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STEEL FOR PACKAGING UPDATE

Interview with
Julian Carroll,
EUROPEN

Steel for Packaging
Boosting Brands

ULCOS -
a paradigm shift
in steelmaking



National Newsbrief

France: Environmental labelling scheme

France has been pioneering an environmental labelling scheme for mass-market products. The “Grenelle I” law, passed in August 2009, states the right of consumers to accurate, objective and complete environmental information covering all aspects of the product and its packaging. An implementation law “Grenelle II” was voted at the end of June 2010 and brought about fundamental changes such as a switch from the mandatory nature of labelling to a voluntary scheme and a postponement of the start of the programme until 1 July 2011. A trial phase of at least one year will be implemented. The outcome of this will allow for a decision whether environmental labelling should be applied more generally.

APEAL and the national steel industry are actively participating in several ADEME-AFNOR¹ working groups addressing transversal methodological issues and communication formats. This work, still on-going, has led to the publication of the so-called BPX 30-323 Standard (Rules of Good Practise) which is periodically reviewed, in addition to a complementary General Methodological Annex which frames the common rules applicable to all product categories. In parallel, several sectoral working groups, for food & hygiene products for example, are recommending specific environmental indicators for their category of products and debating the specific rules that are applicable.

Discussions were initiated in September 2008 and are set to continue due to several issues still being debated. These include the definition of the share of responsibilities between producers and distributors, control methods and the final expression of indicators for consumers. In addition, debates are continuing on the search for a reasonable balance between the use of public generic data and data specific to the product, from an environmental and economic point of view, the degree of distinction between products of the same category and the necessary conformity of texts being prepared in relation to European rules.

For further information: <http://affichage-environnemental.afnor.org/> (only in French)

2nd meeting of ISO TC122 SC4 – Global standards on packaging & the environment

ISO TC122 SC4 working groups have been tasked with developing international standards for packaging and the environment based on the existing CEN standards (EN13427 to EN13432) and Asian Technical Specifications. They met a second time Beijing in June 2010. The meeting was attended by APEAL expert Jean-Pierre Taverne on behalf of the World Steel Association. The list of work items was expanded and include the development of standards related to General requirements, Optimization/prevention, Reuse, Material recovery, Energy recovery, Industrial

composting & Anaerobic digestion. For Chemical recovery, a Technical Report as opposed to a standard will be developed. The third meeting will be held in October 2010 in Tokyo, after which the documents will reach the CD (Committee Draft) stage and mirror groups will have the opportunity to comment. The DIS (Draft International Standard) will be prepared during the Atlanta meeting in May 2011, with a view to finalizing the standards within a 3 year time frame.

Editorial

APEAL, the Association of European Producers of Steel for Packaging, is pleased to send you the second edition of its new publication “Steel for Packaging Update”.


Highlights of this second edition include an interview with Julian Carroll, the Managing Director of the European Organization for Packaging and the Environment (EUROPEN), who shares his perspectives on what’s on the agenda for packaging for the years to come; an overview of the ambitious ULCOS project or Ultra-Low Carbon Dioxide (CO₂) Steelmaking, the largest steel-industry effort to reduce CO₂ emissions and tackle climate change; the latest steel packaging recycling figures, showing that 71% of steel packaging is now recycled in Europe – more than any competing packaging material ; an introduction to the German recycling system. Finally, we see how continuous innovation in the steel for packaging industry has had a wide ranging impact in various sectors, giving brands the competitive edge whilst being reassuringly environmentally sustainable.

We hope you find the information in this edition relevant and that Steel for Packaging Update helps address the issues you are facing day-to-day. To make sure our newsletter meets your needs and makes for interesting reading, please let us know your views on the magazine and please suggest the kind of topics that you’d most like to hear about. By filling in our online questionnaire, which only takes about 5 minutes to complete, you’ll get the chance to shape the kind of information you would most like to read. Additionally you will receive a complimentary music CD of your choice.

**More details can be found at:
www.apeal.org/feedback**

**Hugo Loudon,
President of APEAL**

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¹ADEME (French Environment and Energy Management Agency / L’Agence de l’Environnement et de la Maîtrise de l’Energie); AFNOR (French national organisation for standardisation / Association française de normalisation)

The Interview

Julian Carroll

EUROPEN - The European Organization for Packaging and the Environment is an industry and trade organization open to any company with an economic interest in packaging and packaged products. It presents the opinion of the packaging value chain on topics related to packaging and the environment.

Membership of EUROPEN is open to producers of every material used for packaging, packaging designers, manufacturers of packaging, packaging users, irrespective of product, sales and distribution method, companies engaged in the distributive and retail trade and national cross-sectorial industry groups with similar objectives.



Managing director of the European Organization for Packaging and the Environment (EUROPEN) since 1993, Julian Carroll has become the voice of industry on packaging and environment issues in Europe.

We asked him what can be expected on the political agenda for packaging in the years to come.

What are the essential ingredients of successful packaging policies? And what can we expect from European and national policymakers in the coming years?

Good packaging reduces product waste and facilitates centralised processing and distribution of products. Proper packaging assures the availability of safe, hygienic and undamaged goods for people across society, helping them to maintain acceptable living standards.

