

The tube was invented 175 years ago

WORLD TUBE CONGRESS ON 2 JUNE 2016 IN BERLIN

Exactly 175 years ago, namely in 1841, the American John Goffe Rand invented the tube and applied for a patent. This was the beginning of an impressive success story, the final chapter of which is nowhere to be seen even today: the tube is still a contemporary form of packaging after 175 years and continues to be modern and up to date thanks to a host of innovative developments. Particularly in times like these, the tube offers convincing arguments via its multitude of benefits and its attractive qualities, which are simply indispensable for certain products and applications.

Reasons enough, therefore, for the tube industry to celebrate this anniversary in a fitting manner. etma, the European tube manufacturers association that is managed as a division of the Gesamtverband der Aluminiumindustrie e.V. (GDA), is extending an invitation to attend the World Tube Congress in Berlin on 2 June 2016. Under the motto '175 Years of Flexible Tubes – And Still Going Strong' the event will bring together tube producers from all over the world, machine manufacturers, suppliers, clients and other packaging specialists.

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European tube industry:

TUBE PRODUCTION STABLE AT HIGH LEVEL IN 2015

In the the year of its 175th birthday, the success story of the tube as a packaging material is far from being over. This is demonstrated by the production figures for last year presented by etma, the European tube manufacturers association. Total production by etma members in 2015 was 10.5 billion tubes, exactly the same as the previous year's mark, and thus remained stable at a high level.

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"I think that with this result the European tube industry has once again demonstrated its capabilities in an impressive manner," was the satisfactory conclusion drawn by etma's secretary general Gregor Spengler.

The overall market shares of the individual tube types have shown little change for a number of years. Aluminium tubes account for the largest share with about 40 per cent of the market. Laminate tubes were a little stronger in 2015 and are now just over 30 per cent while plastic tubes declined slightly and fell below the 30 per cent mark.

As in previous years, most of the tubes produced were used in the cosmetics market, whose share was almost 44 per cent of the total. The pharmaceutical sector and toothpaste are similarly ranked, accounting respectively

convenience. In addition, the tube offers an almost unbeatable price/performance ratio compared with many other alternative forms of packaging and exemplary resource efficiency.

Furthermore, Gregor Spengler says key social trends and developments are having a positive influence on the market opportunities for the tube as a packaging, especially in Europe: "Just think of our ageing society. With its easy handling, precise dosing and application, the tube offers many comforts, especially for the growing number of senior citizens.

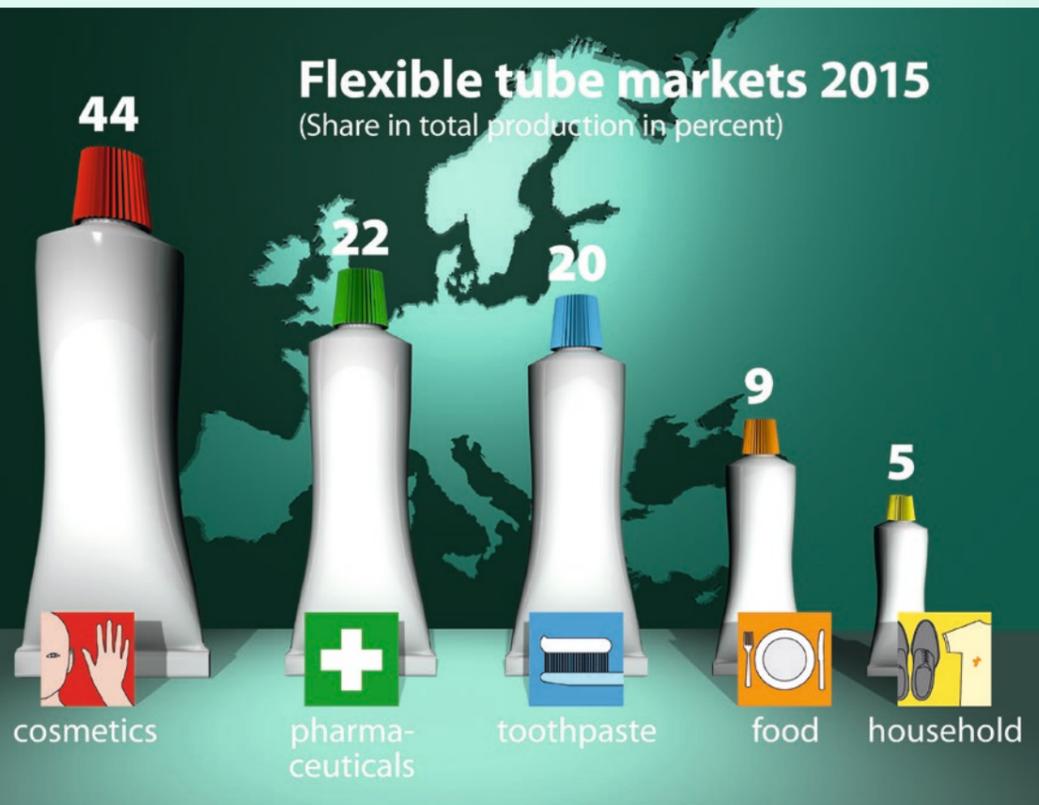
"The number of single-person households is increasing so smaller portions will be needed. The range of sizes available and the resealability of the tube mean it offers clear benefits here. And the tube is ideal for today's mobile society. It is unbreakable, weighs very little and offers the best product protection. It is precisely these arguments that also speak out in favour of the tube where the rapidly expanding online-retailing sector is concerned. Here the tube is simple to ship and ensures that there are noticeably less customer complaints."

