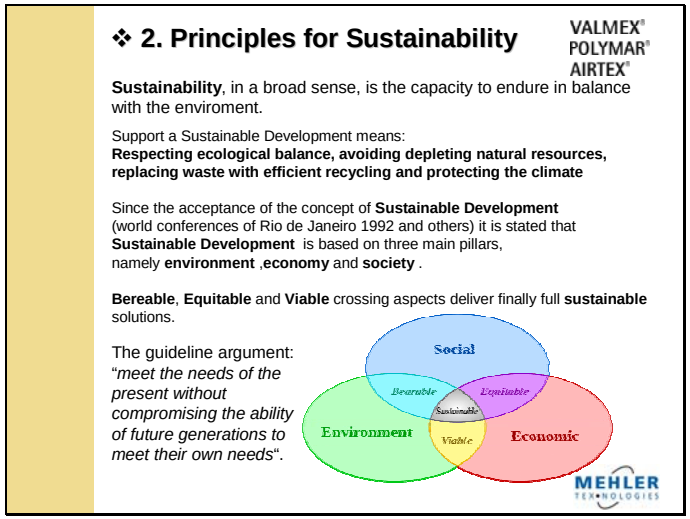


….a different way of thinking is required!

Folie 9

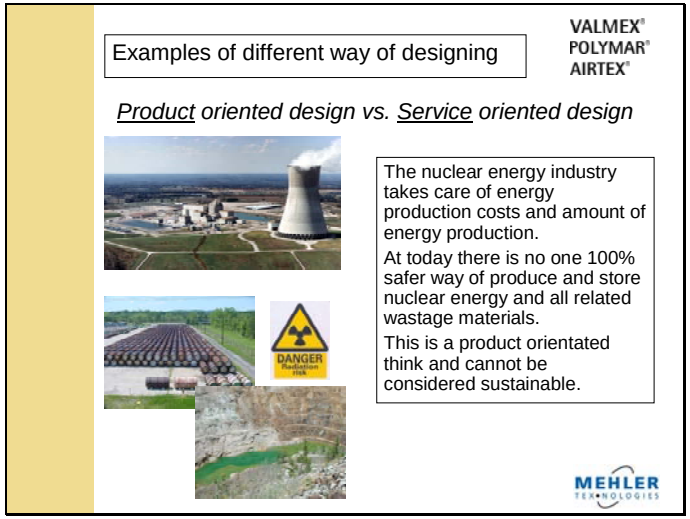
Design for Sustainability aims to take all global and regional socio-economic concerns into account in products and services, meeting the needs of society now and in the future moving from a product to a service orientated system.

Folie 10

As aim of Design for Sustainability is to aspire to a better society, now and in the future, innovation, creativity and new ideas are required by product and end user designers, and are key to success.

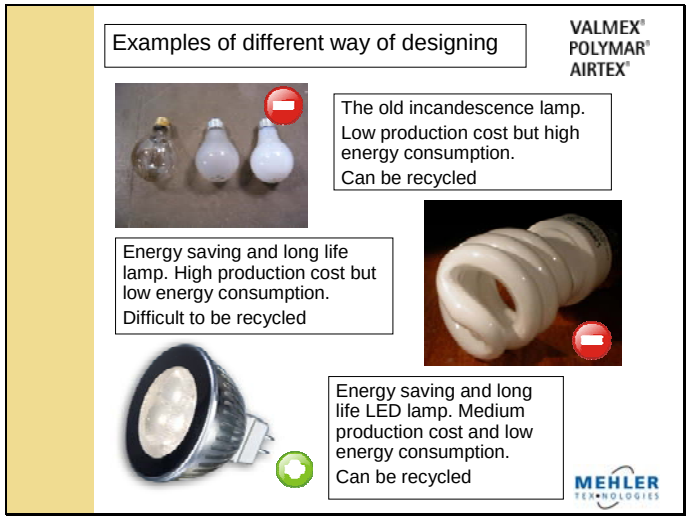
Example of moving from a Product to a Service way of thinking with respect to Sustainability:
During the past many products are been designed for economical use without to take in consideration the consequences generated during production or at end of service life. They were used in the walls and floors to act as both insulation and heat resistance. Asbestos panels were often put in place near furnaces and stoves, prime locations should a fire occur. And while asbestos surely helped many people in this primary use, it damage many other people health. In our time, asbestos is off the market, and is only found in homes and buildings that have not been retrofitted. Prior to 1970, asbestos panels could be found in many homes under several use. Remove and recycling of those materials generates high pollution and heavy environmental impact.
Products like this are designated to execute they function but cannot be considerate as service to the sustainable needs.

