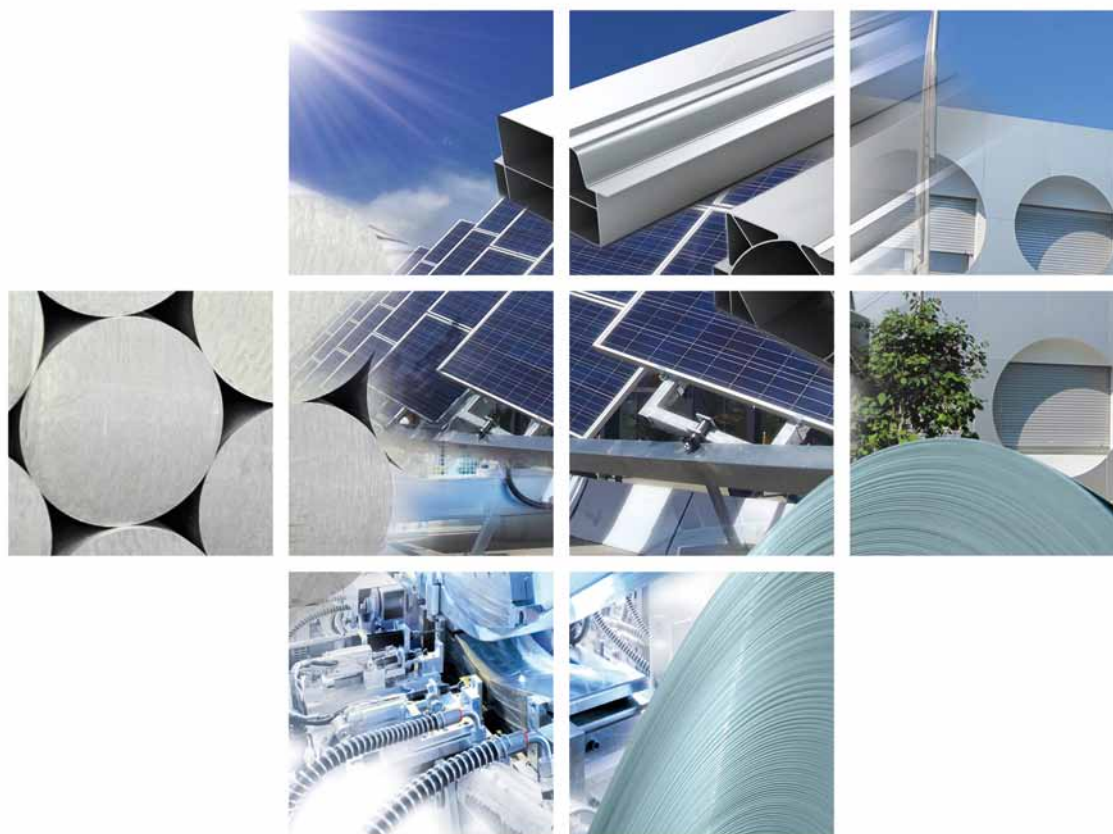


Annual Report 2009/2010





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OUR
KNOWLEDGE:
KEY TO
THE FUTURE

Foreword

Shaping the future together

Nearly all aluminium producers and processors were hard hit by the financial and economic crisis. Smelters, extruders and rollers reported large cutbacks in production. The order situation in the German aluminium industry has improved continually since September 2009 though and companies in our sector are now confident again.

In general, the first half of 2010 led to a significant recovery for German aluminium companies compared with the corresponding period a year earlier. This trend has also continued in the second half of the year. Following the market recovery it is important now that our sector returns to its long-term path of growth.

Overall, the prospects for the aluminium industry continue to be good and the prognoses for aluminium as a material are optimistic.

However, the markets will not develop themselves. We have to give serious thought to how we position ourselves for the future and how we can open up new uses and markets for aluminium. In order to hold our own in the competition between different materials we have to further extend our co-operation and partnerships within the sector as well as with clients.

GDA is the first point of contact here. This annual report gives you an overview of the activities of GDA in 2009 / 2010 and documents how GDA works together in partnership with its member companies and pursues the common goals. Our trade association has a closely knit network of excellence at its disposal that provides competent advice and offers a comprehensive range of services. Based on GDA's reliable information about markets and current trends, research and development can be aligned and planned to fulfil market requirements. GDA's technical marketing activities also include a competent advisory service and thus provide the basis for innovative product development.



Friedrich Brökelmann

Friedrich W. Brökelmann
President

Düsseldorf, November 2010

Market Situation 2009 / 2010

Overview

The German aluminium industry emerged stronger from what had been its most difficult crisis since the Second World War. Such a development was not apparent at the beginning of the crisis. The German aluminium industry is strongly dependent on exports, both directly and indirectly, and the effects of the global weakness in demand were particularly noticeable here. However, once the global economy showed first signs of recovery, this supposed disadvantage turned into a barely imaginable advantage. Positive stimuli came from Asia in particular and brought about an unexpectedly strong turnaround in the German aluminium industry at the beginning of the second half of 2009. Looking back, one has to say that the year turned out to be considerably better than many market participants were expecting at the beginning of the crisis. Our industry was spared the worst.

One has to award Germany very good marks for its crisis management. This applies both generally and to the aluminium industry in particular. The economic-political decision makers successfully managed to secure jobs and to contribute to providing suitable stimuli for demand. This allowed companies to continue employing specialist personnel and then to react appropriately once recovery in the global economy set in. Internally, companies also did their homework conscientiously and

strengthened their own competitiveness via comprehensive restructuring measures. The fact that some of the capacity removed from the market in the rest of Europe was transferred to locations in Germany can definitely be seen as an example of Germany being top of the class in crisis management.

The German aluminium industry can thus look confidently to the future!

Aluminium markets 2009 / 2010

Total demand in Germany fell by 19.4% to some 2.72 million tonnes in 2009 (2008: approx. 3.38 million tonnes).

Turnover in 2009 was some 9.6 billion euros, which is equivalent to a fall of 35.5%. This development was attributable to the very tough

