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Debunking the recycling myth

Flexible Packaging drives resource efficiency and sustainability – even when it is not recycled

A recent study by ifeu investigated the waste prevention potential in Europe by replacing non-flexible packaging with flexible packaging. The results, reviewed by Carbotech AG, demonstrate that thanks to the light-weighting and waste prevention benefits, even without recycling, flexible packaging can save up to

- 26 million tonnes of packaging material* or 77%
- 42 million tonnes greenhouse gas emissions* or 38%
- 276 million m³ of water use* or 44%

* in comparison to non-flexible packaging with 100% recycling

Unfortunately most consumers and politicians still believe what they have been told for over a decade: namely that packaging which is not being recycled is always less sustainable than those with high recycling rates. This study clearly debunks this myth.

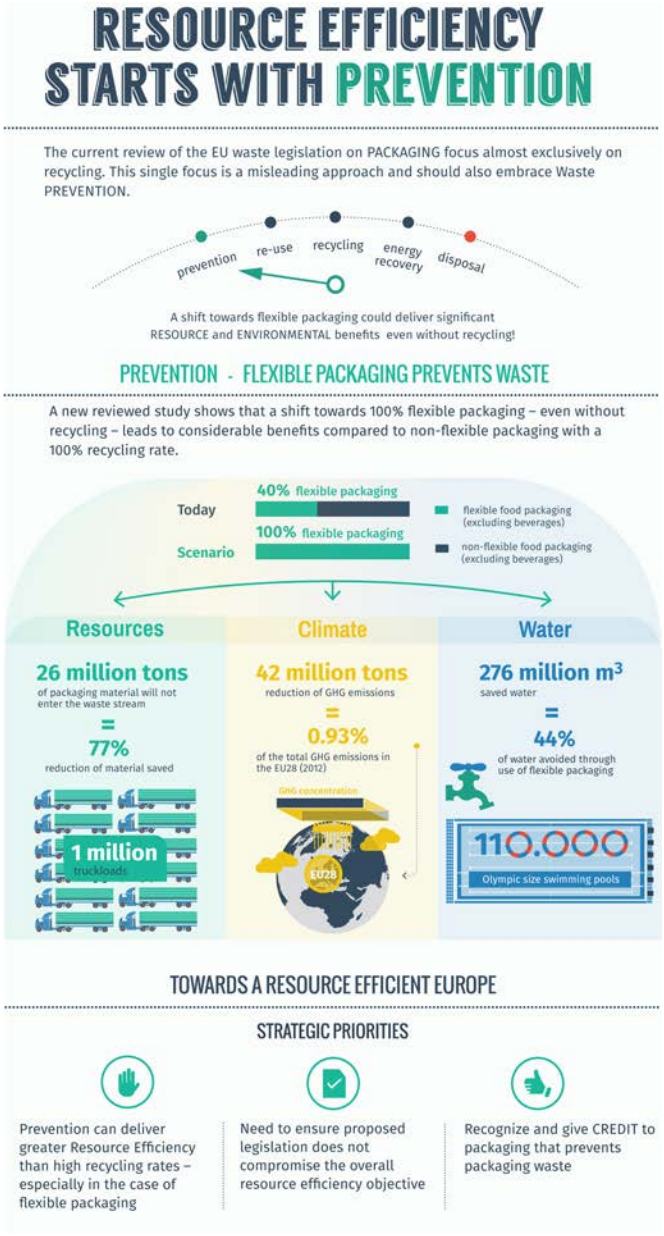
> *There is a need to change mind sets to open up for more differentiated policies rather than a single focus on higher recycling targets*

The recent discussion on the "Circular Economy" in combination with the revision of the EU Waste Legislation showed that the focus is still primarily on recycling rates only. This approach neglects the existing EU waste hierarchy which accords "Prevention" a higher priority than "Recycling" due to it being more effective at delivering resource efficiency.

The overall political objective is to achieve a resource efficient Europe and to enhance sustainable consumption by making the best use of these resources. Focusing on recycling only ignores the considerable environmental benefits to be gained by not recognising and crediting the potential to prevent waste by choosing a flexible packaging solution. These solutions can serve the same purpose but use significantly less material and resources to achieve a much lower environmental impact.

And even though flexible packaging is generally the most resource efficient solution with zero recycling, the flexible packaging industry seeks to increase the recycling rates for these materials by promoting the development of systems and technologies with potential to recycle multi-layer packaging solutions.

More details on www.flexpack-europe.org



Source: ifeu – Institut für Energie- und Umweltforschung Heidelberg GmbH

Stefan Glimm
Executive Director
Flexible Packaging Europe

European News

Plastics Regulation No 10/2011

Regulation No 202/2014 was published in March 2014. It amends 10/2011 by adding two food contact substances to the Union List and by changing the details on two existing substances. We had been promised a further amendment which would make changes to the text of the Regulation but this has been postponed.

