

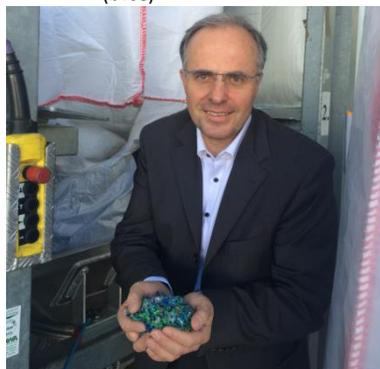
Sustainability Policy “What is a recycled film?”

An interview of Dr. Eberle, Geschäftsführer FROMM Plastics GmbH.

Dr. Eberle is a recognized expert in the plastic industry with more than 20 years of experience in R&D and working with industry leaders with virgin, recycled and renewable materials.

He holds a PhD in Applied Polymer Chemistry and is a member of

- European Plastics Recycler (EUPR),
- Industrievereinigung Kunststoffverpackungen – Forum PET
- RAL Gütegemeinschaft „Wertstoffkette PET-Getränkeverpackungen e.V.“
- Bundesverband Sekundärrohstoffe und Entsorgung (bvse)



Dr. Eberle, we heard more and more about “recycled” film and it sounds that this wording covers different concepts. Could you please tell us what does “recycled” film mean?

Dr. E: Actually “recycled” film is a pretty simple concept that means film made of recycled raw materials. According to the EU rules, on a recycled film should be displayed the minimum amount of recycled raw materials used for its produc-

tion, for example “contains more than 20% recycled material”. In practice, this essential indication is often missing.

If the content of recycled raw materials is important, the type of reclaim used is even more important.

What do you mean by “type of reclaim”? Could you be more specific?

Dr. E: Sure. Let me first define what a recycled raw material is. This is a raw material that was processed at least once by opposition to the “virgin” material that was never processed. By processed, is meant used in a transformation process like extrusion or injection.

So, the most common recycled raw material is the production scrap occurring during extrusion or injection. This is called the industrial reclaim. The specifications of this material are often well known and not too different from the ones of a virgin material. The main issue of this reclaim is often the color when the extrusion process is associated with a printing in line. The color of the reclaim makes it sometimes difficult to reuse as final users usually want a transparent or clear product.

If the industrial reclaim is probably the cleanest recycled material, the “post-consumer” reclaim is the most difficult one to use. Indeed, it may come from various sources and be polluted in multiple ways. That diverse pollutions make it difficult to clean. The prior diverse processing that material went through

may substantially impact its performances and characteristics. Each material batch may come from a different place and therefore may have different specs and of course different colors. Needless to say that this material is extremely difficult to use for a final product that must be used in a transformation process, sealing for example, or exhibit minimum performances, mechanical strength or air retention for example. Garbage bags are the main application for films made of “post-consumer” reclaim. The black or strong green color most of the garbage bags are colored with is a great way to solve the raw material variety of colors.

Does this mean that films for sophisticated application cannot be made with recycled content?

Dr. E: First we’ll have to define what a sophisticated application is. To keep it simple, let’s say it covers all applications where the film is not ready to use but, for example has to be sealed or thermoformed. For medical applications or applications where the film is in contact with food, in most of the cases recycled films are not used. There are some “food approved” reclaim resins but in quite limited quantities.

Films can be made of one or several layers. They can also be laminated. In a monolayer film, the use of recycled resin will be more limited especially for thin films. However, in multilayer films, recycled resins can be used in the core layer. The outer and inner layers can still be made of virgin materials and there-

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fore the film performances will be very similar to a film not containing recycled materials. The mechanical resistance maybe slightly impacted but it is always possible to compensate it by slightly increasing the film gauge.

Of course, using recycled material in the core layer only limits the quantity of possible recycled content. If the three layers have the same gauge, then the maximum recycled content would be 33% assuming the core layer is 100% made of recycled resin. The other limitation will be the color of the reclaim.

So, it sounds quite easy to use recycled material to produce a film. The trick is to trap the reclaim in the core layer!

Dr. E: Maybe I expressed in a too positive way!

There are several issues actually. The first one is the sourcing of reclaim material. A film production process usually generates around 2% waste. This is not enough to produce a recycled film with let's say 20% reclaim! So, additional reclaim has to be sourced and it is very unlikely that it will be coming from only one place.

As a result, the specifications of the reclaim will be very different from one batch to another and it is a challenge to ensure a constant film quality at the end of the process.

The second issue is the scarcity of the reclaim on the market. It's not

available in large quantities and the supply is not stable making it very difficult to ensure a minimum recycled content.

OK, I understand now better the issue with recycled films. How do you manage it at FROMM and what's your philosophy to reduce the environmental impact of the plastic films.

Dr. E: Sustainability has always been very important at FROMM. Since 2003 we have been developing innovating techniques to recycle PET from used bottles, “post-consumer” reclaim. In our plant near Leipzig, we recycle more than 40.000 tons of PET every year which makes FROMM the largest PET recycler in Europe!

Using recycled instead of virgin materials generates a huge environmental benefit. It saves about 1.2 Tons of CO₂ for each Ton of recycled PE used! It's a saving of 70%!

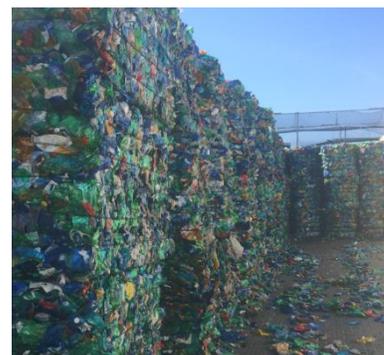
However, for our Airpad film, the first thing we focus on is the quality. If the film does not perform properly, it's a source of waste very environmentally unfriendly. We also control our production line very precisely to reduce the waste as much as we can. We don't want to claim a high recycled content in our films just because we did not do a good job in our extrusion process.

Then our approach is very simple:

- Use virgin resins

- Use our own industrial reclaim and offer a good quality multilayer recycled film in limited quantity.
- Offer a bio-based film in line with the European standard DIN EU 13432.

And of course, we support the key environmental principles, Reduce, Reuse, Recycle.



Compressed PET used bottles as they arrive at our recycling plant near Leipzig.



PET reclaim material obtained after transformation. It can replace virgin material for the manufacturing of various plastic based products.