Folie 11



Is of our days the debate about new nuclear plants construction. The agencies, the politicians, the technical and the industries are all focusing their interest about the usage of this plants and the produced energy. There are not enough discussions about development of huge wastages quantities or about recycling of those…this is not the right way of thinking.

Folie 12

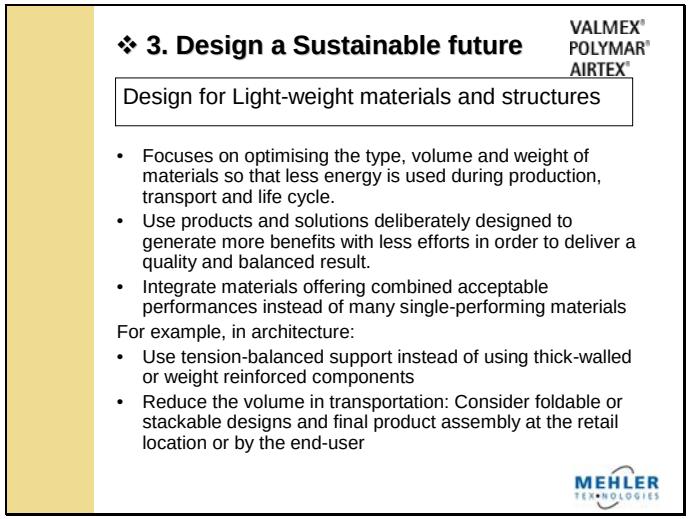


As energy costs and environmental concerns have risen the industry was rightly thinking in re-design illumination products. From the old bulb lamp the market cross to energy saving lamps which contain mercury, a substance with high enviromental impact. On the other side, those lamps are saving energy and therefore helps the environment in another way.
More business operators and homeowners are finding that it makes sense to switch to an LED light source which are non containing damaging gases and saves energy as well.

Folie 13

The premises of Design for Sustainability is the fact that the way products are designed can have a major effect on Sustainable Development. On a global scale current design of products are seen to hinder Sustainable Development. A new way of thinking is necessary.

Folie 14



Designers are ironically constantly increasing focus on a disposable world of materials, also in tensile architecture, adding to the ‘mountains’ of waste products derivate from non-recyclable materials, instead of generating ideas on recycling systems which could help in decrease the already overflowing landfills.
Product designers and the related industry have a responsibility not only to the end user, but also to the people who are employed in the manufacture of these products.

Folie 15

Design for Light-weight materials and structures

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Tensile Architecture compared to classical construction materials involves use of a smaller amount of materials/mass and is mostly prefabricated executed = less execution time

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Folie 16

Design for Light-weight materials and structures

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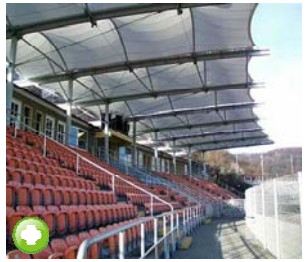
Tensile architecture compared to classical architecture solutions is recreating natural light condition generating positive, safer life ambiences



