



A GLOBAL MOMENT WITH ALUFOIL

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Dear Reader,

Whatever people's regional differences and from whichever part of the world we come, we are all united by a number of common bonds that will have long term consequences for the future of our planet.

Sustainable Development is a global challenge that transcends geographical boundaries and national borders. The way we address environmental considerations and tackle the aims of resource efficiency and the necessity to protect and help those in need around the globe has a local impact in our neighbourhood and in the same moment shapes our future and that of our children and grandchildren in global ways. Thinking globally and acting locally is imperative for all of us in view of the challenges we are facing from climate change, depletion of scarce resources and loss of biodiversity.

Aluminium foil can help to contribute to more sustainable consumption and production by increasing resource efficiency as one of the universal key drivers towards more sustainability. Capable, responsible and sustainable, this highly versatile material is providing solutions in a world in which all societies are aiming to create a better future.

CAPABLE – The various properties of aluminium foil like the absolute barrier effect or the light weight enable a unique diversity of applications delivering perfect functionality for increasingly changing and challenging demands.

RESPONSIBLE – Corporate responsibility and adherence to good manufacturing practice while continuously reducing the environmental footprint of manufacturing processes and products are vital to the aluminium foil sector.

SUSTAINABLE – Solutions increasing resource efficiency will repay the investment twice over as they already save resources today and pave the way for generations to come. The aluminium foil industry has a long history of enabling the creation of materials that are lighter in weight and energy efficient along the supply chain.

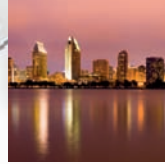
Through the examples shown we invite you to experience alufoil in action around the globe at the same time! You may be surprised by the multitude of ways aluminium foil contributes to the daily live of people around the world; it often goes unnoticed but it is just there.

ENJOY A GLOBAL MOMENT WITH ALUFOIL!





Hawaii ●



San Diego ●



Rio de Janeiro ●

Rio de Janeiro

Cape Town

Zurich

Dubai

Mumbai

>>

03:00

07:00

08:00

10:00

10:30





Shanghai

Perth

Hawaii

San Diego

12:00

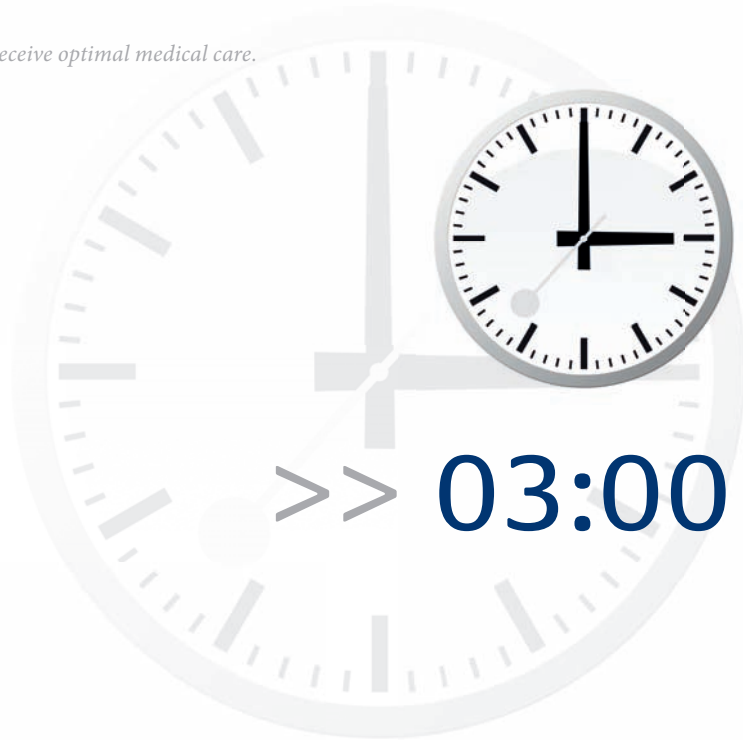
13:00

17:00

21:00



Blister packs made of aluminium foil ensure that people all over the world receive optimal medical care.



” ... a painkiller in a protective





Rio de Janeiro

Dr Ricardo Gil operated on five-year old Giovanna yesterday to remove her infected appendix. The essential surgical procedure over, treatment must continue even at three o'clock in the morning. To help her through the post-operative pain, Dr Gil prescribes a weak analgesic to help make Giovanna comfortable. And it is at this point that aluminium foil becomes an essential part of Giovanna's care plan. The advent of controlled dosage of drugs owes much to alufoil. These packs allow the correct single dosage to be dispensed and administered, whether for self-medication or in a hospital environment. The hygienic

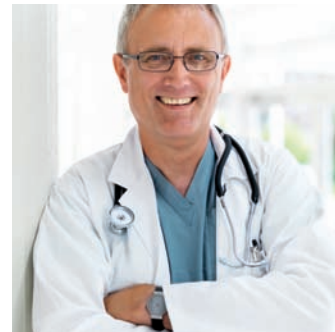
blister pack for little Giovanna

and protective properties of alufoil used in blister packs provide a barrier against external factors such as heat and moisture, keep the contents sterile and assist in the transportation of drugs by protecting temperature-sensitive and fragile products from the rigours of often long-distance distribution and long-term storage. Blister packs are suitable for all types of tablets and capsules. They are also instrumental in providing a successful means of marketing Over the Counter (OTC) treatments in a variety of retail outlets. Examples of usage here include vitamins, flu and allergy treatments. To ensure safety, considerable work has been put into creating child-resistant blister packs that are both easy to use for adults, protective of the medicine they contain, and difficult for children to open. All of which is why little Giovanna is safe in her hospital bed.



