



High quality encapsulation film

Quality is ever important in our industry and now Breyer have come up with a high quality, high speed extrusion process which has already been tested by TÜV Rheinland Germany....

BREYER's extrusion system "CellProtect" allows the production of low shrinkage EVA encapsulation film at high production speed. Most importantly, there is no interlayer film and there is no energy consuming annealing process, which means the production is economic in terms of both cost and energy. Furthermore, Polyolefin encapsulants can be processed using the same method.

Encapsulation film produced on regular extrusion lines has a natural shrinkage which affects not only the laminating process but can result in destroyed wafers and therefore creating waste and thus

increased production costs.

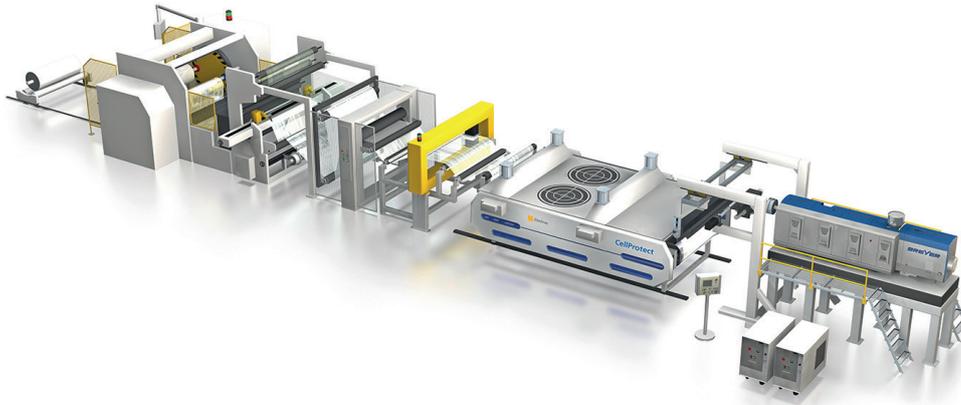
A high quality and low-shrinkage film allows a smooth and fast laminating process. The more shrinkage a film has the more carefully the warm up procedure must be controlled and could increase the laminating time.

Since the regular extrusion systems, using calendars or cast rolls, are limited to a certain speed/output, BREYER has developed a profitable system for the production of EVA film and other gluey materials. For the first time, using BEYER CellProtect, it's possible to extrude EVA or Polyolefine films film at high speed by keeping the shrinkage low. The process avoids tension in the film right from the start. Post annealing systems are therefore not required. In this way the line also consumes less energy.

EVA film makers can have higher profitability by using the new technology since the output is much higher. For the module manufacturers' using such low

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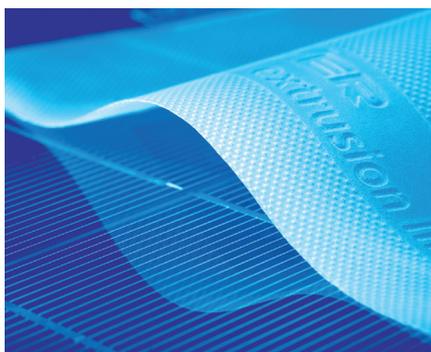
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tension film means that their laminators are more stable and also run as fast as possible.

They have the advantage of trouble free production combined with more reliable and efficient manufacturing. Notable module manufacturers are therefore very much interested in getting low shrinkage film.

Due to the improved properties and performance this EVA film is about to set a completely new standard in encapsulation film and its procedure during laminating.

Furthermore, due to the specially designed surface of the EVA film, the PE interlayer is no longer necessary. The rolls can be wound without the PE film in between.



Also carrying paper, sometimes used for the manufacturing of EVA film, is also unnecessary.

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Finally the process can be considered a “green EVA film production line”, since its process saves the interlayer, carrying paper, has no energy consuming annealing, a closed loop for the cooling circuit and works with a low temperature extrusion process.

TÜV Rheinland Germany has already successfully completed the module test on EVA encapsulation film produced with the CellProtect system.

In the meantime a number of systems have been sold and installed worldwide.

The extrusion system is developed and produced by BREYER extrusion lines, Germany. ■

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BREYER

Main business: Manufacturing extrusion lines, composite machines and energy solutions, made in Germany and distributed worldwide.

250 employees including 35 trainees.

BREYER extrusion systems for...

the production of sheet in high optical quality.

- out of PC, PMMA,
- App: LED panel, backlight sheet for LCD TV, greenhouses

the production of sheet.

- made out of engineering plastics like ABS, PP, TPU.
- App: automotive, decorating

for the production of flat film

- out of PC, PMMA, PET, EVA, TPU.

- App: optical- and thermoforming, encapsulation of solar modules,

for the production of tube bodies for the packaging industry

- out of PE, PP, single and multilayer

BREYER Energy Solutions

... Calender equipment for the processing of cells for Lithium-ion Batteries