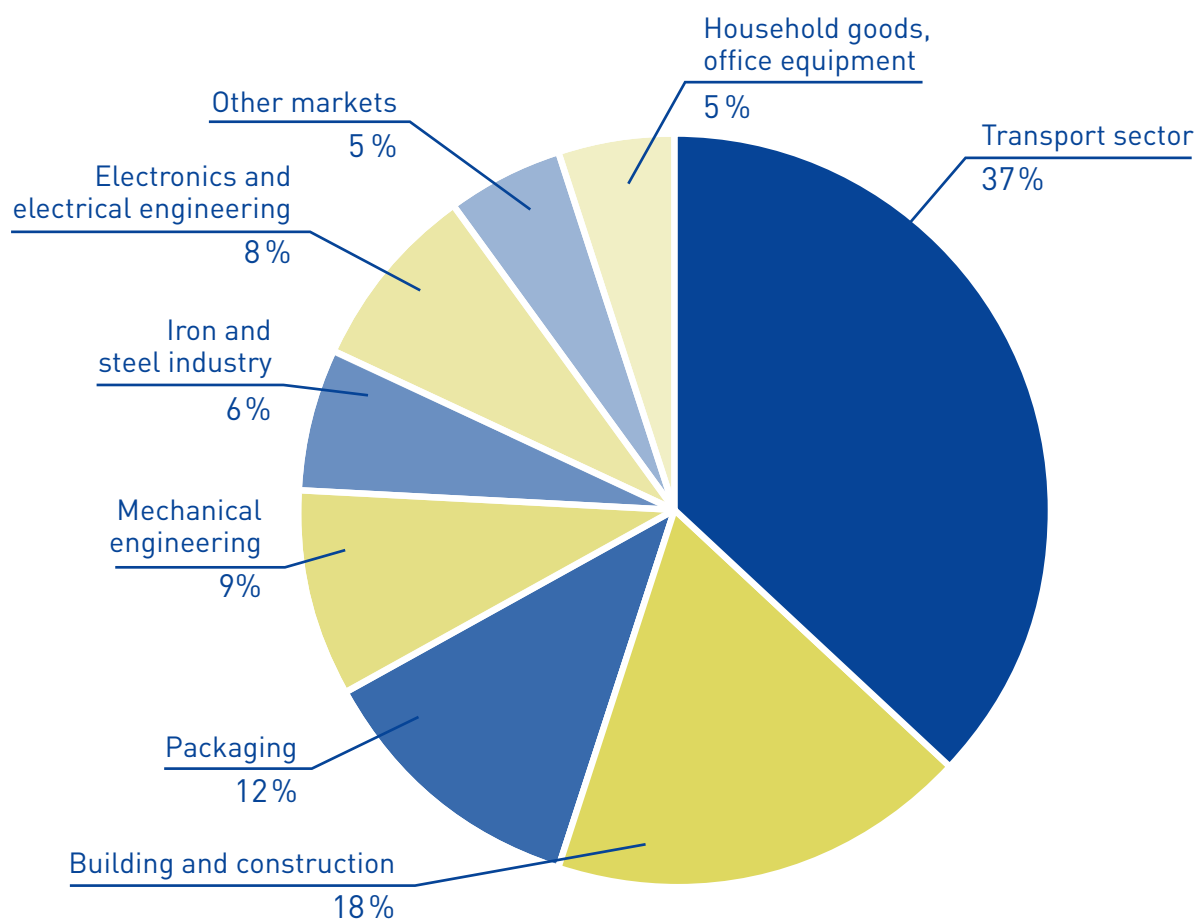
economic situation in the first half of 2009. There was a marked improvement in sentiment in the second half after key markets that are important for the aluminium industry had started sending out positive signals again.

Outlook for 2010 / 2011

The upturn in the German economy continued during the course of the year. Growth prospects for the global economy are also estimated to be very promising, especially in Asia, so this fuels hope that there will be a return to the long-term path of growth.

The development in the various sectors will be a mirror image of the development during the crisis. While a large proportion of the sectors for industrial products tended to be weaker than the building sector in 2009, the situation will be the other way round in 2010. The probability of the upturn continuing is thus estimated to be relatively high.

Main markets for aluminium in 2009 (in %)



Specialist Trade Associations

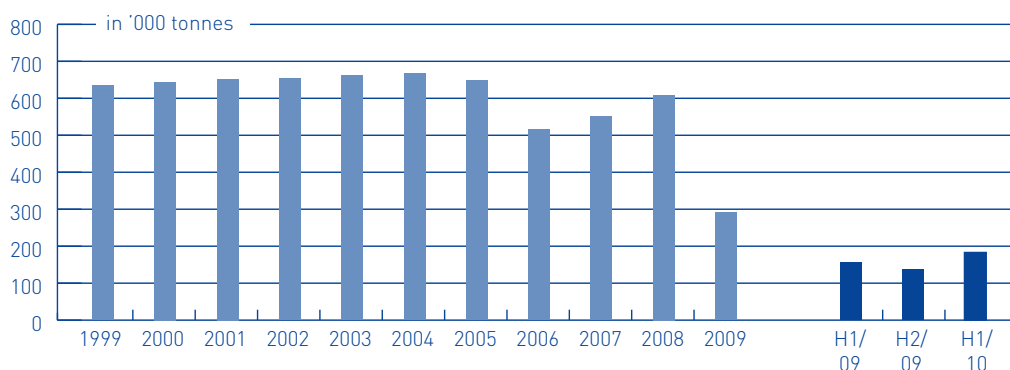
The product- and topic-oriented specialist trade associations within GDA are a communications and information platform for the member companies and their customers. The tasks of the associations include the exchange of information with the individual aluminium companies as well as representing the economic interests of the individual product groups. GDA informs its member companies about markets, the environment and technology via the specialist trade associations. GDA works together closely with other national and European trade associations and thus represents the interests of its member companies and the industry as a whole in an effective manner, even abroad.

Reporting fundamental data

Reports on current trends are regularly presented to the working groups and at an international level. The focus here is on fundamental data obtained by systematically analysing

supply and demand. GDA supports its members when it comes to rational expectation formation by minimising the planning uncertainty that arises for the companies in this area.

Development of primary aluminium production in Germany



Primary Aluminium Trade Association

Although based on number of members the Primary Aluminium Trade Association is one of the smaller specialist trade associations

within GDA, analysing the market for primary aluminium has always been one of GDA's central tasks.

International co-operation

GDA has worked together with the Primary Division Statistics Committee (PDSC) of the European Aluminium Association (EAA) for many years in order to carry out this function. Both sides benefit from the co-operation within this interest group: GDA's knowledge of Europe's most important aluminium mar-

ket is of major interest to the members of the committee, they are supported in their expectation formation on future demand for primary aluminium in Germany and thus in Europe. On the other hand, the PDSC is an important source of information for GDA and its members.

Semi-Finished Products Trade Association

The Semi-Finished Products Trade Association is a federation of the producers of rolled, extruded or drawn products. The work of this specialist trade association is carried out in a decentralised manner via working groups. In addition to the technical working groups, the market working groups play a key role. Currently there are two English-language working groups (Hard Alloyed Extrusions and ASP – Aluminium Slug Producers) in addition to the three German-



language working groups (Rolled Products, TKA-L and TKA-Draht).

Good reporting is a characteristic of the Semi-Finished Products Trade Association. Production of statistics for the sector is seen as being necessary but is not regarded as being sufficient. Therefore the services offered include a large number of publications (e.g. *GDA Economic Outlook*) or providing advice on technical problems.

News from the working groups

In addition to reporting on the market situation, the particular focus of the TKA-L Working Group was on the recyclability of aluminium, the competition between materials in carmaking and rail transport, and Eurocode 9. As the importance of the solar industry grew last year, the member companies suggested extending user-group statistics to include applications in the fields of photovoltaic and solar thermal energy. The collection of data is currently being carried out and the response received so far has been admirable. Conceptually, the survey is not aimed exclusively at the German extrusion industry but also includes imports by the German solar industry. If the test phase is successful, the basic information on the market volume of the German solar industry will be improved significantly.