All in all, the European tube industry can look forward to the tube's anniversary year with a fair degree of optimism. "Despite the difficult economic environment in Europe, I believe our member companies are well positioned thanks to their flexibility and their great innovative capability," says Dr Monika Kopra-Schäfer, the current etma president. "That is why we

are looking to the future with confidence." With the global tube industry's forthcoming gathering in mind, she continues: "At our anniversary congress on 2 June 2016 in Berlin we will also be taking a look into the future from extremely different perspectives and thus generating further important stimuli for the tube industry and the participating supply chain. Besides having an outstanding opportunity for worldwide networking, we simply want to celebrate the tube and its 175-year success story in a fitting manner, a story that etma has co-written in part."

for almost 22 per cent and about 20 per cent of all tubes. The food sector accounts for some 9 per cent while almost 5 per cent of tube production goes into industrial applications and the household sector.

Because of its numerous positive attributes, no one in the European tube industry seriously doubts that the tube will continue to perform successfully. According to etma secretary general Gregor Spengler, the reasons for this are primarily the tube's excellent product protection, high standards of hygiene and outstanding consumer



WORLD TUBE CONGRESS

175 YEARS OF FLEXIBLE TUBES

Berlin 2nd June 2016

European tube manufacturers association



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"It will not just be a case of looking back," emphasises etma general secretary Gregor Spengler emphatically. "We want to discuss the tube's future potential as a form of packaging and give it a new impetus. This is why we think it is important that besides our member companies this trend-setting congress should be attended by representatives of the whole process chain, and not only from Europe but worldwide. The congress programme has been designed accordingly."

In the morning of 2 June 2016, the opportunities and challenges of the European, North American and Asian markets will be presented and the latest trends demonstrated. To round off the first session, an outlook will be given for price and capacity developments of relevant raw materials.

In the afternoon, attention will be directed completely to the future. A global brand owner will formulate his future expectations and what he requires from the packaging and tube industries. 'Supply chain 4.0' in the tube industry will then be outlined. The afternoon session will close with a look into future purchasing behaviour and its effect on the packaging industry. A demanding and varied programme that should arouse plenty of interest.

The etma president Dr. Monika Kopra-Schäfer can see another reason for making the trip to Berlin: "Besides the high quality presentations and expert discussions our congress will, of course, offer an excellent platform for successful networking; spanning various fields of industry and truly global. I am thinking here not least about the gala dinner in the evening, which will provide a festive setting for etma's 'Tube the Year 2016' competition."