Packaging is coming back into focus due to an increasing emphasis on sustainability. I currently don't see a lot of legislation revisions for packaging at European level, but there could be some at national level, simply due to the sector's visibility. We should do more to explain to policymakers the vital functions of packaging and its contributions to a sustainable society – that it is not part of the problem, but part of the solution.

The Waste framework directive and the Packaging directive are closely connected. What is the difference between the two and how do you see these two directives evolving in the future?

The EU Waste Framework Directive (WFD) is a general environmental protection measure which establishes rules for how waste should be managed in the EU. It aims to reduce the environmental impact of waste and to encourage efficient use of resources through reuse, recycling and other forms of recovery. This recently revised Directive contains a number of new definitions, sets targets for reuse and recycling, and includes a requirement for Member States to prepare waste prevention programmes. It specifies a 'hierarchy' of waste management options and says that in their national policies and legislation, Member States

should give preference to waste prevention, then to reuse, then recycling, other forms of recovery, and finally to use disposal (i.e. landfill or incineration without energy recovery) as the least favoured option.

The Packaging and Packaging Waste Directive (PPWD) is a packaging specific harmonisation measure, meaning that it establishes common rules that help enable goods to trade freely and easily throughout the EU. It has a twin objective: to help prevent obstacles to trade (through harmonisation) and to reduce the environmental impact of packaging. It defines minimum ('essential') requirements for packaging and sets targets for the amount of used packaging that must be recycled or otherwise recovered in each EU Member State. The European Commission proposed the Directive in the early nineties because different national environmental measures were causing competitive distortions and obstacles to the free movement of packaged goods.

Therefore, the aims and objectives (as well as the legal bases) of the two Directives are not the same. For these reasons a full alignment of both directives is not supported.

When you consider the whole life-span of a package, the most environmentally sound way to deal with it after use will vary according to a number of factors. A study prepared for EUROPEN offers real-life examples of how the hierarchy has been implemented with respect to packaging in some European cities and regions. It concludes that the best environmental options depend on factors such as geography, climate, demography, and the state of the waste management infrastructure. It goes without saying that waste management scenarios also have to be taken into account when a package is being designed.

Legally-speaking, the question of how the hierarchy of waste management options applies to packaging has been tested. The European Court of Justice ruled in 2004 that the Packaging and Packaging Waste Directive does not give preference to reuse over recovery (including recycling, energy recovery, etc.) of used packaging, hence there is no hierarchy of waste management options for packaging.

Is there such a thing as "sustainable packaging"? What principles need to be respected to ensure the environmental impacts of packaging are minimised?

EUROPEN does not subscribe to the notion of "sustainable packaging". What we offer is a vision of how to make packaging more sustainable. It comes down to taking a holistic approach – packaging has to be looked at in the context of the entire product lifecycle.

We think that packaging should be responsibly sourced. Steel for packaging is in a very good position here, since it is part of a responsible closed-loop recycling system. By using the best type of packaging for each product, we can achieve what we call the three pillars of sustainability, 1) reduced overall environmental impact, 2) use of an economically sustainable approach, 3) clear social benefit.

Food waste is an issue which is high on the political agenda across Europe (and indeed globally). How do you think packaging materials can provide solutions?

One of the fundamentals of packaging is to prevent waste, to extend the shelf life of food to prevent the product going bad before it is consumed. Everything that you can do to extend the shelf-life of a product is a plus.

How much can prevention of food waste be attributed to the benefits of packaging? I would say a very high proportion.

Everyone these days recognizes the importance of reducing CO₂. How do you think that packaging materials can play their part? How can steel contribute?

CO₂ production means energy consumption, and energy is consumed in the manufacture of packaging, in goods transport and in product end-of-life. For steel, the energy required to recycle a steel can into a new steel product is a lot less than making steel from iron ore.

The light weight of modern steel containers also helps reduce the amount of CO₂ produced in transport. And lastly of course, steel's recycling figures are the highest for any form of packaging. In 2008, 71% of steel packaging was recycled in Europe. This represents about 2.6 million tonnes of food and drinks cans and other steel containers being recycled, saving 4 million tonnes of CO₂. You have a very good case.

The budget committee of the European Parliament now wants a study on a European harmonised deposit system. How does EUROPEN position itself regarding deposit systems?

Mandatory deposit systems on non-refillable drinks containers are unnecessary and counter-productive. Evidence shows that in countries where comprehensive packaging recovery systems exist already, mandatory deposits add little to the tonnage of packaging collected. Indeed, the countries with the highest recycling rates do not have mandatory deposit laws.

Mandatory deposit laws also divert beverage packaging from existing collection systems, and

Finally, such policies can be considered as barriers to cross-border trade, and thus to the single European market. And producers have to deal with this consequent distortion of competition.

What are the major issues which are high on EUROPEN's agenda for the moment?

The Sustainability Agenda and its implications for packaging is the number one issue influencing the work of EUROPEN these days. We have already produced Guidelines for Decision Makers on this topic and are now busy with using them in helping prepare the Global Packaging Project for The Consumer Goods Forum. The development of ISO standards for packaging and the environment which we have championed will further support this process.