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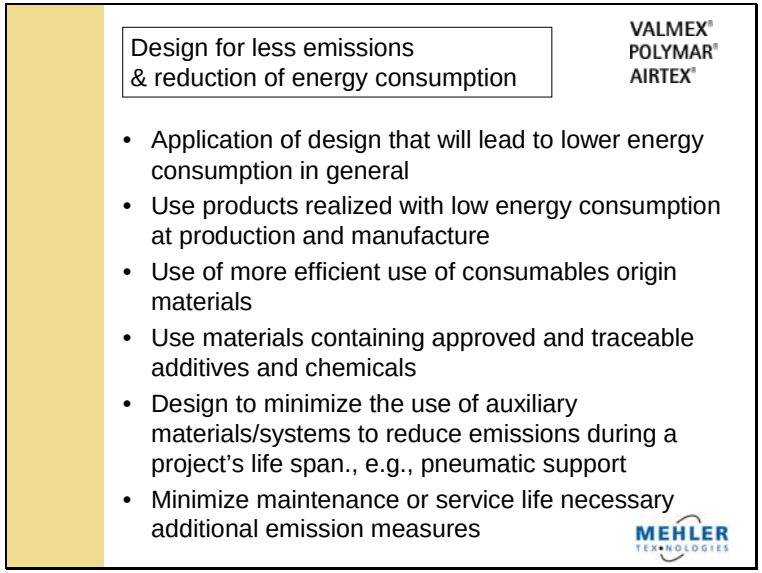
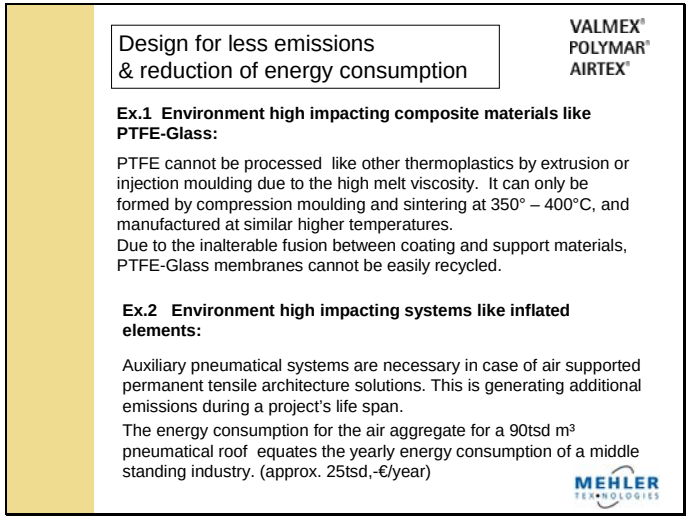
Folie 17



It is widely accepted that the majority of negative impacts from products arise from its in-use period. The majority of energy consumed by electrical appliances arise from its in-use phase of its lifecycle.
For ex. in architecture pneumatic systems, like the Allianz Arena.
The arena facade is constructed of 2,874 ETFE-foil air panels that are kept inflated with dry air to a differential pressure of 400Pa. The foil has a thickness of 0.2 mm. Each panel can be independently lit with white, red, or blue light. The intention is to light the panels at each game with the colors of the respective home team, or white if the home team is Germany.
The **Daily** energy consumption for the lights equates the **yearly** energy consumption of a four-person-family.
Additionally, foldable materials are been installed under the roof to drawn during games to provide protection from the sun light.

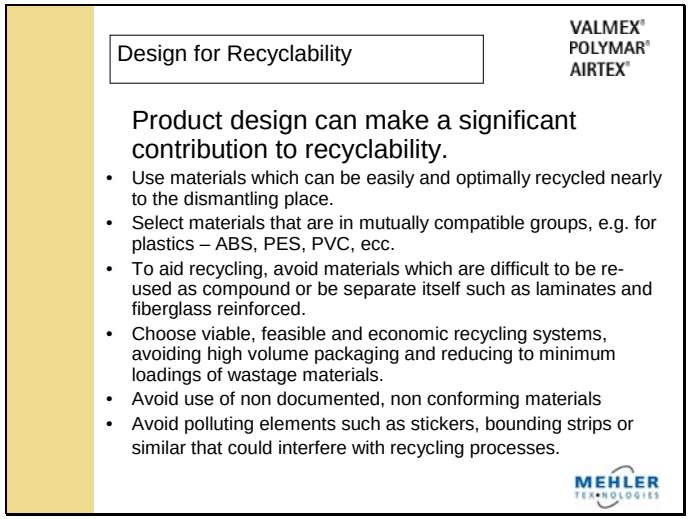
Similarly, washing machines will generally use hundred times the energy at the 'in-use' phase (over a ten year use cycle), that it takes for their manufacture.