Key Properties

- > **Alufoil's total barrier delivers perfect protection and preservation of pharmaceutical products. By enabling products to be preserved for long periods it helps to prevent spoilage and can provide large energy savings.**
- > **Alufoil is a hygienic packaging material which can be delivered to a high level of sterility depending on the subsequent converting, printing, packaging and delivery conditions.**
- > **Alufoil does not harbour or promote bacteria and is an ideal protection against product tampering.**



Keywords: Counterfeits / Anti-Counterfeiting

- According to estimates of American Food and Drug Administration (FDA), over ten percent of all drugs worldwide are counterfeits.
- The World Health Organisation (WHO) estimates that one fifth of all deaths caused by malaria could be prevented if the available anti-malaria drugs were all effectively and correctly used (= in figures, this would mean 200,00 fewer deaths each year!).

→ Alufoil ensures quality and origin!

Without aluminium foil, there'd be far less variety in this breakfast spread.



>> 07:00

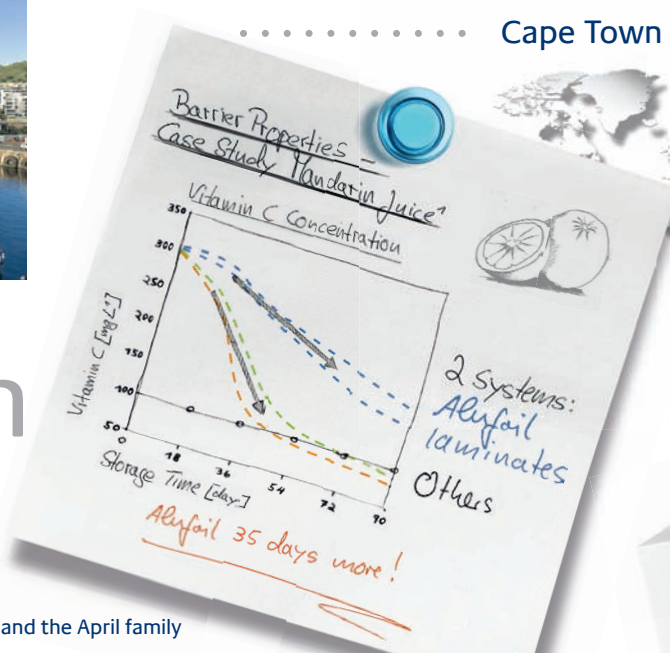


” ... a short yet quality





Cape Town



It's breakfast time and the April family is about to sit down to breakfast. The kids crawl out of bed late as usual but just in time to grab some quality time with the whole family. On the menu for the growing children and their parents are vitamin-rich orange juice, yoghurt, milk, cheese and cold meats, plus bread and bread rolls. Without aluminium foil there would be fewer convenient and healthy options on the breakfast table. Served up in sterile cartons are the orange juice and milk. Thanks to the properties of the very thin layer of aluminium foil, these long-life packs are impervious to light, odour and gases, providing a crucial barrier to light and oxygen and preserving essential vitamins. Such aseptic cartons are lightweight and designed for efficient transportation, storage and on-shelf display. Most

Key Properties

- > Aluminium foil in food and drink packaging applications saves more resources than are needed for the production of the foil. Various Life Cycle Assessments (LCAs) show foil packaging contributes to less than 10 % of the environmental impact over the complete product life cycle – production, preparation and consumption.
- > Alufoil's total barrier to light, gases and moisture – even if very thin – provides perfect protection and the preservation of aroma and product characteristics – and is the principal reason for its use in flexible laminates. It can help to extend the viable life of such sensitive products for many months, even years, fully retaining valuable aromas.
- > Economies in both transport and storage result from lightness and the flat or reeled format of empty packs. Alufoil helps save resources during packaging, product and waste transportation.



time for the whole family

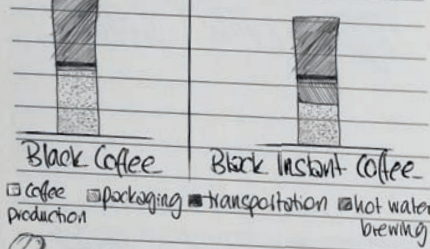
importantly the alufoil layer makes it possible to preserve the drinks' intrinsic properties without refrigeration, thus saving considerable energy resources along the supply chain. Butter and cheese are also breakfast time favourites and come in a variety of attractive aluminium foil options. Many processed cheeses come in triangular alufoil wedges with nice graphics and easy-open tear tapes. Plenty of good reasons to start the day together.



Life Cycle Analysis: Carbon emissions

from different types of coffee

Cup of coffee from 500g bag (PET 12/alu 7/PPE 100) Cup of coffee from 2g stick (PET 12/alu 7/PPE 100)



g CO ₂ -eq	Black Coffee	Black Instant Coffee
Coffee production	47.3	30.5
Packaging	1.59	7.29
Transportation	31.2	3.81
Hot water brewing	43.7	43.7
Total	95.71	91.3

Small investment saves a lot!!!

Key Properties

> Alufoil's total barrier provides perfect protection and preservation of the aroma and product characteristics of sensitive products like coffee.

> Alufoil is strong and can be efficiently laminated with other materials to provide additional properties and make thinner laminates possible – thus saving resources.

> Although single-serve packs normally need more packaging per serve this is often outweighed by the role tailor-made packaging plays in reducing spoilage and wastage.