With so many sustainability initiatives popping up locally, regionally and internationally, EUROPEN remains vigilant to ensure that the freedoms of packaging choice and guarantees of free movement of packaged products are not impeded by well intended, but ill thought out, public policy, regulation or private sector initiatives.

Corporate Members	
3M Europe	Imperial Tobacco
Abbott Laboratories	Impress Group
ArcelorMittal	Japan Tobacco International
Ball Packaging Europe	Kraft Foods
Baxter Healthcare	Mars
Chanel	MWV
Coca-Cola	Mondi Packaging
Coca-Cola Hellenic	Nestlé
Colgate-Palmolive	Novelis
CROWN Europe	L'Oréal
Danone	O-I
DuPont de Nemours	PepsiCo
Ecolean	Procter & Gamble
Elopak	Rexam
European Food	SCA Packaging
ExxonMobil Chemical	Sealed Air
FilmsEurope	SIG Combibloc
FritoLay	Stora Enso
Heineken	Tetra Pak
Huhtamäki	Unilever
Iams Pet Food International	

National Packaging & Environment ('PEN') Associations

ARAM: Romania
Bihpak: Bosnia & Herzegovina
CICPEN: Czech Republic
EKO-PAK: Poland
Miljöpack: Sweden
RusPEC: Russia

“What we offer is a vision of how to make packaging more sustainable...”

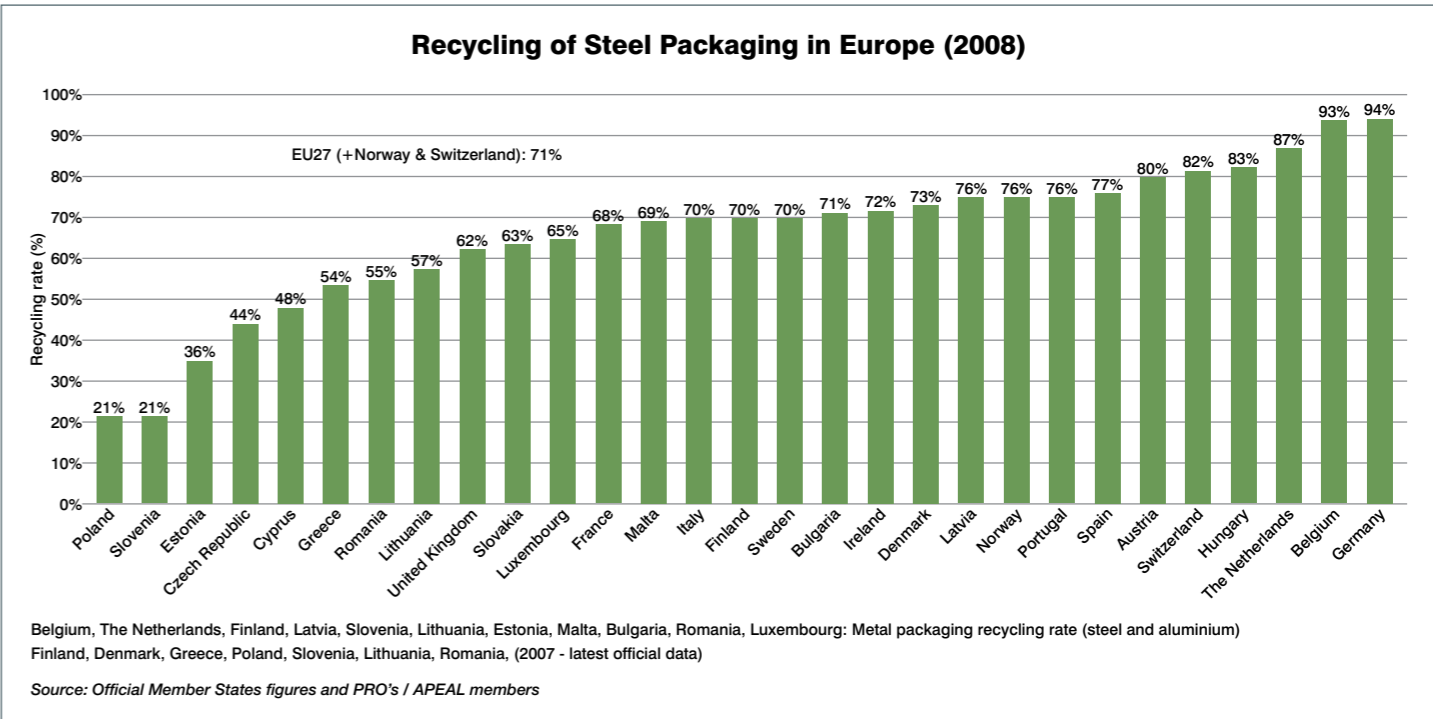
Another important point is that less organic waste is produced when food and beverages are packaged centrally. On commercial food processing lines, many of the by-products involved in the process have a commercial value because of their quantity, whereas in the home in small quantity they would be thrown away.

perhaps most seriously, force consumers and industry to deal with two separate waste collection systems. Often that means two car or lorry trips instead of one. The result is more congestion, more fuel consumption and more pollution.

