

Summer of sporting splendour!

— *Alufoil adds both utility and some sparkle to the Olympics and Euro 2012 competitions*

This summer is set to be one of the greatest ever for sports enthusiasts. The spotlight is definitely on Europe as first, in the east, Poland and Ukraine host the European Football Cup. This is followed, as the focus moves west, by the Olympics and Paralympics in London.

Modern sportsmen and women take full advantage of the easy to use packs made possible, thanks to laminates with alufoil, for single dose packs and pouches which are convenient and safe to use. For example many athletes must take in energy or calories in a very controlled way when running the marathon or cycling long distances. Soccer players too need minerals and proteins provided in pouches, even before extra time! Stick packs can deliver single, accurate amounts of these products and keep them in first class condition.

But of course alufoil can be decorative as well as useful and the Olympic and Paralympic Mascots, Wenlock and Mandeville, are now available in 100g hollow chocolate versions from the Official Treat Provider, Cadbury which is part of Kraft Foods. The names for these mascots were inspired by two historic sporting events in the UK – the first ever athletic event for people with disabilities was held at Stoke Mandeville Hospital during the London Olympics in 1948, while Much Wenlock held an ‘Olympian Games’ in the town from 1850 which helped to inspire Baron de Coubertin to found the modern Olympic Games.



The Treats have been wrapped in alufoil and finished with a high quality print. Cadbury's website says, “Our products are Treats, which bring a moment of fun and pleasure and a smile to the face. We want to bring that same fun, pleasure and smile to the London 2012 Games.” The alufoil wraps on the 100g Mascot chocolates certainly make them look fun, as well as offering the normal protection and barrier properties.

For spectators fruit and dairy drinks supplied in

beverage cartons and alufoil pouches means they are able to quench their thirst with a great variety of healthy and tasty alternatives to traditional soft drinks. Pouches are convenient to carry and can be stored safely in bags and pockets for later use.

So while the athletes will be taking centre stage on the field, track or course and in the pool or on the court and soccer pitch, many alufoil products will play their part in helping both participants and spectators to have a splendid time! ///



Welcome to Alufoil Trophy 2013

The European Aluminium Foil Association (EAFA) has announced that its annual competition, the Alufoil Trophy, is open to receive entries. Organised by EAFA, the Alufoil Trophy is now established as a major prize, which recognises innovation and creativity in the use of foil across a number of applications. Entries are welcomed from packaging designers, brand owners, foil rollers, foil converters, foil container manufacturers, foil closure manufacturers, household foil manufacturers, retailers, and industrial solution providers. The deadline for entries is 31 October 2012.

For more information and to enter go to: www.alufoil.org ///

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50 years of blister packaging

Pharma industry celebrates half century of blister packs

— *The blister pack celebrates its 50th anniversary in 2012 and it is hard to imagine a world where unit dose pharmaceuticals are not presented in this user-friendly format. Yet it was only a combination of several unlikely factors which brought about the birth of this style of packaging.*

Until the 1960s pills were usually provided in bottles, jars or paper based strip packs (such as the famous Aspro). However when Schering (today Bayer) developed the first birth control pill it needed a pack to aid patient compliance and make it simple to control administered doses over a set time period.

This coincided with the development of PVC and later copolymer, which had good forming capabilities, suitable for creating deep cavities. In fact the first thermoform machines were not developed for pharmaceuticals but food containers. The idea to develop a blister pack for birth control pills came from Hassia, a leading manufacturer of packaging lines, at the beginning of the 1960s.

Vital to the success was the development of tempered alufoil as a lidding material for the 'push through' pack; rigid enough to meet these pack requirements, whilst maintaining good adhesion by coating it with special lacquers. Alufoil used up until this time for most packaging was too soft to be used for this new application. Initially this rigid foil was called Springfolie on account of the pills 'springing' or 'jumping' out of the blister when being pushed-through.

The final piece of the puzzle was a machine to produce blisters in the quantity and quality required.



Schering's Anovlar® was the first preparation for hormonal contraception to be offered in Europe. The first packs utilized an alufoil strip. This was followed by the launch of Anovlar® 21, the first drug to be offered in a modern type calendar pack

Hassia, in conjunction with German materials' suppliers, including Aluminium Walzwerke Singen (today Amcor Flexibles) and Kalle, created the first blister machine capable of forming, filling and sealing the pack on line. Today German and Italian manufacturers such as Bosch, Uhlmann, Romaco, IMA and Marchesini lead the way in blister pack machine technology.

The first machines were quite slow but quickly were able to produce over 400 blisters per minute. However many modern machines can run at up to

1,200 per minute. Alufoil's tensile strength, high sealing integrity and excellent adhesion has enabled these speeds to be achieved.