There is nothing like a cup of coffee to wake you up for a busy day in the office, which is why banking executive Bernhard Zwingli prepares himself a fresh cup before an important client meeting. He uses a single-serve coffee machine which owes much of its performance to the aluminium foil coffee capsule. The different coloured capsules offer a wide variety of flavours from Africa, Asia and South America, which unfold their aroma only when they are used. And it is important to remember that not only do single-serve systems avoid product wastage and save energy, the capsules are fully

” ... perfect coffee protection

recyclable. Hot and cold beverages come in a variety of single-serve sachets all of which benefit from the longevity provided by aluminium foil, so if an instant cup of tea or cold drink is preferred, there are various stick packs on the market. After lunch, the bank staff looks forward to the freshly brewed ground coffee, with an irresistible aroma flooding the meeting room. And, of course, what else would go better with a cup of coffee in Zurich than a piece of Swiss chocolate protected by an alufoil wrapper?





Zurich

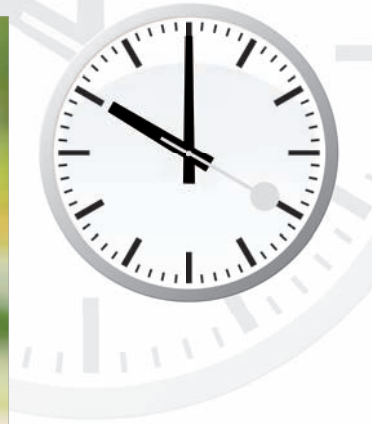


and preservation of aroma

Since he doesn't have all that much time before his first client meeting, he uses his own single serve coffee machine.



This is where aluminium foil comes in, a product that is entirely safe from a hygienic point of view, and protects even under extreme conditions.



” ... aluminium foil,



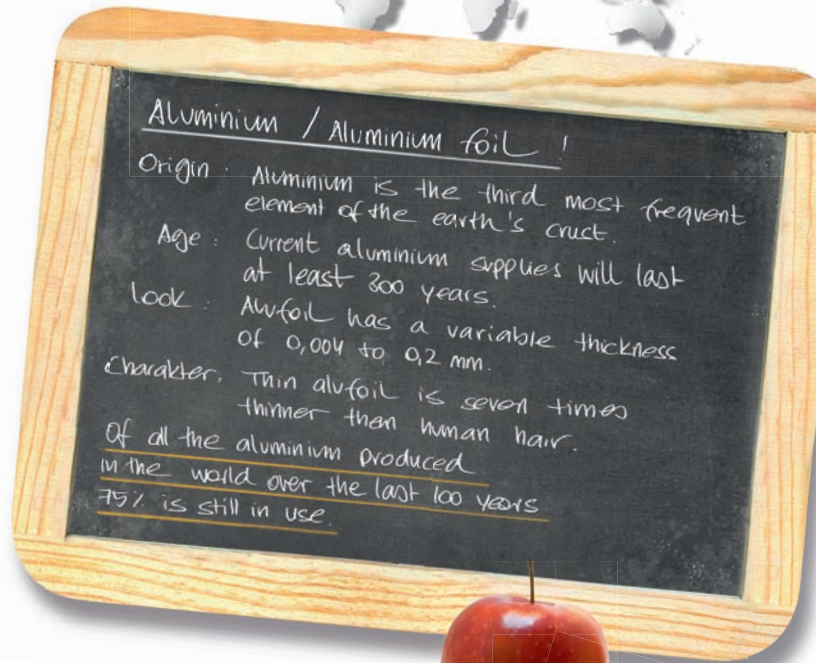


>> 10:00 Dubai

Best friends Abdullah, Mohammad and Yusuf can't wait for the break when they can unpack their home prepared lunch boxes. Wrapped in household foil, their favourites include dates, fruits, vegetables, mini pizzas and fish and nuts, all staple products in the United Arab Emirates. In this multi-cultural society, these products may be joined by a sandwich alongside a pouch of fruit juice and a bar of chocolate. Refreshing as well as nutritional, food and drink needs positive protection particularly in a hot climate and household foil comes into its own as an efficient and effective wrap to prevent food spoilage. The drinks pouches often come with a straw attached

thinner than a human hair

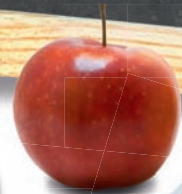
or with an easy-open/close mechanism and kids particularly enjoy the different shapes. There are also online kids clubs run by major brand owners, and even education programmes about recycling and the environment. These alufoil packs are a good way to get children to accept healthy drinks and they also have great fun squeezing and crushing the pouch for easy disposal. The pouches consist of a laminate containing an aluminium foil layer a lot thinner than a human hair but which provides the essential ingredient in product preservation. In a hot climate the alufoil-based drinks pouch provides a safe, hygienic and long-life choice. For the three friends they are much more than that – fun, fun, fun.



Key Properties

> Alufoil's total barrier to light, gases and moisture provides perfect protection and preservation of the aroma and product characteristics.

> Light yet strong, alufoil's unique 'deadfold' characteristic makes it ideal for wrapping and re-wrapping all kind of shapes while minimizing the need for glues or other sealants.

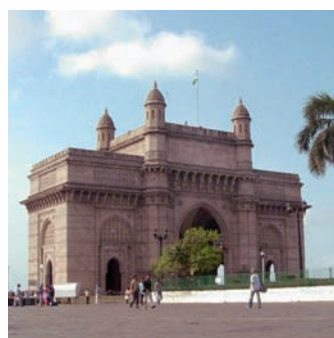
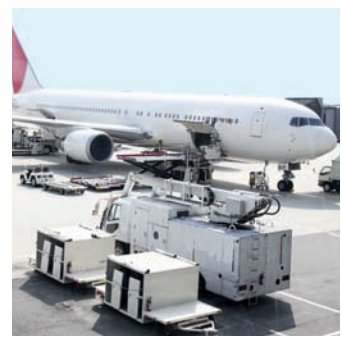