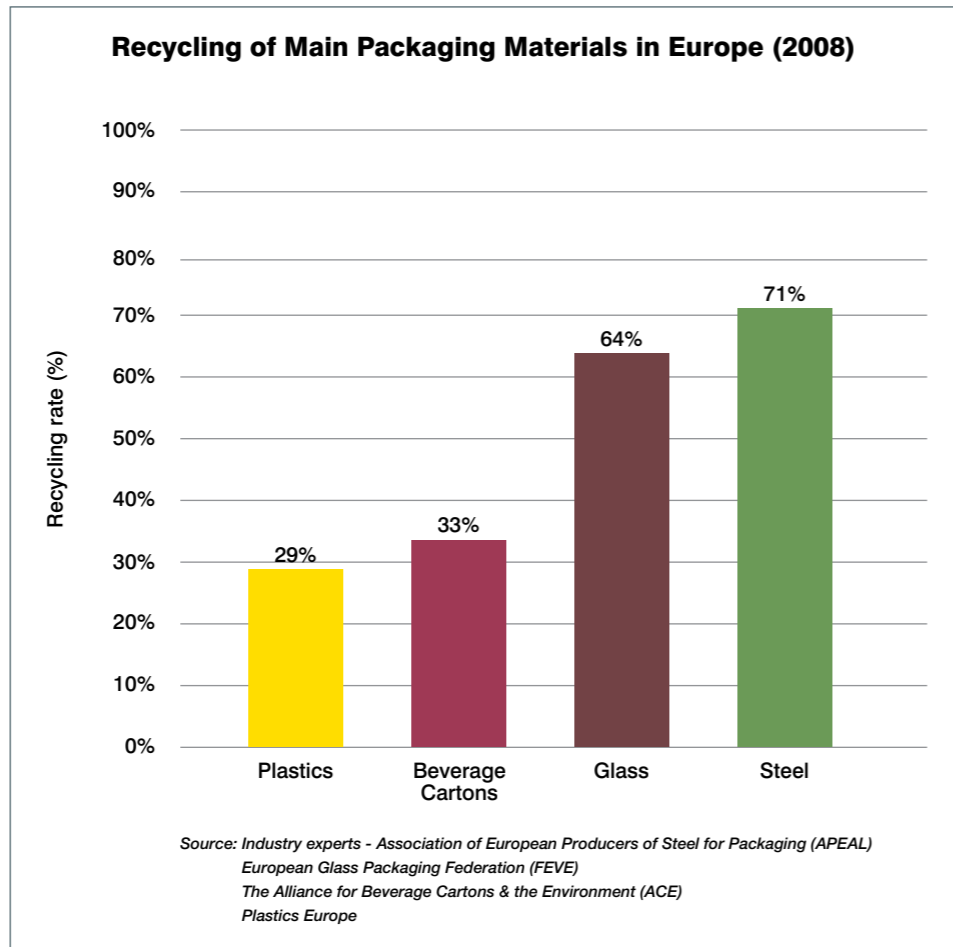
Steel for packaging: Europe's recycling leader

71% of steel packaging now recycled in Europe

Steel for packaging alone surpassed the EU's targets for metal packaging recycling as far back as 2001¹. This accomplishment has been followed by continued progress in recycling rates of steel packaging, reflecting the industry's commitment to reducing its environmental footprint and providing a sustainable packaging solution.



In 2008 the recycling rate of steel continued to grow, representing an increase of 2 percentage points over the previous year. With 71% of steel packaging now recycled in Europe², this amounts to about 2.6 million tonnes of food and drinks cans and other steel containers being recycled in 2008, saving 4 million tonnes of CO₂. According to the latest available data, this places recycling rates for steel above those of other packaging materials such as plastic, beverage cartons and glass (29%³, 33%⁴ and 64%⁵ respectively).



¹ The European Union's recycling targets are set out by the European Packaging and Packaging Waste Directive (Link: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CON SLEG:1994L0062:20050405:EN:PDF>)

The Directive imposes a number of recycling and recovery targets for its Member States. Notably, by 31 December 2008, EU Member States had to: recover or incinerate a minimum of 60% by weight of packaging waste; recycle between 55% and 80%, by weight, of packaging waste; recycle 60% of glass packaging, 60% of paper and board packaging, 50% of metal packaging, 22.5% of plastics and 15% of wood packaging. A revision of the Packaging and Packaging Waste Directive is foreseen in 2012.

² Revised European Steel Packaging Recycling figure of 71% for 2008, based on updated German & Swedish steel packaging recycling rates from national authorities (APEAL)

³ Source: Plastics Europe (2008)

⁴ Source: ACE (2008)

⁵ Source: FEVE (2008)

Amongst the top six countries for recycling in 2008 were Germany, Belgium, The Netherlands, Hungary, Switzerland and Austria, all recycling over 80% of their steel containers.

Made to be recycled

Another reason for steel's continued recycling success is that the recycling process is embedded into steel production. Put simply: to make steel, you have to use recycled steel. This means that every steel plant is a recycling plant, producing steel of virgin quality while saving valuable resources. Complementing this is a network of well-established routes for collection and recovery of steel cans across Europe which has helped to ensure recycling excellence.