The Rolled Products Working Group has now been in existence for almost five years. The idea of organising a working group comprising European rolling companies has thus proven itself. The number of participants also increased further last year. As is usually the case in market working groups, the basis of the group's work is reporting on the market situation. This has been strengthened by the introduction of a European business indicator for rolled products. The works visits that are arranged at regular intervals are important for keeping the group together. Not only do they offer the upcoming generation of sales managers the chance to take a look inside the rolling mills of competitors, they also give 'old hands' the chance to broaden their existing knowledge.



Hard Alloyed Extrusions, the English-language working group that deals with difficult-to-extrude alloys, has been meeting regularly again for three years. Important milestones have already been reached: these include the differentiation between difficult- and easy-to-extrude alloys and the statistics for shipments based on this. This provides a solid database for the exchange of market information that is at the heart of the work. From the beginning, the aim of the group has been to involve other producers in the group. It was doubly successful in this respect last year: more companies

participated in the working meetings of the group than in the previous year and companies that had previously not participated also took part in the European business indicator for difficult-to-extrude alloys.

The ASP – Aluminium Slug Producers Working Group, which was set up two years ago, has also become established. The market reporting now has a good statistical basis. The group's interest has spread increasingly to other topics: for example, technical problems have also been discussed.

Networking

GDA has been involved in a comprehensive system of networks for many years via its Primary Aluminium and Semi-Finished Products trade associations. The most important network is undoubtedly the 'Branchennetzwerk' industry network whose central nodes are the 'Konjunktur' (economic situation) working group of the Federation of German Industries (BDI) and the 'Industrietagung' conference organised by the German Institute for Economic Research (DIW). This is where reports from the national trade associations come together and enable information on current and future development of user industries to be passed on quickly and purposefully to member companies.

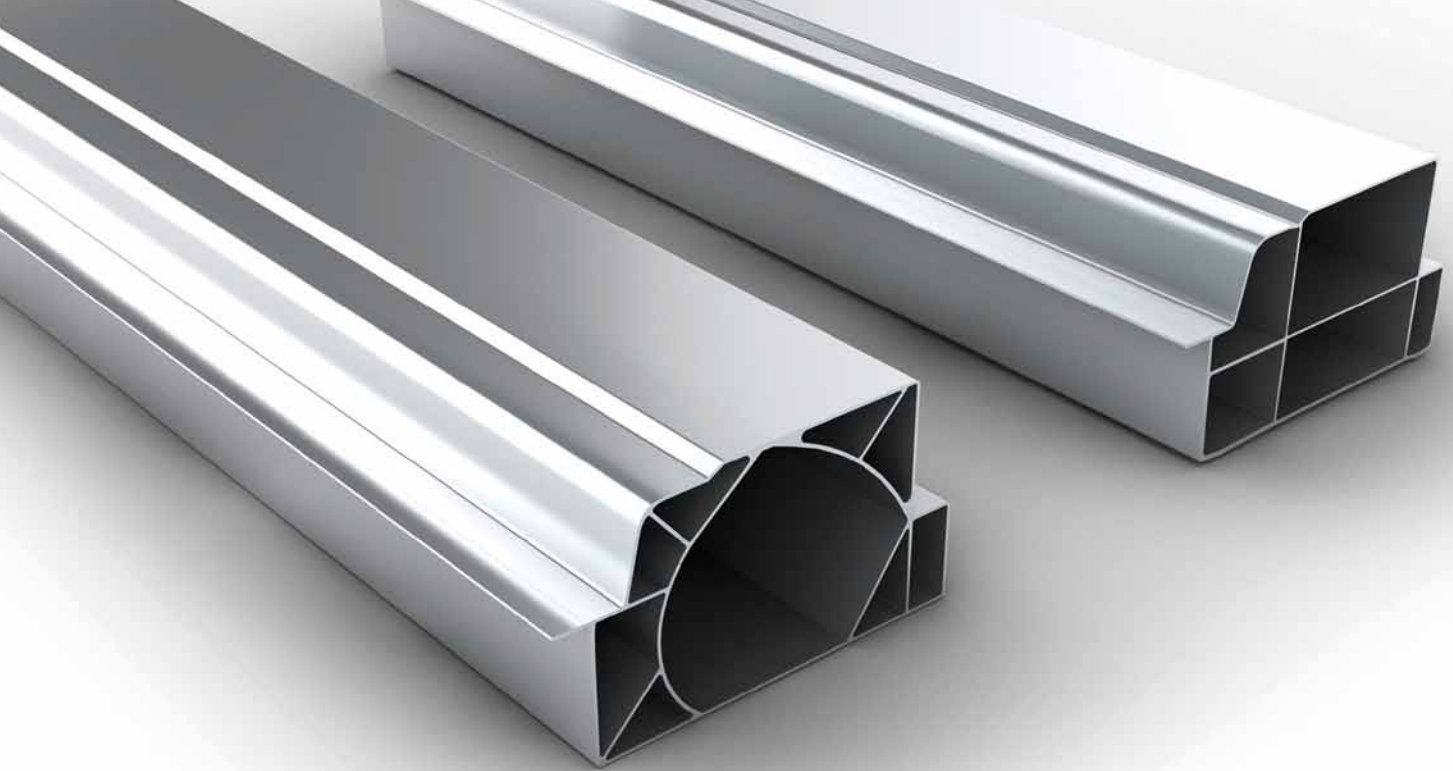
Besides these formal channels there are also informal channels that have developed as a result of close co-operation with representatives of user industries. These shorten the routes information has to take, which are already short, and thereby enable market trends to be identified even earlier and the quality of GDA's economic forecasts to be improved still further.

Development in the various sectors cannot be considered in isolation from the overall

economic development in Germany and the rest of the world, of course. It was with this in mind that GDA felt it was important to intensify contact with a research institute. It has thus strengthened its links with the ifo Institute for Economic Research at the University of Munich by becoming a member. ifo is one of the institutes that adopts a more empirical approach so this means that contact has been made with the frontline of research without losing the necessary contact with actual practice.

The networking strategy adopted has proven itself: especially in an unfavourable economic environment – such as the recession of last year – decision makers in member companies need a reliable point of reference. GDA offered this point of reference in the form of its comprehensive portfolio of business cycle analyses and economic forecasts and thus provided the basis for rational expectation formation and anticipation of trends in a situation that was overshadowed by emotional impressions.

GDA will therefore continue to pay a great deal of attention to the management of the network in future.



International co-operation

GDA is much in demand as a partner internationally thanks to its knowledge of the most important aluminium market in Europe and its detailed knowledge of European user markets. For example, GDA is the only national trade association that is a member of the EAA Short Term Panel on Industry Trends, which makes estimates of the future development of the market volume in Europe for drawn products, extrusions and rolled products.

Furthermore, GDA is also a welcome dialogue partner when it comes to the methodological aspects of aluminium statistics, regardless of whether it is for the statistics for European orders received by the producers of extrusions and drawn products, developed in co-operation with representatives of industry and the EAA, or for the further development of European statistics for shipments. Without the German expertise, neither of these would hardly have been possible.