Folie 18



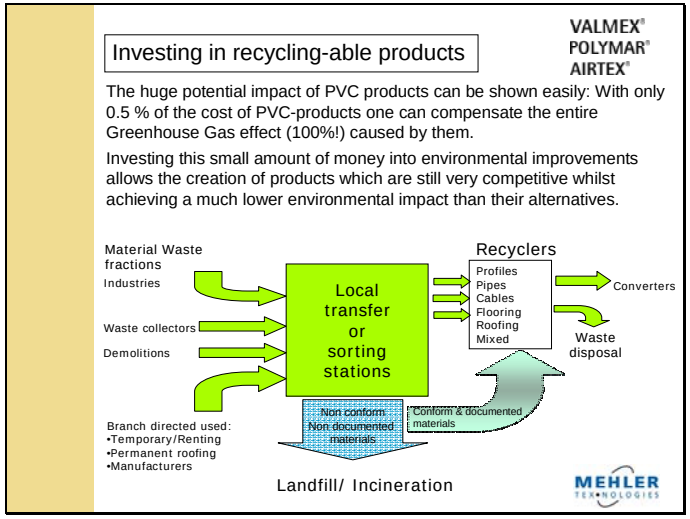
Only Glass fibers can withstand the processing temperatures of PTFE. Other synthetic fibres decompose under these conditions.
To weld Glass-based membranes a pressure of 2.2 tons at 7-bar compressed-air supply is necessary. Temperature approx. 380/420°.

Folie 19

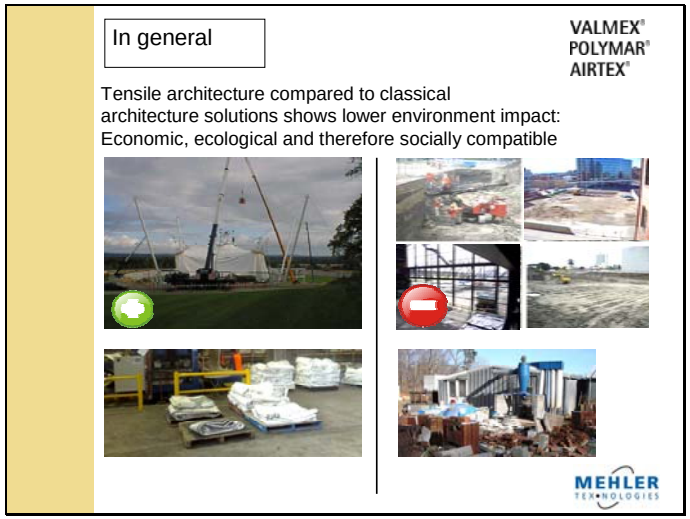


As well as using recycled materials for products, the products, or their parts, must in turn be able to be recycled at their end-of-life, otherwise the products will have a large negative impact from ending up on the scrapheap. There are several recycling systems more or less adaptable or usefull to the kind of products used. PTFE fabrics as well as other fibreglass reinforced material cannot be easily recycled.

Folie 20



Folie 21



Recycling systems needs to be affordable and possibly available nearly the product end life area.
System providing isolated collection points and long ways of transportation, even if technically valid, they will not contribute largely and directly to a real improvement of recycling tasks.

Ex. if for recycling of a bottle of beer peoples needs to walk 10 kilometres then probably the bottle will be leaved somewhere along the way. Is proven that recycling systems are working where affordable for the people and this make sense, as transporting of wastage generate anytime additional wastage (transportation, contamination, risks, ecc.)