SUSTAINABILITY WITH A BRILLIANT FINISH

The co-extruded plastic tube from German tube supplier Linhardt consists of an inner layer that is 100 per cent LDPE and an outer layer that is 100 per cent PCR material. Thanks to a new HD printing technology developed in-house, it is now no longer necessary to make trade-offs in print quality despite the recycled material: furthermore, it is not only possible to achieve brighter colouring and photorealistic reproduction of the motifs but also extremely fine and subtle colour gradations. At the same time, colour deviations are extremely small, the proofs present the print result accurately and use is made of uncomplicated 4-colour printing in CMYK. Design options thus reach new heights and despite the use of recycled material these tubes impress with an unprecedented printing brilliance. Good for the tube's appearance and even better for the environment.





GLAMOROUS TUBES FOR SHINY HAIR

German tubemaker Linhardt achieves impressive results using a special process: its Multiflex tubes have a butt welded joint in the laminate, and not an overlap as is usually the case; an internal tape guarantees that the necessary physical properties are achieved and ensures that the weld seam is barely visible. The tubes for the Guhl haircare range are a really graphic example of this perfect appearance. Metflex is used as the material for the Multiflex tube, with metallised PET as the external layer. The characteristic metallic effect is still visible after coloured transparent overprinting and therefore there is no need for special embossing; all unprinted areas of the tube keep the characteristic silvery metallic sheen of the Metflex material. Linhardt uses an in-house digital process to print the tubes.

PROMOTION SYMBOLISED BY THE FOUR SEASONS

As part of a joint promotion, L'Occitane and ELLE magazine commissioned French tubemaker Albéa to produce four different tubes containing hand cream. The 10 ml laminate tubes with their aluminium barrier offer a supple touch during use and ensure outstanding product protection. Printing the tube was a real challenge: seven or eight flexo

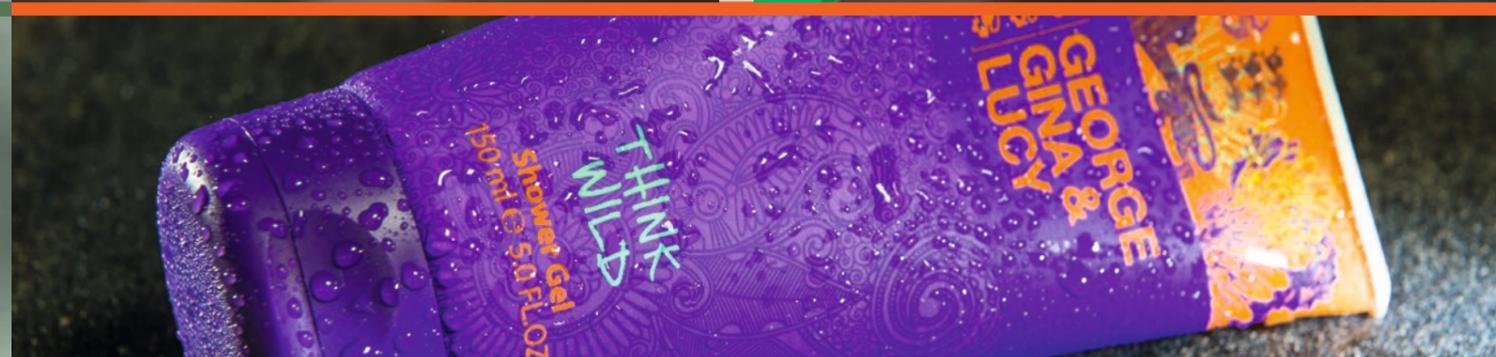
colours were used depending on the design. The printing had to be really precise because of the extremely fine lines and areas that were printed more boldly at the same time. Non-registry between the colours and the line was kept to a minimum. The motifs are the work of the renowned artist Soledad and the colours symbolise the four seasons.