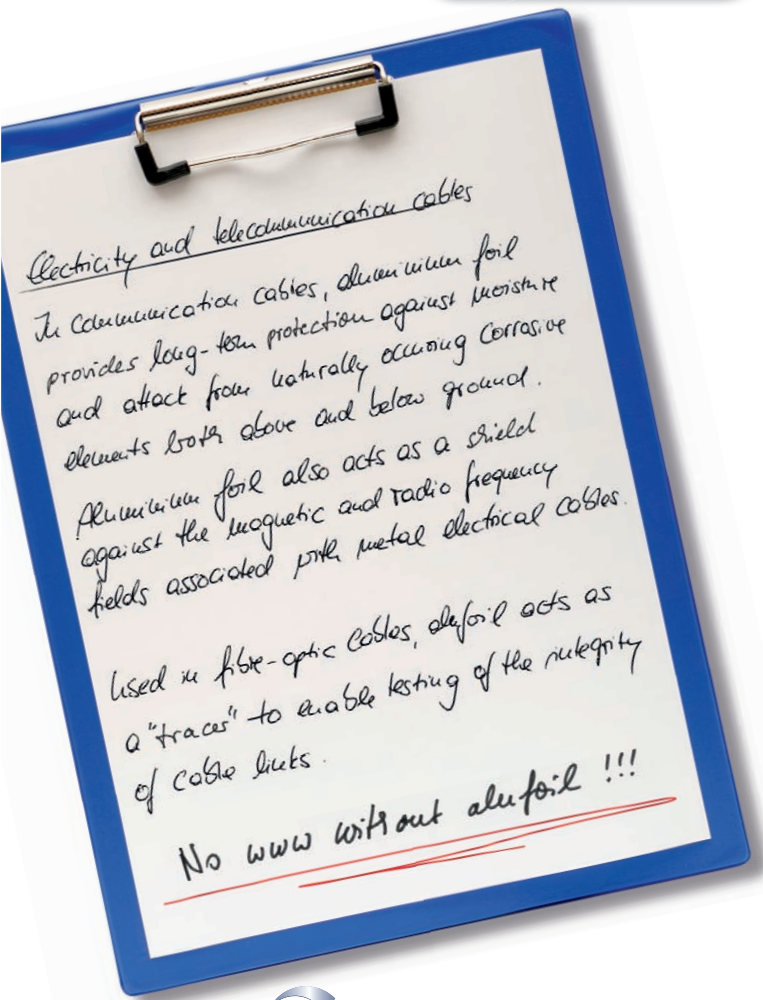
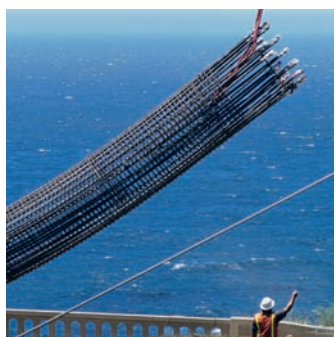
>> 10:30 Mumbai

Key Properties

- > Alufoil's total barrier to light, gases and moisture provides the perfect protection for sensitive technical products.
- > Alufoil shields against magnetic and radio frequency emissions.



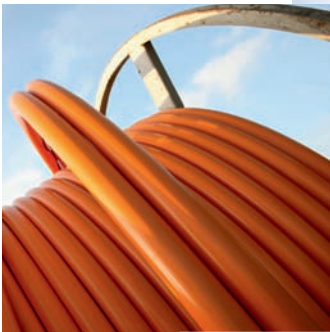
The control unit for a wind farm has just arrived at Mumbai airport. Expressed from Germany, the unit is susceptible to damage in transit and to heat differences of up to 50°C and huge moisture fluctuations. However, Project Manager Raman Singh does not need to worry – the unit comes safely wrapped in an alufoil-based industrial laminate custom-designed to provide protection for sensitive electronic and industrial products even in the most extreme conditions. Aluminium foil is well suited to any number of protective and climatic packaging solutions across a range of markets. The material provides total climatic protection for any product which may deteriorate due to moisture ingress, oxygen and other gases, UV light, odour transfer and temperature extremes. Without alufoil, for example, moisture ingress can cause costly and potentially disastrous corrosion across such industries as automotive, electronics, defence, aerospace and telecommunications. The material also provides a magnetic shield against radiation and radio emissions. Raman



Electricity and telecommunication cables
 In communication cables, aluminium foil provides long-term protection against moisture and attack from naturally occurring corrosive elements both above and below ground. Aluminium foil also acts as a shield against the magnetic and radio frequency fields associated with metal electrical cables. Used in fibre-optic cables, alufoil acts as a "tracer" to enable testing of the integrity of cable links.
No www without alufoil !!!

” ... transport routes with temper

Singh will also be happy to learn that the cables which distribute the energy harvested by the wind farm are protected by a durable and resistant aluminium foil sheath.



ature differences of as much as 50 °C

Aluminium foil has a decisive barrier function, shielding technically sensitive components in an optimal way and also reducing cargo weight to a minimum.

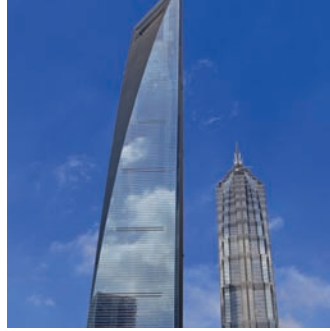
Whether for a soup snack or a large air-conditioning system – aluminium foil plays a major role in enhancing our quality of life.