Markets for semi-finished products

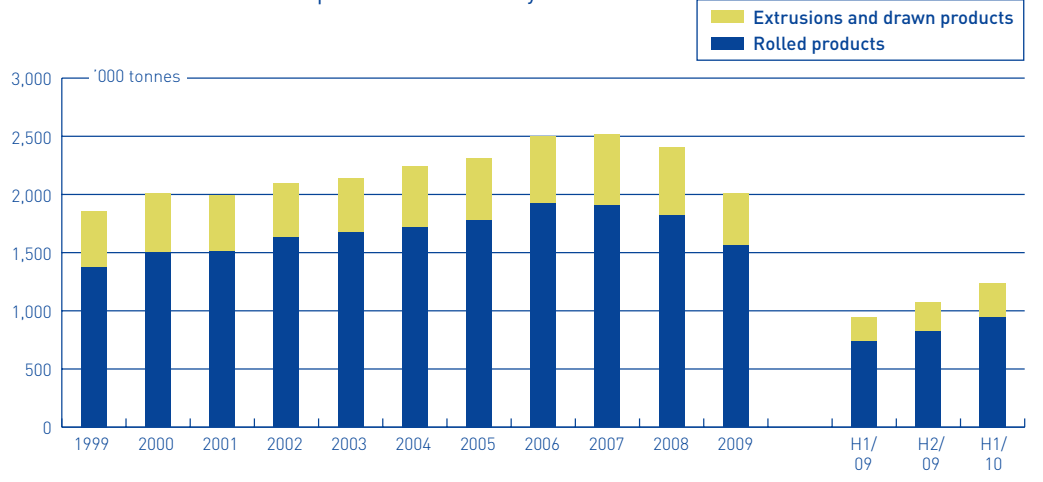
German production of aluminium semis reached about two million tonnes in 2009. This represents a fall of 16.3 per cent on the previous year. With a fall of 14.1 per cent, the producers of rolled products were less markedly affected than the producers of extrusions and drawn products, whose output fell by 23.2 per cent.

The largest part of aluminium semis production is attributable to the rolling mills, with an annual production of almost 1.6 million tonnes. The development in the individual

product groups was mixed: strip, the largest sector in terms of quantity, declined 12.6% year-on-year in 2009. The weakest sector was plate production, with a fall of 33.7%, almost three times greater than that for strip. By contrast, sheet production was only 16.5% lower.

With an annual production of 455,000 tonnes, the producers of extrusions and drawn products accounted for about a quarter of the total output of German semis plants in 2009. Total production of extrusions and drawn products in 2009 was down 23.2% year-on-year, but the

Production of semi-finished products in Germany



falls for tube (40.5%) and rod and bar (27.1%) were disproportionately high whereas the fall for profiles, down 22.2% on the previous year, was not so marked.

A glance at the statistics shows that assessing 2009 on the basis of the data for the year would give a far too pessimistic result, though. This is because the actual collapse in demand had already taken place in 2008 and the development in 2009 actually showed an improvement from month to month. This is already apparent if one considers the half-yearly figures. The production of rolled products rose 12% between the first and second

halves of the year, and for extrusions and drawn products and the increase was even greater: 18.4%.

The German producers of aluminium semis reacted to the crisis with restructuring programmes and reduced their capacity in line with the reduced demand. They endeavoured, though, to hold on to their permanent staff. This turned out to be the right strategic decision as the improved situation in the second half of 2009 showed.

The positive development in the second half of 2009 continued in the first half of 2010. The production of extrusions and drawn products rose a handsome 36.2% compared with the corresponding period a year earlier. The production of rolled products also rose an impressive 28.6% year-on-year. GDA is expecting positive stimuli from the user industries to continue for the rest of 2010.



Trade Associations for Aluminium Packaging

GDA's specialist trade associations Aluminium Foil, Flexible Laminates and Tubes, Cans and Impact Extrusions represent members' interests in the fields of political lobbying, PR work, statistics, standardisation, technology and food legislation. About 40 manufacturers of aluminium packaging are represented and most of them have the organisational struc-

ture of a medium-sized company. The main markets are the food, cosmetics and pharma industries. The trade associations undertake extensive media activities in these markets in order to position aluminium packaging, improve its image and establish themselves as opinion leaders when it comes to European and international issues.

Tubes, Cans and Impact Extrusions Trade Association

The overall aim of the association is to establish the German association as the opinion leader for European and international topics (technology, environment). The specialist trade association actively pursued its media activities aimed at boosting the image of the tube and the aerosol can and to push the innovative capabilities of the sector to the fore.

The aluminium tube and aerosol can manufacturers' position paper, which is used to deal with customer queries relating to sustainability, life cycle assessment (LCA) and the carbon footprint, has been continually revised. These position papers are also available for use by members of etma and AEROBAL.

In co-operation with AEROBAL, GDA organised a meeting in November 2009 with four representatives of Unilever that dealt with the subject of recycling and sustainability of aluminium packaging with emphasis on aluminium aerosol cans. The Unilever representatives were informed about the aluminium industry's position regarding sustainability and the results of an LCA study of aluminium aerosol cans were presented; a live demonstration of the recycling of aluminium packaging was made during a joint visit to Aluminium Rheinfelden.

In October 2009 there was a meeting of the association with leading manufacturers of powder coating systems in order to promote possible alternatives to solvent-based or aqueous internal lacquers.

A meeting with the well-known Nehring Institute also took place in October 2009 with a seminar on the subject of declarations of conformity for tubes and aerosol cans in order to give member companies a better understanding of the growing importance of questions relating to food legislation and help them prepare meaningful declarations of conformity. Following on from this event, a specimen declaration of conformity was agreed with leading suppliers of internal lacquers in February 2010 in order to optimise and harmonise the flow of information along the supply chain.

The joint meeting of GDA's packaging trade associations took place in February 2010. The presentations included a talk by Prof. Michael Hüther of the Cologne Institute for Economic Research titled 'Wege aus der Krise: Was Wirtschaftspolitik und Unternehmen tun können' ('Ways Out of the Crisis: What Economic Policy and Companies Can Do').

Further talks were held in 2009 with the retail trade and brand manufacturers regarding the

International Food Standard (IFS) with the aim of achieving standardisation of the requirements for declarations of conformity for packaging and improving the flow of information along the supply chain.

The numerous standardisation activities at European level were mirrored intensively by the DIN standardisation committee Tubes (see etma section), German standards were revised and new standards projects were initiated. The German tube manufacturers thus positioned themselves as opinion leaders in Europe, too.

Aluminium Foil / Flexible Laminates Trade Association

There was an increase in the number of market meetings of the Aluminium Foil / Flexible Laminates Trade Association, with regular presentations being made by external market researchers. An LCA for lasagne was produced in co-operation with EAFA and FPE.

A seminar for sales managers was organised at Rötz in the Upper Palatinate region. In addition, technical input was provided for a programme in the Galileo series broadcast by the ProSieben TV channel. The 10-minute film could be seen in some two million households.