INNOVATIVE LAMINATE CONCEPT: AESTHETIC, FUNCTIONAL AND SUSTAINABLE

Austrian producer Pirlo has introduced an innovative tube that is made from a combination of chalk and PE. The high chalk content results in the pleasant soft-touch surface with which one is familiar from certain types of paper. Chalk is a natural colourant which means the tube walls can be made significantly thinner. Product removal is thus even easier and complete tube emptying is facilitated. The

tube's environmental balance is also impressive: the novel laminate concept reduces the use of oil-based plastics by a half, the overall material usage is also reduced and the tube is recyclable. The tubes exhibit comparable rigidity to conventional tube materials. The tube body can be 360°-printed in photorealistic print quality. Processing is possible on standard machines.



UNUSUAL DESIGN ATTRACTS ATTENTION

From German manufacturer Tubex comes the exceptionally successful George, Gina & Lucy plastic tube that contains a shower gel. It generates immense attention and impresses at first sight: the bright orange and violet of the tube body is a conspicuous colour combination. The unusual look is enhanced by the very fine and pristine ornamental pattern in a slightly bright violet colour on the sleeves. The ornamental patterns demonstrate the expertise behind the decoration as the lines are all very clear and not blurry at all. All in all, an eye-catching tube that attracts attention on the shelf and is an excellent example of the tremendous effect that creativity and the courage to adopt unusual design can achieve.



TUBE DESIGN AND INNOVATIONS



How does a big international brand owner manage time and again to create the innovations demanded by the market, without jeopardizing his well-established brand. Gregor Spengler and Norbert Pravato spoke about this difficult challenge with Bernhard Felten, Front End Innovation – Packaging at Beiersdorf.

You work in an innovative team engaged in packaging development at Beiersdorf. What is it that you do exactly? Our Packaging Innovation team is part of the company's Research and Development department and plays a key role in the Packaging division: we develop new packaging

systems and identify and evaluate new technologies and product ideas by creating prototypes and testing them with consumers. In the past Packaging Development was a department within the Supply Chain division and it became fully integrated three years ago. This step led to the creation of the separate Packaging Innovation team in its present form. We benefit very strongly from the different professional backgrounds of our team members: besides chemists we have designers, packaging engineers in different specialisations and one colleague has an MBA in marketing.

Are you all Beiersdorf employees or are there some external specialists?

Our team members are all Beiersdorf employees and we work together cross-functionally and in a cross-industry manner with internal and external partners – with institutes, with suppliers for special technologies or for example with agencies that have specialised on packaging development.

What do you give consideration to in the team?

Our key challenge is to answer the question: How will be the packaging of our products in five or ten years' time? This involves giving thought to new materials and new packaging per se as well as to new products. In addition, we also adopt a problem-oriented approach, for example when we identify weaknesses associated with existing packaging or if consumer surveys or complaints statistics indicate that there is a need for improvement.

You also have designers in your team. Do they play a major role?

It is a very useful capability. Our team mainly has a packaging technology background. At Beiersdorf, design is the responsibility of a separate Design Management department, which has prepared central guidelines and ensures that a uniform market presence is adhered to for every new-product launch. We operate in close communication with that department.

So one could say that in this respect certain restrictions are already placed on creativity?

We definitely have clearly defined limits for what is possible. If you create a new product, you try to use the packaging and thus the design to convey what the product can do and what it is good for. In addition, you have to integrate this, of course, into the unmistakable NIVEA brand. That is a real challenge. But does it restrict creativity? No. It does restrict the options available for implementation but it is also an incredible spur for creativity! Not least because within a given framework it is enormously difficult to still develop something special.

That's understandable. Your designers face a major challenge there.

With design, we differentiate between shape design and print design. The former is the configuration of the shape, such as what the bottle, tube or pot looks like. The other is what is printed on it and how this is implemented in the final artwork. For both we use a very wide range of different tools. In addition, in order to achieve the rapid pace of innovation that is required for fast moving consumer goods we work together with external designers and bring in fresh ideas. But time and time again even this external input is subjected to scrutiny– by the colleagues who are responsible for brand management as well as by the Design Management department mentioned earlier. The colleagues there adopt a very positive approach to this matter and don't just say "No, that's not allowed" but are also more likely to say, "Try thinking along these lines or try to incorporate this idea." And last but not least, the Design Management department consistently also provides its own ideas for the different projects.

What role does the tube play as a form of packaging at Beiersdorf and in your everyday work?