祿
prosperity

” ... taking a time-out



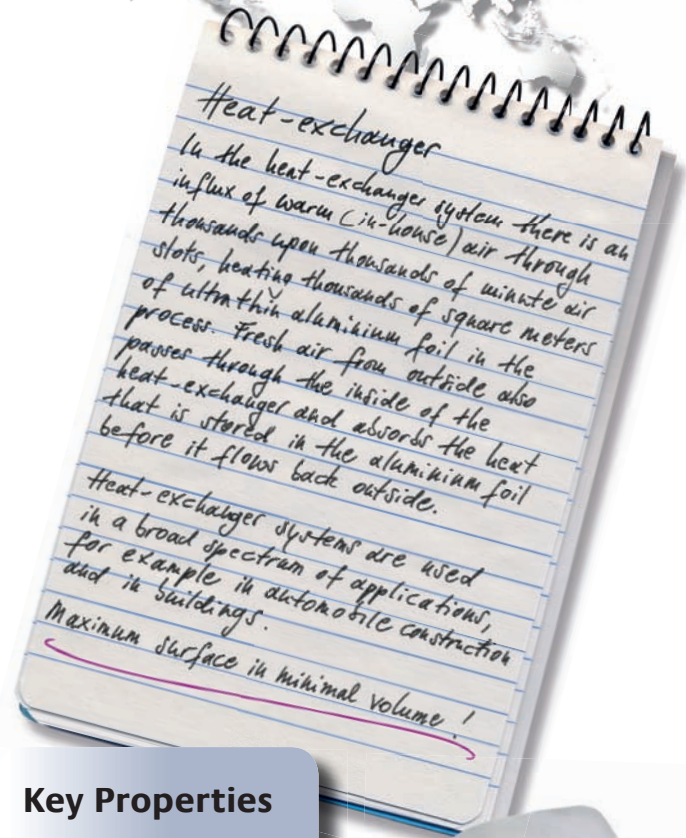


12:00 Shanghai

Zou Peng is busy working the last days on a project in a growing architectural business in the centre of Shanghai. He doesn't have time to go out to lunch or to pop round to the local takeaway for a cup of tea. He would rather heat up a pouch of rice or soup, or a single serve pot of noodles with an alufoil lid. Taking just a minute or two to heat the water, such products packed with flavour and protected by alufoil allow consumption of nourishing foods at your desk or at home. Alufoil lids not only provide product safety and security, they also provide the consumer with easy access and no spillage, essential features in a busy office. Happily, in the sweltering climatic conditions that can envelope Shanghai, the offices are air-conditioned, with more than passing thanks due to alufoil's high thermal conductivity, comparatively

in the air-conditioned office

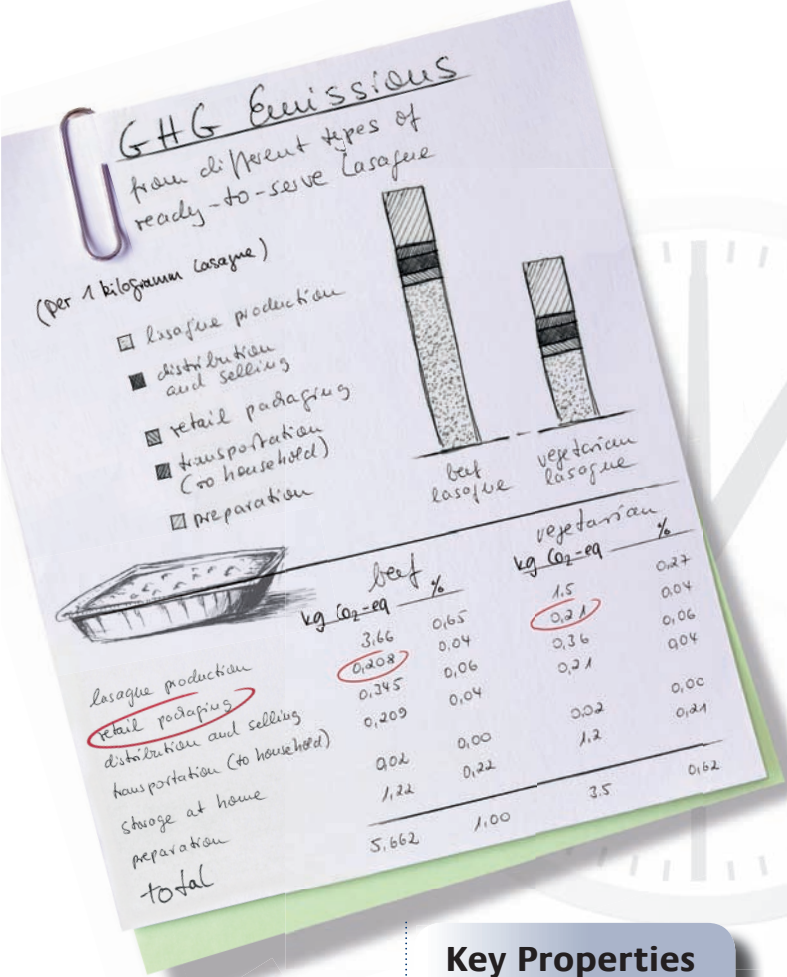
low cost and ease of handling. This makes it the material of preference wherever heating or cooling is involved, which means Zou Peng can stay cool while having his lunch.



Key Properties

- > Alufoil provides the maximum surface area within the smallest possible space – especially for heat exchangers.
- > Alufoil is highly conductive to heat. It stands up to all temperature variations from well below blast-freezing to extreme heat without distorting, melting or the risk of sudden cracking. Alufoil also dissipates heat quickly.
- > Alufoil's bright or matt metallic finish plus its compatibility with all printing technologies provides designers with enormous scope to create packs with stunning graphic design and shelf presence brand identity.