Representing interests internationally

The International Organisation of Aluminium Aerosol Container Manufacturers (AEROBAL), European Aluminium Foil Association e.V. (EAFA) and European tube manufacturers as-

sociation (etma), which are all managed in a dual-role function from Düsseldorf, represent the aluminium packaging industry's interests at both European and international level.

AEROBAL - International Organisation of Aluminium Aerosol Container Manufacturers

AEROBAL's annual conference was held in Guangzhou, China, in November 2009 as part of the China Aerosol Innovation Forum, at which AEROBAL participated with a presentation on innovations in the field of aluminium aerosol cans. Good contacts in the Asian and Latin American regions were made at the event. At the AEROBAL meeting, a raw materials specialist from CRU China gave a talk on the development of aluminium prices. In addition, during a visit to DAIZO in Thailand, valuable contacts were established with the Thai Aerosol Association.

At AEROBAL's spring meeting in March 2010, which took place in association with the Paris Aerosol Forum, the main focus was on the recycling of aluminium aerosol cans and the refining of the LCA study on aluminium aéro-

sol cans. Two presentations dealt in particular with the recycling of aerosol cans in England and France. In addition, Takeuchi Press from Japan was welcomed as a new AEROBAL member.

The draft for a standard covering the so-called 'transfer can' was prepared within AEROBAL. The aim of the standard is to facilitate the changeover from tin plate to aluminium aerosol cans for clients. An official FEA standard is to be aimed for – and if necessary a harmonised CEN standard.

The World Aluminium Aerosol Can Award competition is regarded as a barometer for innovation. The jury includes well-known editors from international packaging magazines.

AEROBAL has consultative status with the UN Sub-Committee on the Transport of Dangerous Goods. It is currently working in European committees on an alternative to the water bath test for aluminium aerosol cans and it is planned to submit it to the UN sub-committee later.

AEROBAL has established itself as an accepted international organisation and is the first contact when issues relating to aluminium aerosol cans are involved.

The AEROBAL website (www.aerobal.org) is strongly frequented.

EAFA – European Aluminium Foil Association e.V.



EAFA is the international organisation representing the producers of rolled foil products and household foil made from aluminium as well as aluminium foil containers and all types of flexible packaging. Its more than 100 member companies are located in western, central and eastern Europe.

With the start of a major media campaign in Singen, EAFA celebrated the 100th anniversary of aluminium foil in April 2010. The focus of the successful information campaign was taking a look at technological developments and trends from the past, present and future of this unique packaging material.

The Alufoil Trophy 2010 once again demonstrated the innovative capabilities of the aluminium foil sector in the packaging market. For the first time there were five categories: Marketing, Design, Consumer Convenience, Resource Efficiency and Product Protection. This contributed to there being a record number of entries [64]. They demonstrated

the industry's capability to develop modern packaging solutions for the complete market spectrum and impressed the jury: prizes were awarded to 13 products and companies. The Alufoil Trophy 2010 was thus a resounding success for the aluminium foil sector.

The EAFA Annual Conference was held in Berlin in 2010. The speaker was Dr David Bosshart, CEO of the Gottlieb Duttweiler Institute in Switzerland. The GDI is one of Europe's leading think tanks for economic and social studies. Dr Bosshart is well-known as the author of numerous international publications. His work focuses on the future of retailing and consumption, management and culture, social change, globalisation and political philosophy.

Members of GDA's specialist trade associations also attended the 3rd EAFA Sustainability Workshop, which included presentations by Nestlé. On the subject of sustainability, EAFA representatives also took part in the European Food SCP Roundtable, the Retail Forum and, by invitation, the Global Packaging Project of the Consumer Goods Forum.

The *Infoil* newsletter was reworked graphically and given a more modern look. In addition, a fresher and more up-to-date design was adopted for the homepage of the EAFA website at www.alufoil.org.

During the pre-Christmas period, EAFA posted a short film on the use of aluminium foil as a packaging material for chocolate figures

on YouTube, the online portal, where it was viewed several thousand times.

Thanks to co-operation with Messe Düsseldorf, FPE made presentations at the IPA KO-VKA in Moscow and the UPAK ITALIA. The FPE Technical Committee continued to work successfully and efficiently.

Work continued on a global project dealing with aluminium foil and sustainability, initiated jointly with the International Aluminium Institute (IAI).



Infoil newsletter celebrating 100th anniversary of aluminium foil



World Aluminium Aerosol Can Award 2010

Winners of the international packaging competitions



Tube of the Year 2010



Alufoil Trophy 2010

etma – european tube manufacturers association

To mark etma's golden jubilee in 2009, a broad communications campaign was launched in the press in order to optimise the image of the tube as an innovative packaging material. At the association's annual conference in Istanbul in June 2009, preparation was made for carrying out a Delphi study regarding the tube and the tube market in 2020. Over 300 experts from the tube industry and its suppliers together with customers, designers and packaging institutes were questioned. The final results will be available at the end of 2010.

The communications campaign for the aluminium tube was continued in 2010. The key components of the campaign are the revamping of the aluminium tube manufacturers website, www.aluminium-tubes.org, press releases relating to innovative applications of the aluminium tube and the production of an image film for the aluminium tube.

The Tube of the Year competition documents the sector's innovative capability annually.

The European tube industry is the most active group involved in European packaging standardisation. Eight new or revised European standards were published in 2009. Three new working items will be submitted to CEN, the European standards institute, in 2010.

With the support of FPE, a life cycle assessment is currently being prepared for laminate tubes and is due to be completed in 2011.

The european tube manufacturers association (etma) website was reworked in 2009. A new section covering food legislation was added in order to reflect the growing importance of this topic. The etma website is highly frequented and offers the European tube industry a common platform at www.etma-online.org.

Metal Powder Trade Association

The main activities of the Metal Powder Trade Association are the market for powders and statistics. An early warning system has now been developed and introduced with the aim of detecting possible market movements in low-wage countries. For example, export trade flows from China, India and Russia are monitored. Competitive countries like the USA are subjected to analysis as well.

In addition to market-related topics, chemical legislation has increasingly become the focus of the metal powder industry's activities in recent years. In order to obtain optimal bene-

fits from synergies, a European association – the European Metal Particulates Association (EMPA) – has been formed and coordinates activities for all metals throughout Europe. EMPA already had 19 members in 2009. GDA's closely knit network of national and European trade associations offers the basis for an effective representation of interests. The market for powders and statistics will also be the focus of the future activities of EMPA.

Together with the Aluminum Association, EMPA organised a participatory powder and paste safety workshop in June 2010.

Media Work and PR Activities

GDA's communications activities are based on continual and topical media work. In addition, exhibiting at leading trade fairs and providing professional support for vocational education and training events at the plants of member companies are important aspects of its media and PR work. With these activities GDA has established a communications platform for placing information about the metal, companies in the sector and the trade association in the various media of the trade and business press.