Other benefits of the new blister pack were soon recognised. In particular it saved more than 60% in materials compared with traditional packs. The flat packs are also easier to store and take up less space for both storage and on the dispensary shelf. While these features were initially recognised for cost savings rather than as sustainability issues they certainly score highly today in that respect. ///

Push-through packs

The most common form of pill pack is the combination of a plastic thermoformed sheet used to make the cavity and, for 'push-through' blisters, a sheet of 20µm rigid aluminium foil laminate providing the lidding layer.

The fastest period of growth in Europe for the pharmaceutical blister pack was the



1980s. Original pack dispensing (OPD) was advocated as the best way of delivering products to patients. Over time the advantages of OPD became well recognised: they largely eliminated the risk of damage, product tampering, contamination or dispensing errors.

But the obvious advantage for the end-user is that it is always clear how many tablets have been used. In addition the packs can carry printing on the alufoil lid to depict the dosing schedule or other important information.

As demands for more child resistant blister packs grew new alufoil laminates have been invented to make the format even safer. ///

50 years of blister packaging

Coldform blisters made entirely from alufoil

The next generation of blisters saw alufoil prove its exceptional value with the development of the coldform or alu/alu blister, also known as FORMPACK. There is no plastic which can match the all alufoil blister to protect against humidity and gases. So the coldform is ideal for sensitive products and provides a 'high value' image for the contents.

Development began at Aluisse in the early 1970s and, in conjunction with machinery manufacturers Hoflinger & Karg (today part of Bosch Packaging), the coldform process and a suitable laminate were improved until Bayer adopted the blister for its new Aspirin with vitamin C product in effervescent form in 1974. A typical alu/alu blister uses 45µm foil laminate for the coldform blister layer and 20µm for the lid.

This type of blister does require special handling requirements or specially modified forming stations to deal with the particular characteristics of the alufoil which needs to be formed carefully to avoid stress points which can result in pin holes.

Today new technologies have enabled even the most delicate and volatile substances to be protected against moisture, light, air and temperature while maintaining flavour or inert gas inside the cavity. A recently developed FORMPACK laminate en-

ables a desiccant to be incorporate on the seal layer to eliminate 'cross diffusion' of moisture through the seal. The Formpack® Dessiflex™ Plus, developed by Amcor Flexibles, recently won an Alufoil Trophy for this major advance in blister technology. ///



Material development for blisters

The first blisters were formed from clear PVC to which the alufoil lid was adhered. Even today this type of format is still used for products such as medicated sweets – throat lozenges and cold remedies for clearing the head are typical examples.

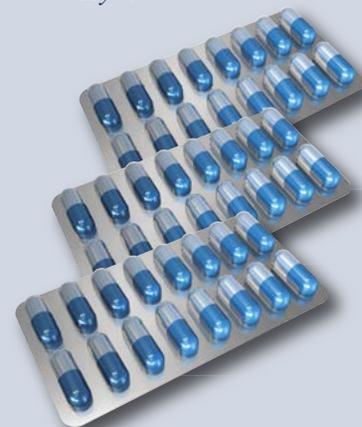
But for reasons such as regulatory and legislative requirements, which led to demands for greater security, both the plastic and alufoil layers have been developed considerably over time. Indeed the advance in materials for other applications has often led the way in improvements to the blister pack in advance of the legislation.

Combinations using both soft and hard alufoil from 30µm to 7µm, in combination with a paper laminate, attached to a thermoformed PVC between 250 and 300µm have added considerably to blister security. A peel-push format utilises a paper/alu/PVC or a hard alu/PET/OPA laminate.

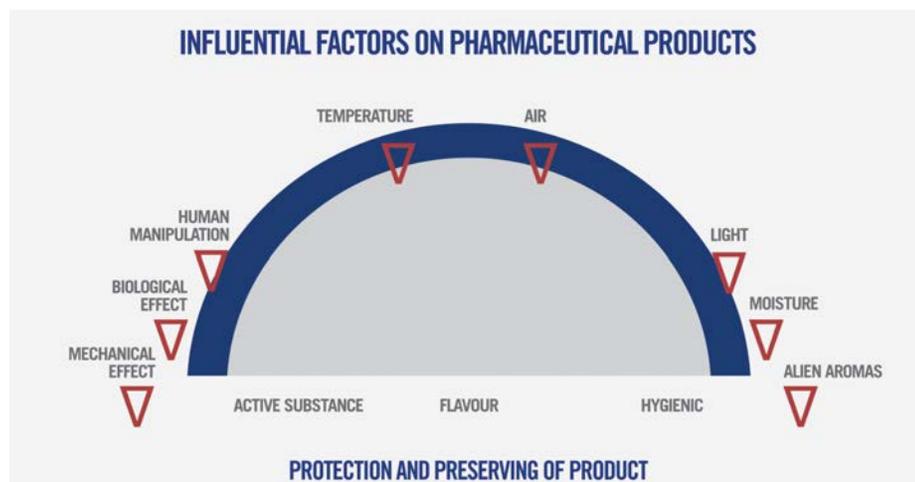
As PVC is susceptible to moisture ingress new alternatives have been created to combat this problem, such as PVC/PVDC combinations, multi-layer films, PET and PP. But the ultimate protection for sensitive products or those being taken to more humid regions of the world is the alu/alu blister. ///