Higher recycling, lower CO₂

By integrating recycled steel into the manufacturing process the industry achieves energy savings of 70% and lowers its output of CO₂. In fact, each item of recycled steel packaging saves one and a half times its weight of CO₂. So the more steel is recycled, the more CO₂ emissions are reduced.

Link: Article 'Recycling in Germany'

Unique material properties

Steel's outstanding performance owes much to its unique material properties. Steel is magnetic making it the easiest and most cost effective material to sort and recover for recycling. When household waste is recycled, these magnetic properties enable steel packaging to be easily separated from cartons, plastic, and other packaging materials. Unlike other materials, steel has an infinite recycling loop - it can be recycled over and over again without its quality ever deteriorating.

Steel for Packaging boosting brands

“Making the right choice of packaging material is essential to the performance and success of a brand in the eyes of the consumer.”

Brands today have a wealth of choices when it comes to packaging material selection. For consumers, product quality alone is no longer sufficient in an overcrowded FMCG marketplace - convenience, attractive packaging design and environmental credibility are vital. Making the right choice of packaging material is essential to the performance and success of a brand in the eyes of the consumer.

Steel for packaging remains ahead of these demands and provides a range of sustainable solutions for brands across a wide variety of product categories. These ensure that consumers get the brand experience they expect. Steel consistently hits the highest

recycling targets of all packaging materials in Europe. According to the latest available data, 71% of steel packaging is now recycled in Europe, placing recycling rates for steel impressively above those of plastic (29%), beverage cartons (33%) and glass (64%).

Steel is unique amongst packaging materials in that it offers so much more than protection and preservation. When looking at convenience no other material provides the variety of dispensing options across so many product categories. It also fulfills essential environmental demands on packaging and products in the fast moving goods sector.

A continuous approach to innovation in the steel industry means brands are offered opportunities to differentiate in many ways, improving convenience through easy opening and dispensing solutions to time and energy saving products. Products such as John West's No-Drain, Less-Mess canned tuna steak (this leading canned fish brand's biggest success story) is an example where developments in the steel packaging supply chain have given consumers what they want - more environmentally intelligent products that are easier to handle.



Boosting sustainability and market share

Launched by MW Brands in February 2009, the John West No-Drain Tuna is a unique steel packaging innovation incorporating a pioneering patented technology that allows the tuna to be canned in just “a little” oil or brine, without excess liquid, while retaining its soft texture and succulent taste.

Less liquid also means even less weight and, therefore, reduced environmental impact and lower freight costs all along the supply chain from the ocean to the kitchen. In the kitchen, as the name suggests, the tuna can be used straight from the can without having to drain it first, so offering added convenience to the consumer.

This steel food can for tuna manufactured by Impress Metal Packaging is reinvigorating the canned fish category. In its first year No-Drain took a massive 6.3% market share worth over £15.5m. John West Marketing Director, Jeremy Coles says: “The launch of No-Drain has been a phenomenal success story with already 2.6 million households having tried the product. After a fantastic 2009, we're set for an even bigger 2010.

An entirely new experience

New technologies are also helping brands “go the extra mile” in the personal care sector where aerosol cans are hugely popular, by ensuring that the dispensing performance and consistency of this new product is excellent at all times.

Steel is a cost-effective and robust packaging solution for a wide range of repeat use applications. Its excellent branding capabilities provides designers with opportunities for brand differentiation through formable grades. Developments in printing and decorating enhance the opportunities to create instant shelf appeal on which brands rely to stand out from the crowd.

Brands today have a wealth of choices when it comes to packaging material selection.

Bespoke shaping to differentiate brands, combined with the original use of bi-compartmented aerosol dispensing technology for shaving foam, has enabled Sara Lee bring to market a brand new shaving cream formula that eliminates the need for aftershave. Their product Williams Comfort Pro Mousse Crème is packaged in a distinctive, ergonomically shaped 150ml steel container from CROWN Aerosols Europe, shaped with ribbing on the side to make it easy to grip, even with wet hands. The pack features striking metallic royal blue and red colours for a bold, masculine look.

“Our goal was to offer male consumers an entirely new shaving experience,” explains Frédéric Dauba, Product Manager Men's Care, Sara Lee France. “With such an innovative formulation – it is not a traditional foam or gel – special packaging was needed to ensure it dispensed properly and would retain its properties from start to finish.”

This bi-compartmented aerosol dispensing technology, already used in other applications, combines a plastic inner bag in a robust steel aerosol which keeps product and propellant completely separate. This separation ensures propellant is not emitted during dispensing and prevents the cream from coming in contact with the container. The possibility of product drying or hardening is also eliminated, increasing the products life span.

Easier to use

Significant developments in steel can production are also setting new standards in food packaging.

For decades now the standard opening mechanism for cans, the can opener, has been replaced with a ring pull easy open end. Continuous innovation in the industry has led to a new generation easy-open end. This now features a more generous gap between the can lid and the ring-pull tab. This enables greater finger access making the can is easier to open. From a production point of view these new ends are compatible with existing can line equipment and with a one-off adjustment, they can be incorporated into the existing production process without downtime.