GDA in the World Wide Web



GDA's website at www.aluinfo.de

The GDA website, www.aluinfo.de, provides over 300 pages of comprehensive information on the metal aluminium, the aluminium industry and GDA's range of services. In addition to areas that are accessible to the gen-

eral public there is also an area restricted to GDA member companies that contains exclusive information about the sector.

Over 35,000 internet users a month visit the GDA website. The most frequently visited pages are the online version of *Aluminium-Taschenlexikon*, the up-to-date manufacturer and product database and the news page, which is updated weekly. There is also a strong demand for products and information material for teaching and training purposes from the GDA Knowledge Shop.

The extranet section contains statistics, presentations and reports from the working groups that can only be accessed by GDA members and their employees. The number of files accessible online is increasing continually. There are currently over 400 registered users, and the trend is upwards.

Topical media work

Topical press releases about GDA's activities inform journalists from the trade and business press about what is happening in the industry and within the trade association. The good relationships with journalists from the various target media are supported by media

work accompanying trade fair appearances and other events as well as one-on-one interviews and topical specialist articles. Journalists also have online access to all press material at www.aluinfo.de.

Papers and exclusive articles in demand

GDA's specialists document their high degree of professional competence with authored articles, technical papers and exclusive publications in the business and trade press. They report on the many different possible uses of the metal in an objective and competent manner with practical ex-

amples of applications. GDA's article service for the trade and business press provides information on innovative applications, current technological developments and market trends, with background information on the industry; time and again, editorial offices gladly make use of this service.



Authored articles by GDA's specialists document a high degree of professional competence

Events and Projects: Highlights in 2009 and 2010

European Aluminium Congress

On 23-24 November 2009 GDA organised the Aluminium Congress, which was titled 'Aluminium in Automotive Applications – Material for Lightweight Construction and Design' and attended by some 220 participants. The different possible uses of aluminium in cars were

EUROPEAN ALUMINIUM CONGRESS | 2009

23-24 November 2009
Maritim Hotel | Düsseldorf



Over 200 participants attended the European Aluminium Congress



Keynote address by Heinrich Timm, head of Audi's Aluminium and Lightweight Design Centre

presented at the congress. Leading representatives from the car industry, such as Audi and Jaguar, universities and the aluminium industry presented currently used and far-sighted innovative solutions. At the exhibition accompanying the congress, interesting solutions in the field of lightweight car construction and its joining technologies were presented and resulted in technical discussions between exhibitors and visitors.

German Sustainability Prize 2009

GDA sponsored the German Sustainability Award for the third time and the presentation took place in Düsseldorf on 6 November 2009. The Most Sustainable Company 2009 award went to the pioneer of ecological building, Bau-Fritz. Deutsche Post DHL received the award for the most sustainable strategy. The 'Frosch' product range from Werner & Mertz was given the accolade of being Germany's most sustainable brand. The awards were presented by, among others, the then Federal Minister for Labour and Social Affairs, Dr Franz Josef Jung, at a gala ceremony attended by over 1000 guests, including many well-known personalities from the fields of politics, business and society.



Prof. Dr. Götz E. Rehn, owner and managing director of Alnatura Produktions- und Handels GmbH; Franz Josef Jung, former Federal Minister for Labour and Social Affairs; Dagmar Fritz-Kramer, managing director of Bau-Fritz GmbH & Co. KG; Jürgen Schmidt, spokesman of the board and founder of memo AG* (from left to right)

GDA at ALUMINIUM 2010

The ALUMINIUM trade fair, which was held for the eighth time in 2010, was the highlight of the year for companies involved in the German aluminium industry and it took place against the background of an improved economic climate. The number of visitors totalled 17,200 and thus bettered the record level of the previous fair (2008: 16,886). The number of visitors from abroad increased significantly, by almost ten per cent, and topped the 50 per cent mark for the first time. 'Between Innovation and Environment' was the motto of the fair, which attracted some 900 exhibitors from about 45 countries.

As in previous years, GDA had its own stand (Hall 3 / Stand J40) at ALUMINIUM 2010. It provided information on the services it has to offer and gave advice on the use of aluminium in a company-neutral and product-independent manner. At the same time, the GDA stand served as a communications platform and meeting point for visitors and exhibitors. In addition, GDA organised the congress that is held in parallel to the fair for the first time.

Under the motto 'Aluminium – Material for the Future' there were five different applications-relation sessions on the three days of the fair: Processes, Transport, Automotive, Surface and Aluminium Markets.

GDA has been associated with the ALUMINIUM fair from the very beginning as co-initiator, source of ideas and provider of information in the form of knowledge and expertise. ALUMINIUM is the leading trade fair for the sector and since the first event 13 years ago it has developed into the largest platform for the sector worldwide. In addition, it offers the German aluminium industry the opportunity to demonstrate to its customers its innovative capabilities and competitiveness. The whole of the value chain associated with the light metal now exhibits at the ALUMINIUM fair, from the production of the metal via semis manufacturing through to end uses in the automotive, building, mechanical engineering and electronics and electrical industries, together with suppliers to the sector and plant and equipment manufacturers.

The GDA stand at ALUMINIUM 2010



Aluminium in Renovation Award



Awarding of prize in Brussels by Isabelle Durant, Vice-President of the European Parliament, to Axel Nething and Paul Kaszay of Nething Generalplaner Ulm/Neu-Ulm

For the second time, GDA organised the Germany, Austria and Switzerland regional section of the Aluminium in Renovation Award competition developed jointly with the Brussels-based European Aluminium Association (EAA).

A panel of experts comprising engineers, architects and journalists awarded first prize in the Residential category to the 'LoftLiving Ackermannfabrik Augsburg' project by Nething Generalplaner Ulm/Neu-Ulm GmbH based in Neu-Ulm, Germany. The winner in the Non-Residential category was the 'Dresden Academy of Fine Arts' project by the

CODE UNIQUE architectural practice from Dresden, Germany.

These two German entries were successful at European level, too. They were both among the winners at the European award ceremony, which took place in the European Parliament building in Brussels in mid-November 2009. 'LoftLiving Ackermannfabrik Augsburg' secured first prize in the Residential category and the 'Dresden Academy of Fine Arts' project received a special prize for roof solutions in the Non-Residential category.



Special prize for roof solutions in the Non-Residential category for the 'Dresden Academy of Fine Arts' project

First prize in the Residential category for 'LoftLiving Ackermannfabrik Augsburg'



Technical Marketing

The most important aspects of GDA's technical marketing activities are providing sound and user-specific advice in the major markets such as transport, mechanical engineering, building and construction, and packaging. In addition, the technical capabilities of GDA's specialists are also in demand in the fields of surface treatment and corrosion as well as standardisation and alloy designations. User support ranges from providing simple advice on alloys through to optimisation of manufacturing processes. Direct contact with users and continual monitoring of the market ensure that the advice offered is comprehensive and competent.

In addition to providing customised advice and conducting in-house seminars, the GDA specialists are also in demand for presentations at external seminars and conferences.

GDA offers its services as an independent consultant and there is a growing demand for this from the customer side. Keeping an eye on current market trends and developments is essential for ensuring that the advice that is offered day in and day out is right up to date.