>> 13:00 Perth

It's lunchtime for Lucy Smith and Angela Everett and they prepare their lunch in the office kitchen. Into the microwave goes a lasagne, while yoghurts for dessert are cooling in the fridge, where a bar of chocolate also resides. The lasagne comes in an alufoil container which has the great advantage of not having to be transferred on to a plate. An additional advantage of the alufoil container is that the lasagne has a particularly tasty crust. The lasagne takes less time to heat, generating energy savings, while the container can also be easily recycled. The yoghurts come in a plastic cup topped with an alufoil-based easy-peel lid for convenience. The lid provides the necessary barrier for gases, odours and light, making the yoghurt an ideal snack. Next comes a piece of chocolate hygienically wrapped in alufoil which not only exhibits all the same properties as the yoghurt lid but

Key Properties

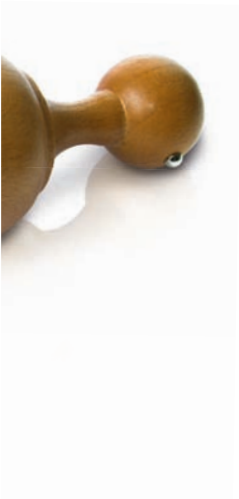
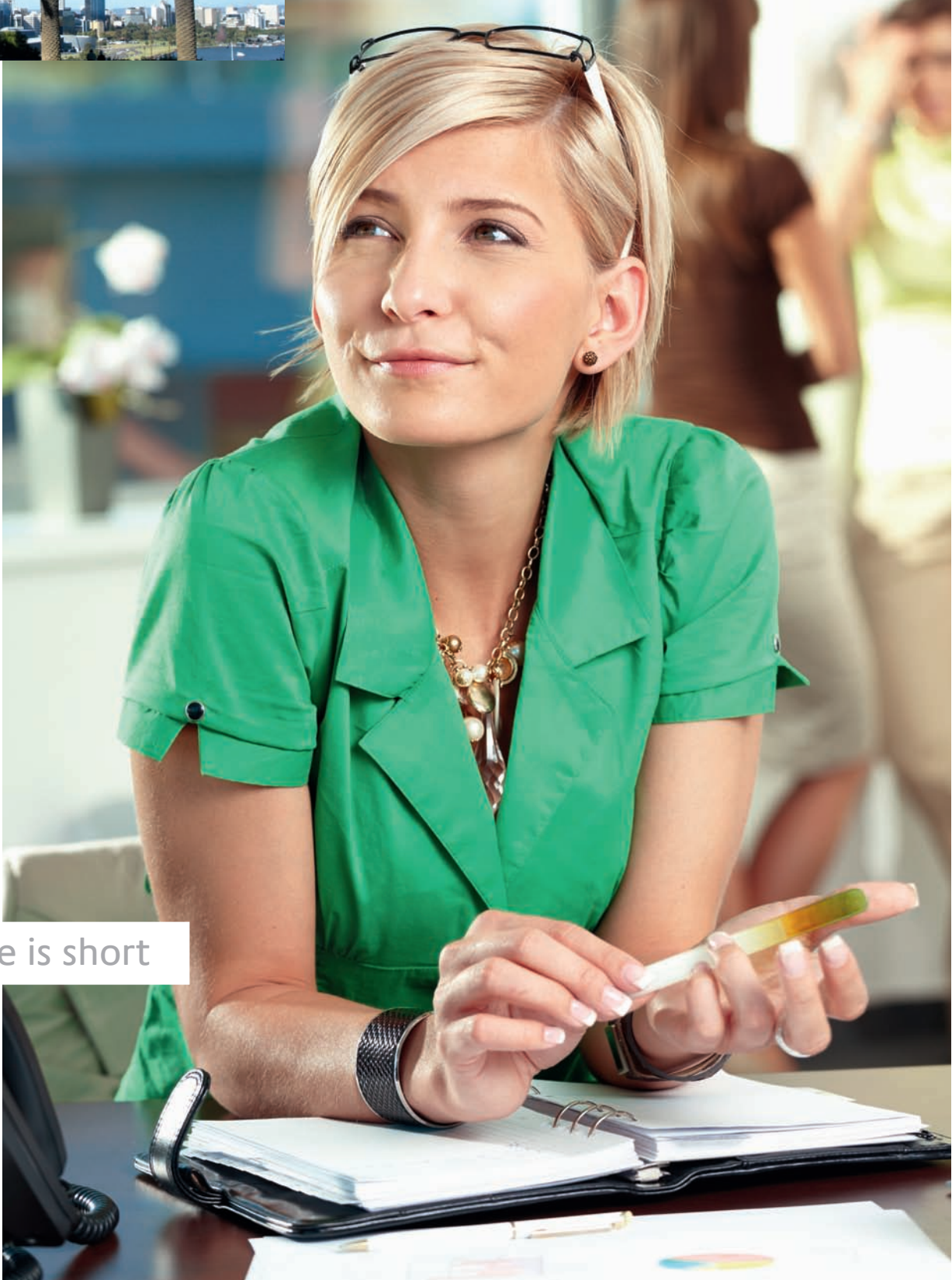
> Aluminium is 100% recyclable, endlessly, without any loss of quality. The recycling process for aluminium requires 95% less energy compared to the primary production, which corresponds to enormous emission savings. Modern separation techniques allow aluminium foil in household waste to be extracted and recycled at a fraction of its original energy cost.

> Food in alufoil dishes can be cooked or re-heated, heated by convection, microwave or fan oven or in 'bain-marie' systems. Alufoil packaging helps to save time and resources during preparation.

” ... lunchbreak at the

also provides a certain heat resistance, so necessary in a hot climate to prevent distorting or melting. The girls go back to work satisfied, looking forward to an evening on Perth's sunset coast.