Nestlé Purina PetCare Europe has incorporated these new ring-pull ends on its 400g cans of cat and dog food and, following successful trials, is introducing the ends across all its major European brands. The company says: “EasyLift easy-open ends offer a simple and important benefit – greater consumer convenience. Crown's innovation features a generous gap between the can lid and the ring pull tab will make it easier and faster for consumers to open our canned pet food products. With these new ends, we can better meet increasing consumer demands for more convenient packaging.” The new EasyLift™ easy-open ends will be launched on several other brands in 2010, including their first entry into the European ready meals market.

A continuous approach to innovation in the steel for packaging industry clearly has a wide ranging impact in very different market sectors. This gives brands the competitive edge whilst being reassuringly environmentally sustainable.



ULCOS

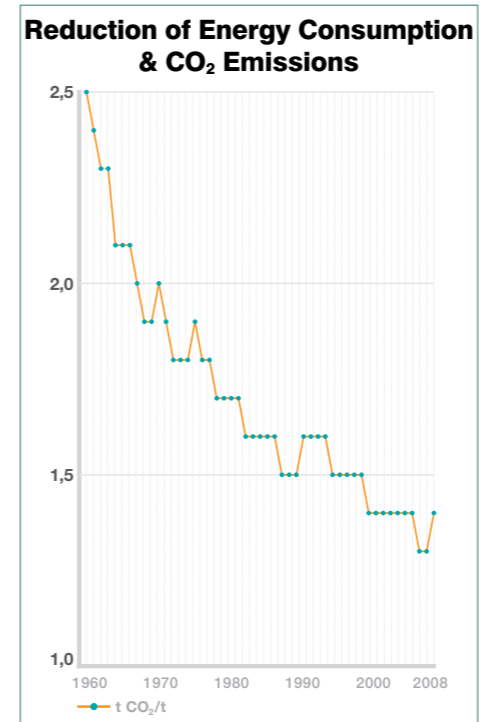
– a paradigm shift in steelmaking



ULCOS stands for Ultra-Low Carbon Dioxide (CO₂) Steelmaking and is the largest steel-industry effort to tackle climate change in the world. Begun in 2004, the programme is now in its second phase and well on the way to achieving its ambitious target – a 50% reduction in CO₂ emissions from steel manufacturing.



Climate change has been identified by the steel industry as a major environmental challenge for more than two decades. Long before the findings of the Intergovernmental Panel on Climate Change (IPCC) in 2007, major steel producers recognised that long-term solutions were needed to tackle the Carbon Dioxide (CO₂) emissions produced by steel manufacturing.



As a result, the industry has been highly proactive in improving energy consumption and reducing greenhouse gas emissions. CO₂ emissions per tonne of crude steel produced are now 50% lower than they were 40 years ago; a dramatic reduction in climate impact for the sector. The best steel mills now operate close to the limits set by present steel production technologies.

Which means that steel producers are limited in how much further they can improve their energy efficiency. With most major energy savings already achieved, additional large reductions in CO₂ emissions are not possible using present technologies. The kind of reductions being called for by governments and international bodies require the invention and implementation of radical new production technologies.

A paradigm shift in steelmaking technologies

This is the background to the creation of the ULCOS programme, a cooperative European research and development initiative launched in 2003. ULCOS seeks ways to bring about further drastic reductions in (CO₂) emissions from steel production. The programme's key objective is to reduce Carbon Dioxide (CO₂) emissions compared to today's production technologies by at least 50 percent.

Achieving such an ambitious target requires the kind of paradigm shift in industrial production that will change the way steelmakers around the world operate. Which is why ULCOS is part of a worldwide steel-industry programme, the 'CO₂ Breakthrough Programme', designed to identify steelmaking technologies with the potential of significant CO₂ reduction.

"We cannot escape the fact that making steel uses energy," says Jean-Pierre Birat, general coordinator for ULCOS. "So it is very important that we find an answer to making steel in the most sustainable way. It is almost impossible to imagine a world without steel – so it is incumbent on us to find the best possible solution to minimise our effect on the climate."

Largest industry programme to tackle climate change

The ULCOS programme's members are a consortium of 48 European companies and organisations from 15 European countries, including all major EU steel companies, energy and engineering partners, research institutes and universities. It is also supported by the European Commission.

ULCOS is a European programme, yet it is the largest endeavour in the steel industry worldwide that is proactively seeking solutions to the threat of global warming. The consortium's expertise ranges from steelmaking to biomass production and geological CO₂ storage, and includes process engineering, the economics of energy, and foresight studies in climate change.

ULCOS I, which took place between 2004 and 2010, carried out the initial research and evaluation of technologies to determine those most likely to achieve the CO₂ reduction targets needed. ULCOS II, from 2010 to 2015, is now taking forward the four most promising technologies, from the laboratory to pilot plant development and ultimately commercial implementation.

Those four technologies are:

- ULCOS Blast Furnace – a top-gas recycling blast furnace with CO₂ Capture and Storage (CCS) technology.
- HISARNA with CCS - CO₂ Capture and Storage.
- ULCORED - Advanced Direct Reduction with CCS.
- ULCOLYSIS – electrolysis.