Two Guidance Documents on the Plastics Regulation were published in early 2014:

- "EU Guidance on Regulation (EU) No 10/2011" gives information on the general requirements of the Regulation, expanding the definitions used, explaining what is covered and what is not, giving a partial list of Dual Use Additives and explaining the transitional arrangements for test conditions etc..
- "EU Guidance on information in the plastics supply chain" gives information on the contents of the declaration of compliance, detailing what should be included at each stage of supply.

A third Guidance is approaching completion. It deals with compliance testing, from the point of view of both the authorities and industry. It covers sampling, migration test methods and conditions, screening, analytical methods and the reporting of results. The final consultation has taken place and we expect publication in the first half of this year.

Commission Plans

After many years heading the food contact group, Annette Schäfer has moved to another position. As a result, the Commission has been short staffed and has had to prioritise its activities. Recycling is top of the list because EFSA is completing all their safety assessments of the various recycling processes and a legal framework is needed under which they can be authorised by the Commission.

The work on Compliance Testing Guidance has thrown up a number of issues with the wording of 10/2011. A number of changes are needed, especially to the Annexes dealing with testing conditions, and so there will need to be an amendment of the text. During the year, we can also expect one or more amendments for substances to be added to the Union List.

Biocides

Another priority for the Commission is to introduce legislation for the use of biocides in food contact materials. Their aim is to clarify the overlap between the requirements of the Biocidal Products Regulation No 528/2012 and of the Framework Regulation. Biocides that are intended to transfer from packaging into food, and have an effect on the food, are excluded since they are already dealt with under the regulations for food additives and active packaging.

The two remaining types of biocides will be covered:

- Process biocides, i.e. those used during the manufacture of food contact materials to keep components free from microbial contamination during the production, storage or handing processes. They are however, not intended to be present in the final food contact material. An example would be an in-can preservative used in water based inks, coating or adhesives.
- Surface biocides which are intended to remain in the food contact material in order to prevent microbial growth in or on it but which are not intended to transfer to the food or have an effect on it.

Under the current draft, these substances would need appropriate approval under the Biocidal Products Regulation but could then be used in food contact materials provided:

- They are not Carcinogenic, Mutagenic or Reprotoxic (CMR), endocrine disruptors or nanomaterials and
- The maximum migration into the food is less than 10 ppb or the maximum concentration in the material is less than 1 ppm.

If these conditions cannot be met, they must be subject to an EFSA safety assessment and Commission approval and restrictions. Also of note is that this proposed regulation will apply to all packaging, not just to plastics.

Aluminium in Food Contact Materials

Recently there have been a couple of conferences concentrating on aluminium. The first, held in Ljubljana on the 6th and 7th November 2014, aimed to present and explain the Council of Europe Resolution CM/Res(2013)9 and to exchange best practice in the area of product safety and compliance testing. There was agreement that properly coated aluminium food contact applications do not represent any problem in practice as far as aluminium release is concerned. In the case of food contact applications for uncoated aluminium, appropriate labelling is vital to avoid misuse by the consumer. Further work by the technical experts is needed to define time/ temperature testing conditions more closely so as to represent actual conditions of use.

The second event was held later in November by the BfR (German Federal Institute for Risk Assessment). Despite the inclusion of a couple of well known "anti-aluminium" campaigners, the overall output

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European news ... *continued from previous page*

was balanced with the BfR stating the aluminium based food contact materials have a relatively minor (1 – 4%) role in consumer exposure. The importance of adequate consumer labelling and information was again stressed.

Migration Testing of **Lacquered Aluminium**

It has long been recognised that the standard acidic food simulant for plastics, 3% acetic acid, is not suitable for overall migration of lacquered foil testing because of excessive corrosion and hence release of aluminium ions. However, the alternative, citric acid, is non volatile and hence also not suitable for OM testing. FPE produced a position paper which stressed the difference between:

- Migration, i.e. the transfer of substances out of a coating into the food or food simulant
- Release, i.e. production of aluminium ions by chemical reaction between the aluminium foil and the food or food simulant

It proposed the use of a commonly practised "work around", using acetic acid as the simulant but only weighing the chloroform soluble fraction of the migrant – as representing the organic fraction arising from the coating.

However, there may be alternatives to this method. For example, the Belgian authorities are proposing an alternative gravimetric method using citric acid, weighing the sample before and after testing.

Other industry associations have also quoted examples of plastic testing conditions being used inappropriately on non plastics materials. This has led to a cross-industry initiative to propose alternative testing methods for these non plastics. FPE will participate, concentrating on the lacquered foil issue.