I don't have to explain to you the benefits of the tube. Tubes are used when the contents are relatively viscous. The tube is practically unbeatable when it comes to application and extracting a controlled amount. At the same time, it also offers very good product protection. This isn't just the case for aluminium tubes but also for tubes with a barrier layer of aluminium or EVOH, or for tubes made from other plastics that also offer the contents such a high level of protection. It is difficult to imagine achieving the tube's price/performance ratio with other forms of packaging.



What is the situation in your company with regards the development of conversion technologies? Is this likely to become more complex and more elaborate or does one now have to keep a closer eye on costs because at the end of the day the packaging as a whole has to justify the costs in some way?

Especially with our core brand, NIVEA, we want to communicate to our consumer the quality of our product by using high quality decoration. But we avoid being over-trendily colourful, glittering or completely OTT. At the same time, we pay great attention to quality. Our suppliers tell us that we don't carry out too many conversion steps or add even a third hot foil. But in response we demand a high quality of the one hot foil that we do apply, which is not usual to our supplier.

How often does your work involve dealing specifically with the subject of the tube? Are tubes only a side issue at Beiersdorf or do you give it considerable thought? This is something that is of particular interest to us, of course.

Within the Packaging Innovation group we don't focus on tubes especially. In the Packaging Development department, broad knowledge about tubes, tube supplier and filling is established to handle questions around it on a world-



wide scale. The colleagues work in close cooperation with procurement and are in contact with Beiersdorf tube suppliers. Technical innovations in this field which can be considered as “available packaging solutions” are taken directly into account for product launches by them.

The tube has now been around for 175 years. Do you still see major development potential for the tube or is this topic more or less exhausted?

I would consider the development curve for tubes as relatively flat. Still there are innovations to improve tubes and provide a higher consumer benefit or better cost efficiency. New materials and new production technologies are proposed, print technologies are available which are going to be incorporated in print designs, whether it'll be individualized products, invisible watermarks, holograms or the like but they are little steps sometimes even not recognized by the consumer. It's not easy to explain to a consumer that a tube is now something completely new but such innovations coupled with consumer convenience and a strong price/performance ratio mean the tube still merits its existence. The consumer knows the tube and he also wants to have it for certain applications because they are practical. For the moment I can't imagine the toothpaste tube being replaced and I don't see large new areas of application for the tube but at a certain time the car also was seen as a fashion which will pass by. The options of new laminates and methods of welding, quick-acting closures or new membrane technologies are technical improvements the customer doesn't really notice but which offer benefits with regards to the convenience, the formulation or even the price/performance ratio which will keep the tube attractive.

Something that is of particular interest to the tube industry is the subject of regulatory affairs. Is this also one of the key issues at Beiersdorf?

It is a big issue for us. We have a large number of projects that are concerned with changed legal requirements, not just in the tube field but in general. Whether it be that there are more stringent rules regarding certain raw materials, or that new research findings relating to 'critically evaluated' substances force us into matching the materials selected for the packaging with the contents. We are then already beginning in advance to formulate anew before a new regulation comes into force. We try to achieve what is best for the consumer. In that way we maintain our market opportunities and our brand image.



In what areas are you mostly engaged?

For packaging development in general, product protection and safety always come first, during transport as well as during application. It is difficult, of course, once a pot has been opened; the formulation is then less well protected. At other forms of packaging it's easier to use the design to improve protection and, for example, minimise the ingress of germs. The customers don't consciously note the protection of the formulation; they simply assume it is there. But for us this is often the sticking point and sometimes the decisive reason why we can't ultimately implement good packaging ideas.

Another important factor and more related to packaging innovation is the identifiable benefit that the packaging offers to the consumer. If the benefit for the consumer isn't tangible or convincing, we can't launch the packaging on the market. Being simply 'new' isn't enough.

That all sounds pretty impressive. Do your competitors also have such packaging innovation teams or are you playing a leading role at Beiersdorf?

The situation varies. So far we know other and partly bigger companies possess technology centres with deep knowledge and extended resources. At Beiersdorf we have a relatively small Packaging Development department and we work together intensively and cooperatively with our suppliers.