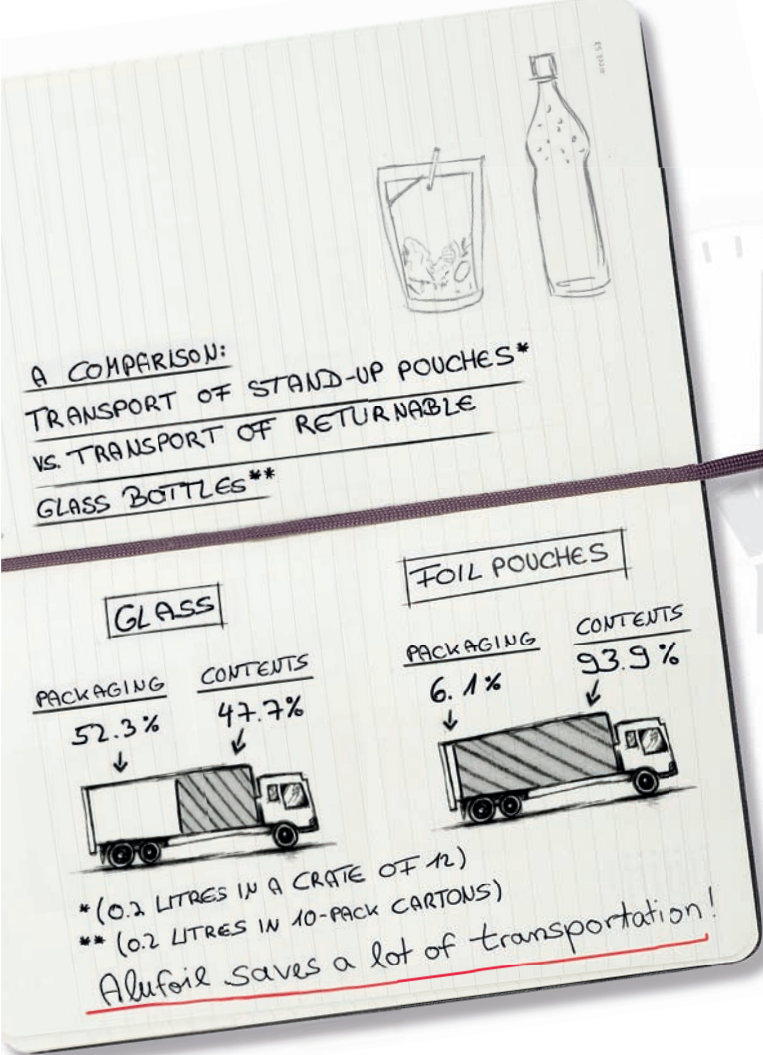




office, and time is short



Microwaving meals in alufoil trays is faster and the consumption of energy involved is lower than in standard ovens.



>> 17:00 Hawaii

The last stage before the final ascent. The sun is burning relentlessly, but the three hobby sports and alpine climbers Steve, Mike and Tom are in the best of spirits and above all well equipped: sunblock, sports and vitamin drinks, energy bars, and individual packs of instant soup stowed away in the three

” ... the last stage, the sun

part-time adventurers' backpacks. Without aluminium foil, these practical products wouldn't be at all suited for such a mountain tour. The sunblock they need on their climb is ready for use at all times, packed in sachets made of an alufoil laminate. The drinks, in their aluminium-foil-containing stand-up bags or lightweight cartons, are easy to carry – after all, every extra kilogram can make itself felt when climbing. Thanks to laminated materials made with aluminium foil, the valuable energy bars are also effectively protected against external factors. And so the three mountaineers can continue their ascent, well fortified and protected against the sun – and soon they'll be home to tell their friends about their adventures. That they'll be taking all the containers and wrappings from the convenience products home with them when they descend goes without saying.



Key Properties

> Economies in both transport and storage result from lightness. Alufoil helps save resources during packaging, product and waste transportation.

> If aluminium foil is not collected for recycling, but processed in incinerators, mostly the thin, laminated foil material is oxidised and releases energy, which can be recovered. What's more, the remaining non-oxidised aluminium can be extracted from the bottom ashes of the incinerator and subsequently used for recycling purposes.





is burning relentlessly



Without aluminium foil, these practical products wouldn't be at all suited for such a mountain tour.

The barbecue at the end of the day, with plenty of delicious meat and vegetables, just wouldn't be the same without aluminium foil to make the cooking easier.



” ... sense of freedom after



>> 21:00 San Diego



The Californian coastline is a paradise for sun worshippers and surfers. Little wonder that Paul, Dave and Susie take advantage of the weather by hitting the beach to surf the waves after work. Then it's off home to entertain friends at a barbecue. And thanks to alufoil there is little preparation left to do – the freshly prepared vegetables with oil and herbs have been wrapped in household foil ready to be popped on the coals; meat and fish come ready prepared in alufoil trays from the local supermarket; while delicious marinades are ready on the table, presented in pouches. Alufoil trays ensure gentle cooking on the charcoal and along with the household foil are 100% recyclable. Again thanks to the protective properties of alufoil, the long-life resealable pouches of sauces can be slipped back into the fridge for the next party. And no party is complete without drinks and refreshments. Beer and wine come with beautifully designed neck foils and labels made from alufoil. Evocative designs featuring scenes from local wineries add a talking point for guests who vie with



Key Properties

> Light, yet strong, alufoil's unique 'deadfold' characteristic makes it ideal for wrapping and re-wrapping all kind of shapes while minimizing the need for glues or other sealants.