Cosmetics **Packaging**

The Cosmetics Regulation 1223/2009 requires that a product can only be put on the market if the "Responsible Person" at the cosmetics company has carried out a safety assessment. This needs to take into account the relevant characteristics of the packaging material. Frequently, the cosmetics safety assessor lacks a detailed knowledge of packaging materials and so they ask their packaging suppliers for comprehensive compositional data. This is both burdensome and difficult to provide since much of it is normally regarded as confidential.

To find a better way, representatives of the cosmetics and packaging industries have been meeting in a task force over the last year. It has been agreed that, in the majority of cases, one can apply the principle "what is safe for food is safe for cosmetics". The packaging supplier can provide information on the food contact status of their material and the cosmetics assessor must judge whether this information is adequate to show its safety for cosmetics. Compliance by worst case calculation is preferable. If this is not possible and migration test results are quoted, the assessor must decide whether the food simulants which were used are also applicable to the cosmetics formulation. If suitable simulants do not exist, as with highly alkaline hair care products for example, the packaging must then be assessed as if it were a non food contact structure.

For the cases where food contact compliance cannot be claimed, the task force developed other means of demonstrating the safety of the packaging. This includes a TTC approach which, depending on the CMR/ Cramer classification of the substance, leads to tiered maximum ppm levels in the material.

The task force also addressed the issue of substances which are banned or restricted in cosmetics (Annexes II and III). This does not mean a ban on them in the packaging but information on their levels may be needed so that the assessor can decide whether they are "technically unavoidable traces".

REACH

As the REACH Regulation "matures", so the number of lists within it proliferates. The presence of a substance on a list does not usually change its food contact status, but it can change its public perception, so it's perhaps worthwhile to summarise the various listings.

The "R" of REACH stands for the **Registration** of substances. It is one of the main obligations under REACH. All substances made or imported in volumes exceeding 100 tonnes had to be registered by May 2013. We are not aware of this resulting in any market withdrawals but the next deadline of May 2018 for the registration of substances in the 1 to 100 tonne volume range may be more critical.

The **Evaluation** of substances (the "E" of REACH) is prioritised by their inclusion in the **Community Rolling Action Plan (CoRAP)**. They are chosen according to risk based criteria so, although the immediate aim is to only evaluate whether or not they are of concern, their very presence indicates that they are "on the radar".

The **Candidate List** of Substances of Very High Concern (SVHC) contains substances for possible inclusion in the Authorisation List. The presence of a substance in this list already imposes some legal obligations including the need to notify its presence in articles at concentrations greater than 0.1%.

When a substance is placed on the **Authorisation** (the "A" of REACH) List, it can only be used if an authorisation has been granted for a specific use or if the use is excluded. An example of the later can be found with certain phthalates. Their status as isolated intermediates exempts from authorisation their use in catalyst systems for polypropylene manufacture. Nevertheless, there is starting to be market pressure to avoid using resins made with these catalyst systems.

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REACH *... continued from previous page*

Alternatively, a **Restriction** can be applied to a substance, for example, preventing its use in formulation used by the general public.

The **Classification, Labelling and Packaging (CLP)** Regulation No 1272/2008 is replacing previous systems of communicating the hazards of substances. It is obviously relevant to the handling of chemicals in the workplace. The classification of substances as CMR also can have an effect on their availability as food contact substances. For instance, the recent classification of formaldehyde as Carc. 1B is reported to have led to the withdrawal of some formulations containing it, despite it being in the Union List with an SML of 15 mg/kg.

The **Public Activities Coordination Tool (PACT)** lists substances for which a risk management option analysis is ongoing or completed. It may be that no further action is taken. Alternatively further steps within REACH might be initiated such as Restriction or placing on the Candidate List.

FPE will do their best to keep members informed when food contact substances appear on these lists. We stress that such a listing would not necessarily mean the withdrawal of a substance for food contact materials but it may result in concern and additional questions from the market.

BREF

The Best Available Techniques (BAT) Reference Document (BREF) for "Surface Treatment Using Organic Solvents" is a key document used to guide authorities on the issuing of licences to operate for flexible packaging plants. A revision of this document has started and can be expected to result in more demanding reference emission limits. In addition, under the Integrated Pollution Prevention and Control Directive 2010/75, such limits will become mandatory rather than advisory. Unless the flexible packaging industry takes care, such reduced limits could require considerable capital expenditure, e.g. on reducing fugitive emissions.

FPE has employed a consultant, Dr Franz-Rudolf Brenk, to represent our interests during the revision process. He has a good experience of the process, having worked on the revision of another BREF. However, he will need the full support of FPE members to ensure that the technical issues are handled correctly. Please respond to his requests for information and support.