Technical seminars for the aluminium sector

GDA seminars have an excellent reputation in the aluminium industry. Every year, the now traditional specialist seminars on the surface treatment of aluminium and the joining of aluminium profiles and sheet offer an up-to-date programme of lectures. The seminars were also well attended in 2009/2010, being almost fully booked with between 20 and 35 participants. The 'Aluminium verständlich' (Understanding Aluminium) seminar, organised in co-operation with Hanover-based Giesel-Verlag, will again be held over two days, in Clausthal-Zellerfeld in November 2010.

In-house seminars conducted for companies at their own location are also increasingly in

demand. For example, a one-day in-house seminar covering alloys, extrusion, corrosion and surface treatment was held at Wernal Profil Technik GmbH in October 2009. Seminars on similar topics, the specific contents of which are always agreed with the companies involved, were also held, including one at the Steinbeis Transfer Centre for Robert Bosch GmbH in Stuttgart.

Guest lectures on the metal aluminium and the latest technical developments were given at various events, such as the forming symposium at Carl Bechem GmbH in Hagen in November 2009 or at a research seminar on



Seminar on extruded aluminium profiles

beam welding of aluminium alloys in Stuttgart in January 2010.

In addition, GDA's specialists make regular presentations on the light metal several times a year at SLV Duisburg's welding technology teaching and testing institute as part of its SFI and aluminium welding training courses.

Specialist library as knowledge base

In addition to the personal advice offered by GDA's specialists, it is possible to carry out on-line literature searches at any time in GDA's library, which contains the most comprehensive collection of German literature on aluminium.

The library is also open to visitors by prior arrangement and with the help of the librarian everyone who is interested will find the information they are looking for there.

Committee work at international level

GDA's Corrosion Chemistry, Roof and Wall, and Automotive Aluminium Extrusion Working Groups – the latter set up in the middle of 2008 – deal with basic technical matters. The results obtained are used to ensure that

aluminium's inclusion in technical guidelines is appropriate for the material and to create or strengthen the metal's acceptance in the different markets.

Roof and Wall Working Group

The Roof and Wall Working Group converts national standards, approvals and codes into the European equivalents that will be valid in future and thus provides support to the users of the products so that they are able to

put them into practice. Data specific to aluminium are processed for the certification of buildings, which is increasingly in demand as a result of the need for sustainable building.

Corrosion Chemistry Working Group

The main subject being dealt with by the Corrosion Chemistry Working Group is the corrosion behaviour of extruded profiles in carmaking, which is still highly topical. In round-robin tests involving the extrusion plants and research laboratories of the alu-

minium industry, test methods and parameters will be agreed upon with the car industry in order to achieve uniform and comparable evaluation criteria; these will then be included in product specifications. In addition, the working group has co-initiated the

research project on the corrosion behaviour of aluminium alloys in fuels containing bio-ethanol that was started in the spring of 2009 and in which the petroleum, car industry and aluminium industries are participating together with automotive component suppliers and tank-vehicle manufacturers. As

this topic will also be of great interest to the aerospace industry in the future, EADS in Ottobrunn is now taking part as well. The basic mechanisms of the corrosion and possible use of aluminium alloys for transport, fuel storage and fuel-delivery parts in cars are being investigated.

Automotive Aluminium Extrusion Working Group

In addition to the usual mechanical properties, design engineers also need data regarding isotropy and deformation like those for steel and aluminium sheet that are already being used in vehicle construction.

In order to obtain these material properties, three OEMs, 16 extrusion plants and four research institutes have joined forces under the leadership of GDA to form the GDA Automotive Extrusion Working Group. The main tasks of the group are the determination of additional material properties for aluminium profiles, the avoidance or reduction of scatter bands for these values between different producers and finally the drawing up of a specification for the manufacture of extruded aluminium profiles for structural car components. The specification, which should be completed by the middle of 2011, will help further optimise extruded profiles for use in carmaking and open up additional opportunities for lightweight construction. This will then facilitate a further weight reduction for structural body applications using aluminium profiles. Furthermore, the field of application for profiles will be extended in order to better utilise the potential that extruded profiles have to offer.

Mechanical testing has already been carried out by the working group on reference cross-sections that were produced by different extrusion plants with their own alloys

and the respective process parameters. In another subproject, the relationships between the process parameters and the mechanical properties and the characteristics of the profiles were determined under industrial production conditions.



Multi-chamber profile offering good crash resistance

The costs for the manufacturing and testing of the extruded profiles are being borne jointly by the participating companies. Test Programmes 1 (extrusion simulation) and 2 (material characterisation) have been completed. Test Programme 3 (determination of additional material properties) is expected to be completed by the middle of 2011.

Topical technical information

AluminiumTechnik, which is published four times a year, provides intersectoral information on current technical developments in the automotive, transport, mechanical engineer-

ing and building and construction sectors and on events related to the individual topics. It is rounded off with information about the latest standards and activities in the sector.

Committee work at international level

GDA represents the interests of its members by involvement in the widest possible range of national and international committees, commissions and associations. In the fields of surface treatment, corrosion, materials and joining processes, GDA is actively involved in the following organisations and associations:

- VOA - Verband für Oberflächenbehandlung von Aluminium
- GSB International - Qualitätsgemeinschaft für die Stückbeschichtung von Bauteilen
- Qualanod (EU) Quality Label for Anodic Oxide Coatings on Wrought Aluminium
- Qualanod (D) Gütegemeinschaft Anodisiertes Aluminium im VOA
- GRM - Gütegemeinschaft für die Reinigung von Metallfassaden
- ESTAL - Association for European Surface Treatment on Aluminium
- DIN and CEN (anodising of aluminium)
- DFO FA (surface treatment of aluminium)
- GfKORR - Gesellschaft für Korrosionsschutz e.V.

Trade associations and standardisation

- BV MatWerk - Bundesvereinigung Materialwissenschaft und Werkstofftechnik e.V.
- EFB - Europäische Forschungsgesellschaft für Blechverarbeitung e.V.
- DSTV - Deutscher Stahlbau-Verband Eurocode / CE-Kennzeichnung Bau

- DIN NAS (welding)
- DIN/CEN Eurocode
- DAST - Deutscher Ausschuss Stahlbau
- DVS / SLV (welding / brazing / soldering of aluminium)
- BDG - Bundesverband der Deutschen Gießerei-Industrie

In addition, GDA's specialists represent the interests of the German aluminium industry at European level in the EAA's Automotive Technical Committee (ATC), Education Technical Committee (ETC), Building Technical Committee (BTC), Structures Working Group, Standards Committee (STC) and Global Advisory Group (GAG).

As a 'Center of Excellence' GDA now coordinates the Structures Working Group (building field) and the Standards Committee directly on behalf of EAA. It thus ensures that there continues to be an exchange of opinions and that a uniform position is adopted towards standards projects within the European aluminium industry and also makes sure that interests are effectively represented within the international standards committees of CEN and ISO.