Even though our Innovation team is relatively new, and can't yet look back on years of success, I still think though that we are creative, goal-oriented to serve the needs of our marketing and the consumer in the area of packaging. We are working in close cooperation with other functions for innovation.

That sounds like you are actually quite creative. How do you go about your work? Classical brainstorming: nine people sit around a table and wait until something comes to mind? Or are there controlled creative processes for which you have developed very specific creative techniques?

The really good ideas come when one is under the shower or travelling in the car. But in order for one to have an idea in such a situation that really is a step forward, one must first feed the brain or the creative spirit. And for that we are using different tools.

We are using databases to collect ideas on technical solutions, consumer insights and existing products. On a regular basis we run internal competitions where we challenge the whole group with current questions around packaging and also other departments working on product innovation consult us for workshops and creative sessions. To let work at least two people on elaborating ideas into a project proposal guarantees different views on the problem and also to pass the abstraction of an idea to another colleague in a kind of “Chinese whisper” to give the matter further thought. This leads to interesting results.

And last but not least, we try to present ourselves to the outside world and maintain a presence to be visible for existing and potential suppliers and for people who have ideas. These contacts and the resultant creative dialogue can then lead to the development of additional ideas or new packagings.

For our open-innovation process we have developed an internet platform: Pearlfinder. So far this has been oriented more towards raw materials, formulations and production processes but in future it is intended to extend it to also include packaging. The aim is to establish a network of competent partners whose expertise and ideas we can use. Important here is that we respect the intellectual property of our partners – their ideas remain protected, of course.



German tubemaker Essel has provided a successful market presence for two large brands using its laminate tubes. Originally the tubes for Unilever's TRESemmé Youth Boost were launched using Silver Egnite laminate from Essel; most of the tube surface was printed black. The high lustre Egnite background meant it was possible to produce the TRESemmé logo without using foil. In a subsequent development, Unilever wanted to improve the shine of the black background and the appearance of the side seam. Essel was able to meet these requirements using another of its developments, Black Egnite, together with foil for the TRESemmé logo.



Successful

presence for major brands

The Kérastase range from L'ORÉAL represents the best the luxury haircare segment has to offer, setting new standards for professional haircare products. L'ORÉAL Kérastase RESISTANCE is a perfect example of how state-of-the-art laminate tubes are broadening their reach into the premium brand sector. Key factors during this development were colour matching the background and process stability, not only for the tube body but for the shoulder too. All lettering on the tube is either silk screen printed or applied as foil. The super high gloss intensifies the metallic look of the tube.



A HOLIDAY FOR THE SENSES

A prototype tube from German manufacturer Tubex demonstrates impressively how it is possible for tubes to appeal to several of the customer's sensory channels at the same time. The 4-colour flexoprint with photorealistic reproduction conveys visually the feeling of vacation, relaxation and recreation. In addition, there are tactile messages that appeal to the senses. Silk-screen printing using different screen textures produces a haptic experience when one touches the coconut, the trunk or the sandy beach. A holiday feeling in the true sense of the word. And if the consumer then rubs the coconut, the emotional experience is perfect: the fragrant lacquer applied to the area of the coconut is then activated and one can smell the pleasant holiday fragrance of the product even before the tube has been opened.

THE PERFECT SOLUTION FOR DOG AND OWNER

Swiss manufacturer Hoffmann Neopac is entering completely new fields of application using its innovative high-barrier Polyfoil tube and Twist'n'use closure. Osurnia gel from Elanco is a novel treatment for canine ear infections. The gel acts in the ear over a longer period of time and only two treatments are necessary, with a 7-day interval in between. This is more convenient for the dog owner but above all it is a lot more pleasant for the dog. The complete treatment is safe, simple and convenient. The product is perfectly protected in the tube, which can be opened simply and intuitively, without risk of injury, rupture points or loose parts. The nozzle is the tip that remains fixed to the tube after opening. In combination with the novel flexible soft tip, the tube allows the gel to be applied simply, precisely and very gently to the ear to be treated. The hygienic single-dose application ensures very accurate dosage and prevents contamination of the active ingredients.



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