> Alufoil is very conductive to heat. It stands up to all temperature variations encountered in the processing and use of packaging – from well below blast-freezing to the extremes of baking and grilling without distorting, melting or the risk of sudden cracking.



the hustle and bustle of the office

each other over claims that the wine they have brought from their favourite winery is the best. The boys are just happy sipping light beers sporting glimmering neck foils. But everyone is impressed by the single-serve wines brought by one of the guests packed in alufoil-based beverage cartons. At the end of a fantastic day, let's hope no-one will need an alufoil blister pack of antacids!



Alu recycling

Alufoil can be recycled 100%. If not collected for recycling but processed in incinerators, mostly the thin and laminated foil fraction delivers recoverable energy. Non-oxidized particles in the bottom ashes can be extracted and recycled.

→ Alufoil fits in all systems !!!

>> Alufoil Key Assets

>> Net Saver of Resources

Aluminium foil in food and drink packaging applications saves more resources than are needed in its production. Various Life Cycle Assessments (LCAs) show that alufoil packaging and household foil contribute less than 10% of the environmental impact in a product's lifecycle – production, preparation and consumption.

>> Barrier Protection

Alufoil's total barrier to light, gases and moisture is the principal reason for its use in flexible laminates for food, drink and technical applications. Even when very thin, it provides perfect protection and preservation of aroma and product characteristics. It can help to extend the viable life of sensitive products for many months, even years, fully retaining valuable aromas. By enabling products to be preserved for long periods without the need for refrigeration, alufoil packaging helps to prevent spoilage and can provide large energy savings.

>> Mechanical Properties

Light yet strong, alufoil has unique deadfold characteristics which make it ideal for wrapping and re-wrapping many different products and product shapes, while minimising the need for sealants. Because it is very malleable it can be easily deformed without losing its barrier integrity, making it an ideal material for use in combination with other flexible substrates to create very thin laminates for a variety of markets, and consequently once again saving resources.

>> Formability and Strength

When pressed into a shaped dish, the aluminium foil memorises its shape, particularly where the folds and rims occur. Shape, thickness, alloy and temper can be selected to create exactly the performance characteristics required.

>> Lightweight and Space Efficient

Economies in both transport and storage result from lightness, flat or reeled format of empty packs and, in the case of alufoil containers, their nesting shapes which are particularly suited to filling-machine magazines. Alufoil helps saving resources during packaging, product and waste transportation. By enabling products to be preserved for long periods without the need for refrigeration, alufoil packaging provides large energy savings – their shape can make them very 'space efficient' in storage and display, enabling further energy and cost savings. Alufoil is weight saving, effective and minimises the amount of packaging material needed.

>> Structural Stability

In light honeycomb structures, aluminium foil introduces the necessary stiffness and stability enabling architects to lighten building structures and foundations, and engineers to save weight in all types of transport – ships, planes, trucks and cars.

>> Recycling

Aluminium is 100 % recyclable, endlessly, without any loss of quality. The recycling process for aluminium requires 95 % less energy compared to the primary production, which corresponds to enormous emission savings. Modern separation techniques allow aluminium foil in household waste to be extracted and recycled at a fraction of its original energy cost.

>> Recovery

If aluminium foil is not collected for recycling but processed in incinerators mostly the thin, laminated foil material is oxidised and releases energy, which can be recovered. What's more, the remaining non-oxidised aluminium can be extracted from the bottom ashes of the incinerator and subsequently used for recycling purposes.

>> Heat Performance

Alufoil is very conductive to heat. It stands up to all temperature variations encountered in the processing and use of packaging – from well below blast-freezing to the extremes of baking and grilling without distorting, melting or the risk of sudden cracking. Alufoil also dissipates heat quickly – ideal for autoclaving and heat-sealing processes. It can help minimise sealing times and evens out the temperature gradient, both within containers and flexible packaging, helping to protect product quality and energy economy. Its heat conductivity can help minimise processing, chilling and reheating times. Vital to the efficient operation of a vehicle's power plant, and to the comfort of driver and passengers, alufoil-finned heat exchangers provide both cooling and heating as required. Thanks to its light weight, alufoil has become the automatic choice.

>> Multi-mode Heating or Cooking

Food in alufoil dishes can be cooked, re-heated or heated by convection, microwave or fan oven or in 'bain-marie' systems. Alufoil packaging helps to save time and resources during preparation.

>> Hygiene

Once produced, alufoil is completely sterile thanks to the high temperature annealing process. It is safe for use in contact with foodstuffs and it doesn't harbour or promote the growth of bacteria.

>> Safety and Product Security

Alufoil is safe for use in contact with foodstuffs. Uncoated aluminium foil will not react with the vast majority of foods. In many applications, alufoil is not in contact with the product as it is used in association with other materials within a laminate. In addition it is an ideal protection against product tampering and can support anti-counterfeiting features.

>> Decorative Potential

Alufoil's bright or matt metallic finish plus its compatibility with all printing technologies provides designers with enormous scope to create packs with stunning graphic design, shelf presence and brand identity.

>> Reflectivity

Aluminium foil reflects up to 98% of light and infrared heat. The bright surface also has low heat emissivity. This helps to save energy in insulation. Its insulation role extends into fire protection. In 'fire walls' for vehicles and ships, for fire-resistant doors and building panels, aluminium foil dissipates heat and stops access to the oxygen required to support flames.

>> Electrical Conductivity

Alufoil shields against magnetic and radio frequency emissions. Used in fibre-optic cables, alufoil acts as a 'tracer' to enable testing of the integrity of cable links. In cable wrap, electrical conductivity enables the integrity of the cable circuit to be verified.

>> **Published by:**

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Aluminium Foil
Association e.V.

EAFA

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Germany

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and foil rollers and their organisations from
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South Africa | South Korea | USA

>> **Idea, conception and design:**

Jeschenko MedienAgentur Köln | Berlin
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