The technologies are at different stages of development, and so time to commercial implementation will vary. ULCOS Blast Furnace, for example, is the closest to a working production technology, yet it is 10 years away from implementation in a working steel mill due to the huge plant investments required. The HISARNA project is one of the longer term alternatives to reduce CO₂ emissions in steelmaking. This technology aims to harness a new process that makes possible the production of liquid iron from virgin raw materials in just a single step, eliminating two of the three production steps required in blast furnace iron making. The pilot plant is under construction and expected to be completed in early December 2010, after which an intensive test programme will be carried out starting in January 2011. Electrolysis, by contrast, is probably further into the future, as such technologies require deeper re-engineering of steel production and the development of new processes from first principles.

Substantial investments being made

ULCOS is overseeing the construction of a new pilot plant in Germany during 2010 to 2014 to pioneer the ULCOS Blast Furnace technology, using top-gas recycling with carbon capture & storage. A further industrial demonstrator is to be set up in France, to run at full industrial scale during 2011-2015.



Jean-Luc Delplancke, ex-professor of metallurgy now working at DG Research - the European Commission, sees the programme as highly significant. "The four technologies being developed within ULCOS are all based on the evidence provided by economic data, so each on their own offer the promise of CO₂ reduction. When they are combined, as they will be in France, the promise is even greater. It is the first time I have seen something like this in the steel industry."

ULCOS I and II are operating as public/private partnerships promoted by the European Commission as part of its Economic Recovery plan. The investments involved – from both private and public sector – are substantial. The steel industry is spending some 800 million euro on these two pilot projects alone, and the total budget for both programme phases amounts to approximately one billion euro.

In the even longer term new avenues of research are likely to emerge, such as the integration of steelmaking with solar power generation, with new energy technologies and with new, fourth or even fifth generation nuclear power plants. Such solutions are not yet part of the programme, but could be added to it in the future.

ULCOS is a European programme, yet it is the largest endeavour in the steel industry worldwide that is proactively seeking solutions to the threat of global warming.

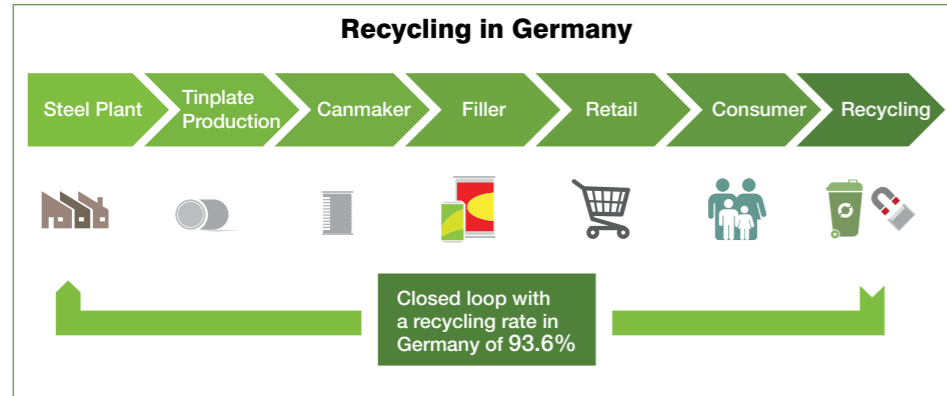
Programme	Budget	Involving	Purpose	Best Results	Timescale
ULCOS - Ultra-Low Carbon dioxide Steelmaking (EU)	Total budget for both phases is approximately one billion euro.	All major EU steel companies, energy and engineering partners, research institutes and universities. Supported by the European Commission.	Cooperative R&D initiative to research radical reductions in Carbon Dioxide (CO ₂) emissions from steel production. Includes process engineering, economics and foresight studies in climate change.	(1) ULCOS Blast Furnace (top-gas recycling) with CCS (CO ₂ Capture and Storage); (2) Hisarna with CCS; (3) ULCORED Advanced Direct Reduction with CCS; (4) Electrolysis.	ULCOS I: 2004-2010; ULCOS II: 2010-2015

More information: <http://www.ulcos.org/>

Recycling in Germany

Continuing our series on the recycling of packaging across the EU member states, we now take a look at the situation in Germany. German households began sorting their packaging almost 20 years ago so that recyclable materials could be collected for recycling. For more than ten years now, the steel packaging recycling rate in Germany has consistently exceeded the legal recycling target of 70% set by the German Packaging Ordinance. Indeed, in 2008 the German recycling rate for steel packaging reached a record 93.6%, up two percentage points from the already high level of the previous year.





Today, Germany has a total of nine officially recognised 'dual systems' for collection and recycling of packaging waste.

20 years of household involvement in sorting and recycling

In 1990, companies from the German food and packaging industry joined forces to establish DSD (Duales System Deutschland), further to the entry into force of the German Packaging Regulation in 1991.

This regulation introduced a novel concept of "producer responsibility": a mandatory duty on companies putting packaging onto the market to take such packaging back and participate in its recycling. This was the starting point for involving households in sorting recyclable materials from packaging. Today, Germany has a total of nine officially recognised 'dual systems' for collection and recycling of packaging waste.

As revealed by a representative opinion poll carried out in 2006 by the Forsa research institute on behalf of Markenverband (the German association of brand manufacturers), more than 91% of German consumers now sort their refuse in order to reduce the overall volume of waste and to conserve resources.