National News

Ink Ordinances

There have been no changes since December 2012 to the list of substances permitted under the Swiss Ink Ordinance. This is probably because the Swiss authorities are trying to work with their German counterparts on joint approvals of substances. As a result, several oxygenated solvents used by FPE member as retarders and some hydrocarbons used in coldseal release lacquers are still on List B with a 10 ppb limit in the food. Dossiers have been submitted but progress is only likely once the German legislation has been finalised.

Back in July, we received a "final" draft of the proposed German ink regulation which we understood was to be submitted to the EU Commission and the World Trade Organisation. However, this has not yet happened. There is speculation that there have been objections from the Economics Ministry who could be worried that the measure could act as a barrier to trade and could have an adverse effect on German competitiveness.

Even if it is notified to the EU in the near future, we cannot expect the final measure to be published before early 2016. Therefore, allowing for a two year transition period, it will not come into full force before early 2018.

Other National Legislation

The Belgian Coatings Decree was notified to the EU in June last year. We understand that the Commission made some comments on the proposal which may result in changes being made.

A revised Dutch Commodities Act Regulation (Warenwet) came into force in April last year. It now incorporates the provisions of 10/2011. It also mentions the Threshold of Toxicological Concern (TTC) principle and states that it is an accepted method for assessing Non Intentionally Added Substances (NIAS). A chapter to describe the principle is planned but not yet completed.

Substances in the News

Bisphenol A (BPA)

EFSA's experts have published their scientific opinion on the risks to public health from bisphenol A (BPA) in foodstuffs. They conducted a comprehensive re-evaluation of both its toxicity and of consumer exposure.

Using new data and refined methodologies, they reduced the safe level (the "tolerable daily intake" or TDI) of BPA from 50 micrograms per kilogram of body weight per day to 4 μg/kg of bw/day. They calculated that exposure from the diet or from a combination of sources (diet, dust, cosmetics and thermal paper) is three to five times lower than the new, lower TDI. They thus concluded that, at current exposure levels, BPA poses no health risk to consumers of any age group.

This opinion means that it is almost certain that there will be no further action to restrict the use of BPA at a European level.

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However, it is unlikely to change what has already been enacted at national level.

The French regulation which suspends the use of BPA in the manufacture of direct contact food packaging came into force at the beginning of the year. There has been some guidance from the DGCCRF, the body responsible for enforcing the legislation. The law excludes materials such as varnishes or inks on the outside of metal or glass containers, which are separated from food by a barrier. Secondary and tertiary packaging and industrial equipment are also excluded. Otherwise, all food contact materials which contain BPA, whether intentionally added or not, are covered.

However, they say that official controls will concentrate on materials which make an intentional use of BPA in their manufacture, including any printing inks, adhesives or coatings included in the finished product. They recognise the possibility of BPA being present in recycled materials, especially paper fibre, saying that levels should be kept as low as possible. A threshold of 2 mg/kg is quoted as indicative of Good Manufacturing Practice.

Mineral Oil Hydrocarbons

The German Federal Ministry of Food and Agriculture put out another draft of a regulation on mineral oils in July last year. Its key features are:

- Limits of 24 mg/kg for saturated mineral oil hydrocarbons (MOSH) and 6 mg/kg for aromatic mineral oil hydrocarbons (MOAH) in packaging made from recycled fibre
- These compositional limits may be exceeded provided migration into the food does not exceed 2 mg/kg of MOSH and 0.5 mg/kg of MOAH. Documentation to demonstrate this would be needed, e.g. that a functional barrier exists between the foods and the mineral oil source

However, there has been no more news on this issue for the last six months.

Research

Exposure Matrix

This tool supports the risk assessment of NIAS. Based on consumption data in five EU countries, it estimates the exposure of the consumer to packaging in dm2/ person*day for user defined combinations of food type and packaging type.

This total surface area can then be used to calculate a level of interest (LOI), which is the migration level (µg /dm2) for a pre-defined Tolerable Exposure Level (µg/person*day) or to calculate exposure (µg/person*day) to individual substances based on their migration data or residual content (µg/dm2).

An on-line version of this tool has now been developed and will shortly be released. It will be available free of charge and should be a welcome aid to the evaluation of screening tests for NIAS.

FACET

The next release of the FACET tool will probably be its final version. Despite some doubts about the quality of some of the pre-loaded data, the principle of the model has been demonstrated and the software should provide a valuable means of estimating exposure to:

a) New substances. One can either define an initial concentration in individual materials or replace at a defined level another, existing substance

b) NIAS. Again, one can either define its concentration in individual materials or associate it at a defined proportion with another, existing substance

A number of FPE members have been trained in the use of the tool. If others are interested in also receiving such training, they should contact John Dixon.

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