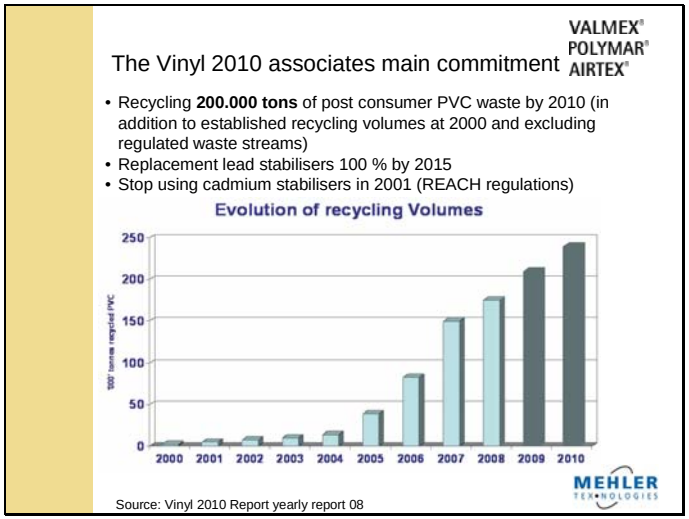
Folie 22

Folie 23

The responsible way in which the company deals with energy and resources, its use of environmentally sustainable materials and its activities related to the recycling of coated textiles have been bundled by Mehler Texnologies under one all embracing label.

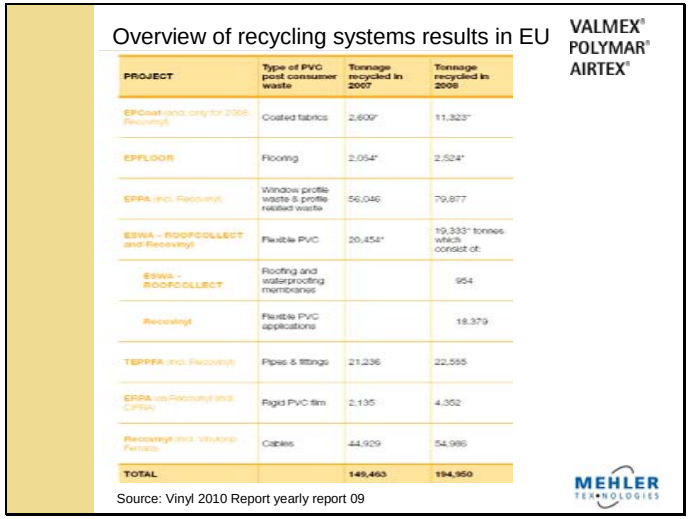
Folie 24

Folie 25



As partner of Vinyl 2010, Mehler is contributing in reaching the main objective in collecting within 10 years activity more then 200 tsd tons of PVC wastage

Folie 26



Overview of recycling systems results in EU

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PROJECT	Type of PVC post consumer waste	Tonnage recycled in 2007	Tonnage recycled in 2008
EPCoat (and, only for 2008, Recovinyl)	Coated fabrics	2,609*	11,323*
EPFLOOR	Flooring	2,054*	2,524*
EPPA (incl. Recovinyl)	Window profile waste & profile related waste	56,046	79,877
ESWA – ROOFCOLLECT and Recovinyl	Flexible PVC	20,454*	19,333* tonnes which consist of:
ESWA – ROOFCOLLECT	Roofing and waterproofing membranes		954
Recovinyl	Flexible PVC applications		18,379
TEPPFA (incl. Recovinyl)	Pipes & fittings	21,236	22,555
EPPA (as Recovinyl (incl. CPPA))	Rigid PVC film	2,135	4,352
Recovinyl (incl. Vinyloop, Fenzi)	Cables	44,929	54,986
TOTAL		149,463	194,950

