

PROVIDING A SOLUTION FOR

TETRA PAK PACKAGING SOLUTIONS AB

Research with neutrons and photons has contributed to the development of a wide variety of products such as plastics, cosmetics, chemicals, building materials, or to take something closer, the milk carton in your fridge.

These state of the art scientific methods allow ongoing development that continuously brings new solutions, such as the prevention of leakage from the milk carton or extending the life of a dairy product. Below a more detailed, more scientific, example of how research can help in product development is presented.

Tetra Pak is a global supplier of food processing and packaging solutions, present in more than 170 countries with some 22,000 employees. In 2011 Tetra Pak produced over 167 billion packages worldwide. Researchers at Tetra Pak are continuously developing new materials for use in their various packages.

State of the art materials need state of the art science. One such material is a polymer based composite. This composite is tested for improved gas barrier properties compared with conventional plastic-based films and may hence be used to increase the shelf-life of the products packed.

In their effort to understand the properties of the composite material, Tetra Pak researchers used the SAXS (Small Angle X-ray Scattering) technique at MAX IV Laboratory, which is sensitive to the size, distribu-

tion, orientation and aggregation of the particles in the polymer matrix. These factors are known to influence the gas barrier properties of the material.

The experiments helped the Tetra Pak researchers understand how the particles were distributed in the polymer matrix and how they influence the final properties of the composite. Their visit to the MAX IV Laboratory thus provided them with an important puzzle piece in their development of improved materials for usage in packages for food distribution.



Figure NUMBER ONE

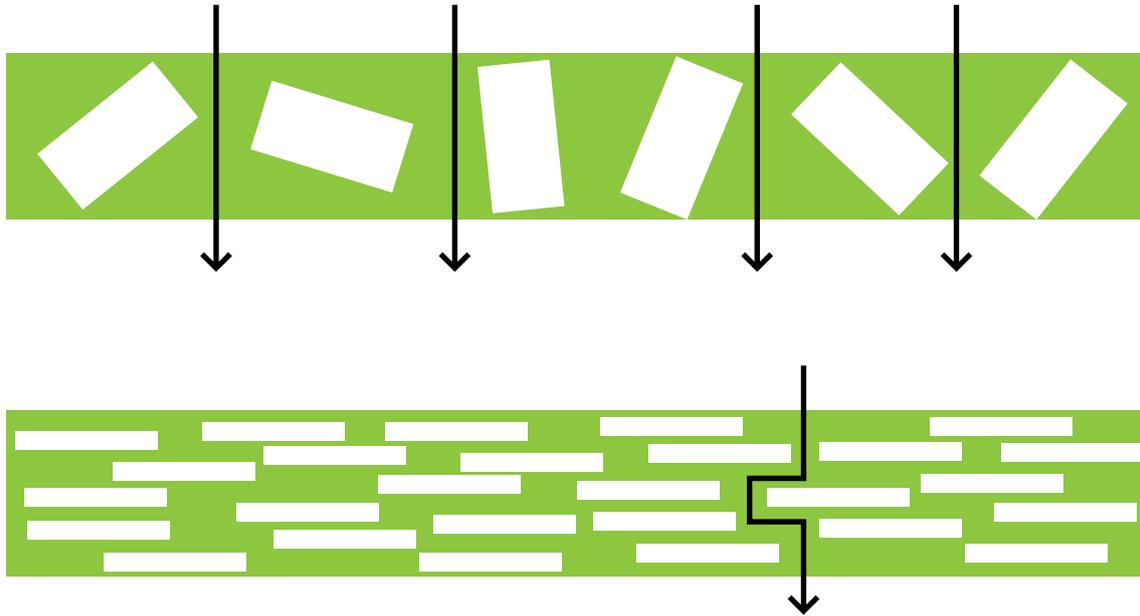


Figure 1 illustrates the advantage of using this type of composites instead of conventional composites in gas barrier plastic films. The more “tortuous” diffusion path of gases through the membrane makes this type of composites suitable for applications such as gas barriers.

Science Link is a network between leading research facilities of photon and neutron sources and its users. The project aims to support and encourage innovation and entrepreneurship in the Baltic Sea Region. Apart from the research facilities, the network also includes scientific institutes, universities and regional organisations that serve as service and promoting units. Science Link is part-financed by the European Union (Baltic Sea Region Programme) and involves 20 partners from 9 countries during the project period 2012 to 2014.

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