The leading manufacturers of blister foil in Europe are:

- Amcor Flexibles
- Aluberg
- Ariflex
- Carcano Antonio
- Constantia Flexibles
- Hydro



It seems clear that the development and distribution reach of many pharmaceutical products has been achieved because of the blister. In 50 years the format has evolved into an indispensable packaging product. ///



The aluminium story

Worth its weight in gold!

— *It is hard to imagine that the first examples of metallurgical aluminium were so difficult to extract from the aluminium oxide that their value was higher than that of gold.*

The processes discovered by Bayer and then simultaneously by Hall and Heroult for, firstly, extracting the alumina from Bauxite and then refining it in commercial quantities, have led to the modern



The face of a huge boulder of bauxite

industry and our current ubiquitous usage of aluminium in its many forms, including alufoil.

With an eight percent share aluminium is the most abundant metal in Earth's crust, so reserves are plentiful. The starting material for primary aluminium, bauxite, contains large quantities of the element. The major locations of deposits are found in tropical and sub-tropical areas. About four tonnes of bauxite are needed to produce two tonnes of alumina or aluminium oxide, which in turn generates one tonne of aluminium. Current global aluminium production is estimated at between 45 and 50 million tonnes. The global alufoil production accounts for approximately 4 million tonnes of this. ///

From ingots to foil

Ingots of aluminium are sent to the rolling mills to produce foil stock. First, the ingots are heated to make them more malleable, then rolled to make the slab thinner and longer. This metal strip is hot rolled to a thickness of 2 – 4mm (2,000 – 4,000 microns) and coiled, before being cold rolled to metal thicknesses of between 6 – 400 microns. A second foil rolling method, continuous casting, bypasses the ingot stage and converts molten metal directly into a thick strip which is immediately rolled into the coil from which the foil is then rolled. The thinnest foil, used for wrapping chocolates, may be



only 6 microns thick, with household foil 11 – 18 microns, lidding foil about 30 – 40 microns, and foil containers 40 – 90 microns. ///



Sustainability issues

Alufoil and other forms of aluminium packaging rightly have a strong reputation for high rates of recycling. Today more than 55% of all aluminium packs are recycled in Europe. Recycling rates are even higher in the transport and building sectors. However almost one third of the aluminium used each year is now derived from recycling existing aluminium products.

Today approximately 75% of all the aluminium ever produced is still in productive use as both short life products such as packaging and long life goods for buildings and automobiles create a large self-sustaining pool of material. The production of alumina and the metallurgical process are quite energy intensive. In the 1950s 21kWh of energy was needed to extract a kilogram of aluminium. Today the figure is only 13 – 14kWh. About 60% of the electricity used in aluminium production is now hydroelectric. ///



This ex bauxite quarry, finished since the seventies, is now the site of a lake in the beautiful Orte Bay, Utranto, Italy

Stewardship

As the majority of bauxite is mined by open cast methods the industry adopts a very strong stewardship programme to ensure the mines are rehabilitated to create zero impact on the number of sites globally.

The latest Alumina Technology Roadmap issued in 2010 by the IAI, states: 'Efforts must be strengthened to decrease water usage, increase recycling and utilise lower grade water. Fresh water input should be reduced to zero.' There are also clear targets for reuse of other waste products and residues, improvements to refining and extraction technologies and energy efficient production. ///

Saving resources

Aluminium recycling saves up to 95% energy and greenhouse gas emissions as well as natural resources. Currently more than 75% of aluminium ever produced is still in circulation. When consideration is given to the many uses to which alufoil is put and its enormous capacity to serve in so many different ways (as a barrier, preserver, decorator, reflector and container) whilst making our lifestyles more sustainable then the claim that it is worth its weight in gold must surely still have some truth! ///

'The Aluminium Story' showing the whole lifecycle will be published shortly by IAI:
www.thealuminiumstory.com



EAFA European Aluminium Foil Association

The international body representing foil rollers, container, household foil and flexible packaging manufacturers.



— Find out more about alufoil!

Visit www.alufoil.org where you can find out all about every EAFA member, make business enquiries and see the latest news about alufoil applications and the industry.

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