Source: Vinyl 2010 Report yearly report 09

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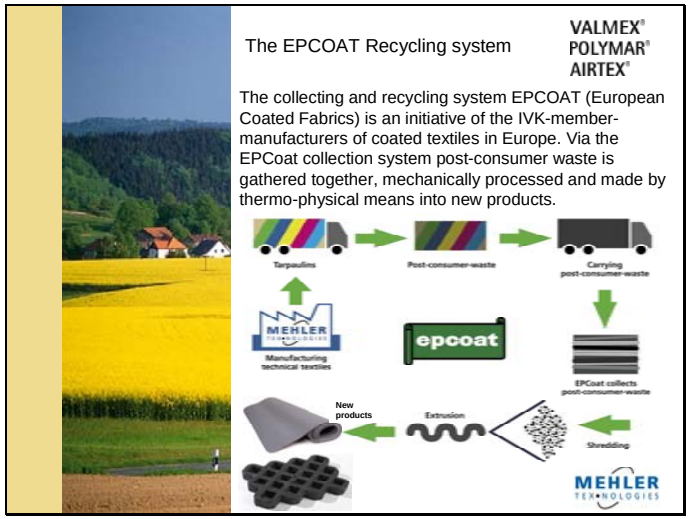
Folie 27



The EPCOAT Recycling system

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The collecting and recycling system EPCOAT (European Coated Fabrics) is an initiative of the IVK-member-manufacturers of coated textiles in Europe. Via the EPCoat collection system post-consumer waste is gathered together, mechanically processed and made by thermo-physical means into new products.

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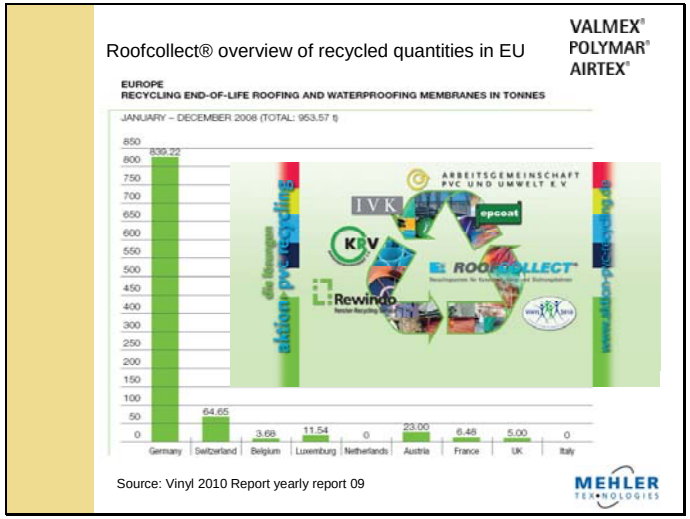
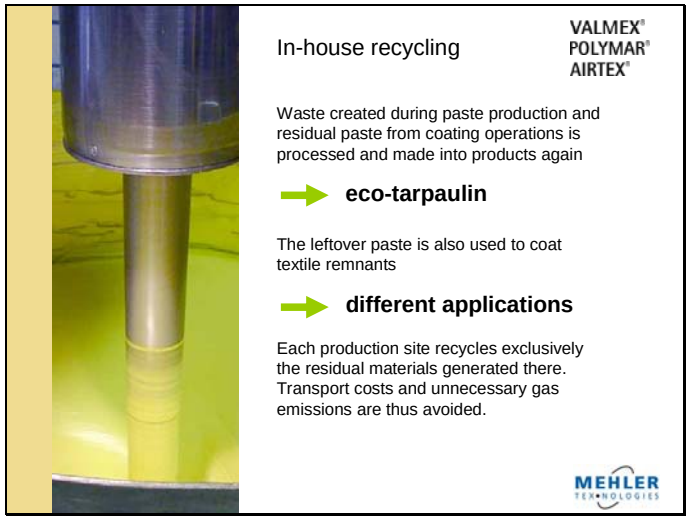
PVC can be collected and recycled in several manner. Not all recycling systems are appropriate to handle all PVC products existing in the world. Mehler is supporting the Epcoat system, adaptable for recycling of coated fabrics. In year 2008 the system is well increasing the amount of fabric recycled and is been integrated to a much more wastage handling system for such a waste products.