Recyclable materials are sorted by households as follows: metal packaging, plastic packaging and composites (e.g. beverage cartons) are put into "yellow" bins or sacks for kerbside collection. Glass jars and bottles are taken to bottle banks (containers set up in residential areas), while paper and board go into "waste paper banks". Garden and kitchen waste is composted. The remainder is disposed of in the "grey" bin, again for kerbside collection.

The Packaging Regulation has been revised several times over the years, the last revision being the 5th Amendment which came into force on 1 January 2009 as a solution to the "free-riders" issue. It specifies that manufacturers

and vendors of sales packaging containing goods that are typically sold to consumers have a mandatory duty to participate in collection systems with nationwide coverage. The aim of this amendment is to ensure 100% licensing (i.e. funding) of all packaging put on the German market, regardless of where the product was manufactured.

Disposal of residual household waste ('grey' bins) is paid for by German consumers through municipal waste collection fees. The costs for collection, transport, sorting and recycling of packaging from the 'yellow' collection systems are covered by the license fees paid by the manufacturers and vendors of 'sales packaging'. From the consumer point of view, these licence fees are part of the price they pay when purchasing a product.

Recycling of steel packaging

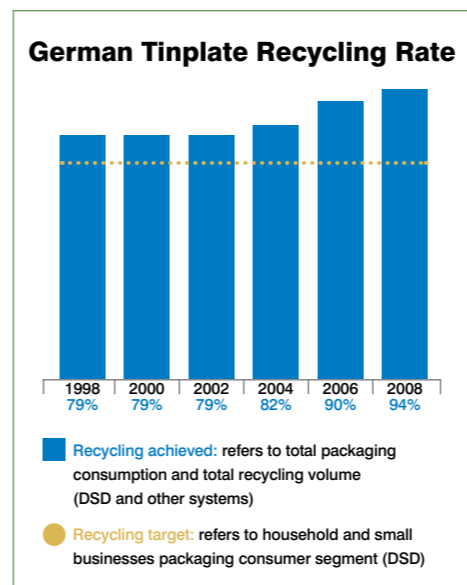
Once collected, household packaging is sorted again to separate the different kinds of materials from one another.

After sorting and upgrading, steel packaging is returned to the steelworks to be melted down to make new steel, thus closing the material loop.

"Dual systems" today handle about 70% by weight of all recyclable packaging, making them the major recycling route for packaging. Next to those systems', the German law does also make provision for sectoral solutions or the take back of packaging by retailers (e.g. by setting up collection points).

The packaging and filling industries are currently being confronted with rising licence fees for recycling and disposal, although there seems to be no apparent justification for this. These increases would put the costs for

In 2008, the German recycling rate for steel packaging reached 93.6% – up two percentage points from the already high level of the previous year.



collection and sorting of packaging materials in Germany far above comparable EU levels.

Mandatory deposit on single-use beverage packaging

In Germany, special rules apply to beverage packaging. Since 2003, a mandatory deposit has to be paid on single-use beverage containers. The intention behind this legislative measure was to stabilise the share of refillable containers at 80% and to put a curb on littering. However, after the deposit was introduced, exactly the opposite happened. Consumers could not distinguish between the single-use deposit and the deposit for refillables, which has resulted in a shift in purchasing habits. Whereas the proportion of non-alcoholic beverages in refillable packaging was 56% before the deposit ruling came into effect, it has now sunk to less than 30%. The mandatory deposit has therefore significantly failed to achieve its aim of promoting the use of refillable packaging.

Nor has there been any positive impact on littering. Despite the mandatory deposit, the volume of litter left by consumers at motorways and lay-bys has risen – according to the Prognos Institute.

What the mandatory deposit actually did was to cause an upheaval in the entire packaging market, and this political decision has, in effect, destroyed the beverage can market in Germany. In 2002, cans accounted for 19% of all beer sales in Germany. Today, that figure has dwindled to just 0.9% (Source: GfK Consumer Tracking).

In terms of running costs, the single-use deposit system has also proved problematical for fillers and retailers (e.g. for clearing, logistics and personnel). These costs are almost three times as high as the licence fees for the dual systems. The mandatory deposit therefore almost triples the burden on the German economy. Moreover, the mandatory deposit generates approximately a third of all recycling costs for only about 7.3% of the volume of post consumer waste. The cost benefit ratio has therefore become skewed out of all proportion.

The main lesson to be learned from the German mandatory deposit experience is that state product policy has a disrupting effect on existing recycling systems.

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DATE	EVENT	LOCATION
6 - 9 Sept	European Parliament Plenary	Strasbourg, France
13 - 16 Sept	Taropak – International Packaging Technology & Logistic Exhibition (www.taropak.pl/en)	Poznan, Poland
14 - 16 Sept	Sustainable Packaging Forum (www.sustainablepackagingforum.com)	Phoenix, USA
20 - 23 Sept	European Parliament Plenary	Strasbourg, France
21 - 23 Sept	International Aerosol Congress (www.aerosolrome.it/welcome.php)	Rome, Italy
27 - 29 Sept	European Parliament Environment Committee meets	Brussels, Belgium
4 - 5 Oct	European Parliament Environment Committee meets	Brussels, Belgium
18 - 21 Oct	European Parliament Plenary	Strasbourg, France

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