Folie 28



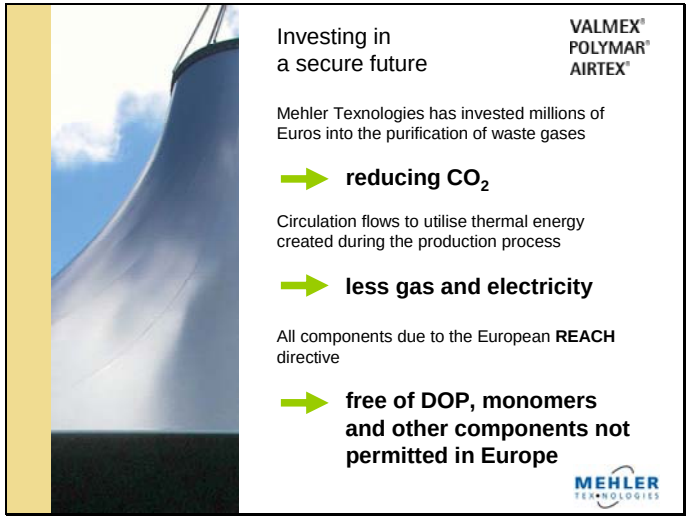
Epcoat is part of other systems including impermeabilisation membranes made out of PES-PVC. Those systems are growing up in Germany and contributes to the large amount of recycled fabric products in EU

Folie 29



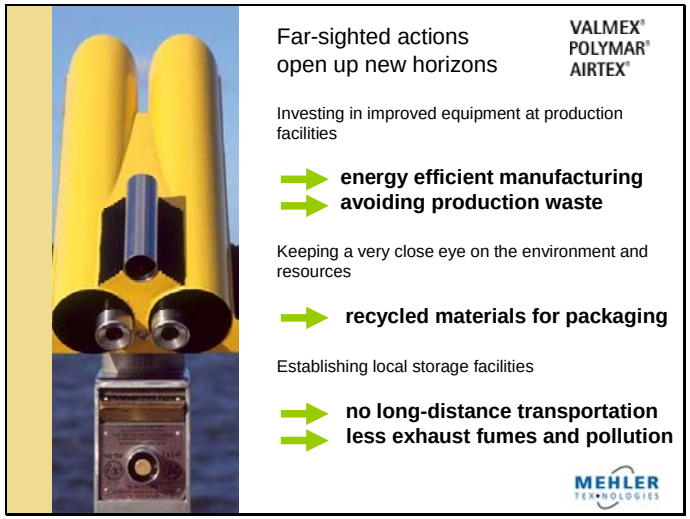
Mehler Texnologies aims to recycle as high a percentage as possible of waste caused by the company's production operations. This waste consists on the one hand of base materials, such as textiles and pastes, and on the other of residual waste from finished products.

Folie 30



Over recent years, Mehler Texnologies has invested millions of euros into the purification of waste gases in order to continually reduce CO2 emissions. Circulation flows have also been developed to utilize thermal energy created during the production process and thus to reduce the consumption of gas and electricity.

Folie 31



As well as using ecologically harmless raw materials and continuing to develop sustainable production methods, Mehler Texnologies is also investing in improved equipment at its production facilities. Energy effi cient manufacturing and the fi ne-tuning of systems to avoid production waste are further steps being taken to ensure production of reliable and innovative quality products.

Folie 32

❖5. Conclusions

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- Our main industry responsibility is to be good parents to our next generations. It will need support from all of us to grow and prosper.
- By designing and use products we should evaluates the environmental + ecological impact during all the stages of a product's life cycle
- It becomes obvious that the greatest influence on the life cycle energy usage *is at the design and at the end life stage of a product*

To continue to be an alternative, the tensile industry needs principles that:

- is grounded in sustainable development
- can incorporate hard targets and timetables
  - can provide traceable and recyclable materials
- can provide a sustainable and coherent long term solution
- include the potential for a truly global approach

Remeber....

"We cannot solve problems using
the same thinking way that created them."
Albert Einstein

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Folie 33

Mehler Texnologies around the world

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THANKS FOR YOUR ATTENTION

ISO 9001:2000 IQC Certified Quality System

MEHLER eco-care

TÜV CERT

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