GDA has chaired the STC since the beginning of 2009 and has administered the GAG secretariat since the beginning of 2010.

Ecology and Sustainability

Time and again there have been climate changes during the Earth's history. There have always been fluctuations between hot and cold periods. These changes took place over longer periods of time and nature was able to adjust to them. However, our climate has been changing at a rapid pace since the beginning of industrialisation and the average temperature of the Earth has already risen by 0.8 degrees Celsius.

In the battle against climate change, ecological issues are high on the political, scientific and industrial agenda. Industry is no longer the sole target group, though. The spotlight is swinging more and more towards the consumers and users of individual products. After all, lifestyle and consumer habits are factors that have a decisive influence on climate change in addition to production.

This has led in recent years to various initiatives to determine the CO₂ balance of products in order to express their ecological impact in the form of a so-called carbon footprint. The major benefit of the product carbon footprint approach is that it makes it possible to reduce greenhouse gas emissions of products and services along the whole production chain.

Responsibilities and obligations to society and consumers are the global tasks that will shape the future of the world's economy more

than ever before. Using raw materials and resources responsibly is a key issue here; and GDA is facing up to this task. It is essential to strike a balance between the marketing-strategic demands of the processing industry and ecologically responsible processes.

The ecological positioning of aluminium and its products is more important than ever. GDA supports its member companies with its specialist knowledge.

Using resources efficiently – by recycling Greenwashing vs green cycling

The conservation of resources is of outstanding importance if the development of our society is to fulfil the needs of the future. Reducing the consumption of resources reduces the strain on the environment caused by emissions and conserves valuable raw materials for future generations. Long before the need for sustainable development was being dis-

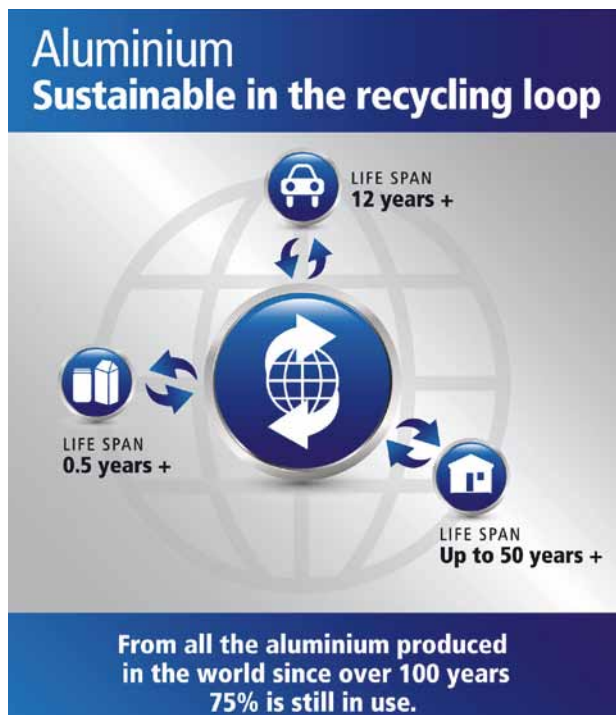
cussed broadly, the aluminium industry had already established an almost closed loop for its metal that included production, processing, use and recycling; not least because scrap aluminium has a high intrinsic value and can be recycled to make new products time and time again without any loss in quality. In Germany, the production of secondary aluminium is now

well in excess of that of primary aluminium. This is also beneficial from an energy point of view: the energy required to melt down aluminium scrap is only five per cent of what is needed to produce the metal in the first place. The closed material loop results in a decisive improvement in life-cycle assessment.

Aluminium's recycling success story has also awoken desires on the part of others. Details about the recycled metal content (RMC) of individual products are increasingly being demanded, for example by building authorities, food producers and drinks companies. Marketing-strategic considerations are be-

hind these demands and lead to slogans like 'household foil made 100 per cent from recycled aluminium' or 'this window contains 40 per cent recycled aluminium'. Such slogans do not stand up to serious examination, though. Almost 200 million tonnes of aluminium are tied up today in products with a life of up to 50 years or more, for example in architecture and building products, so there is just not enough scrap available to satisfy all '100% recycled aluminium' applications. Non-existent production scrap would have to close the gap. The aim of aluminium recycling is simply to return used metal to the loop so that it can be used again. GDA has started an image campaign aimed at promoting this end-of-life recycling approach, which is important for the metal industry, with arguments in favour of it and against the RMC approach.

The campaign is being carried out under the slogan 'Recycling myths: Just eyewash, or genuine sustainability? Greenwashing vs Green Cycling'. With this campaign the aluminium industry wants to inform its customers about the 'green' recycling of aluminium with the aim of closing material loops wherever possible and promoting recycling. Comprehensive arguments were distributed to the relevant target media throughout Europe in the form of an article in German and English. It was widely published and there were numerous positive responses. The article has been translated into French, Spanish and Italian in response to local demand.



Stakeholder dialogue as strategic network

Dialogue programmes have a long tradition at GDA – whether it be with church representatives, schools and teachers or non-governmental organisations. This tradition was also continued in the past two years. The Social Partnership for Sector Dialogue, which was started in March 2007 within the Resource Efficiency Network of the Federal Ministry for the Environment (BMU) as a project between the IG Metall trade union (IGM), BMU and

GDA, was continued. The first phase was completed in 2009 and the second phase is now in progress. The follow-up project has used the findings from the first phase regarding more intelligent and more sparing use of resources in production facilities and by consumers to prepare in-house presentations and posters. Core areas such as recycling, scrap management, training and further education, and innovation as well as product areas such as



building and construction, packaging and transport were identified and processed.

What is novel with this dialogue project is that the employees of an industrial sector have been specifically included in order to promote awareness of using resources both inside and outside the production plants. Employees are being addressed in their dual roles as producers and consumers of goods – and use is thus made of their expertise in the production process as well as the opportunities available to them as consumers to exert their influence on achieving more resource efficiency. The aim was, and still is, to shift the environmental discussion to a factual level and create greater acceptance of aluminium as a material.

It is intended to inform employees and consumers about aluminium under the motto 'Use resources efficiently. With aluminium.' and using slogans like 'So light and yet so efficient; aluminium can always be recycled.' so that they will be encouraged to deal with resources efficiently by using aluminium. The posters contain additional comments. A presentation is also available as background in-



Poster series covering resource efficiency of aluminium

formation. The posters were presented at the IG Metall sector conference 'Aluminium and Non-Ferrous Metals' in June 2010. The aim is to make the posters accessible to as large a circle as possible via GDA, IG Metall and BMU.

UNEP project: Strategic Alliances for Sustainable Development

GDA also participates in dialogue and projects at scientific level. The UNEP Centre for Sustainable Consumption and Production has carried out a value chain analysis using the aluminium industry as an example as part of a Strategic Alliances for Sustainable Development project. Case studies were investigated with respect to existing networks and strategic alliances. GDA was presented as a strategic alliance with a focus on the value chain that had already achieved innovations that were more sustainable. The final report referred to GDA as follows (translation GDA): 'The aluminium

industry lends itself to being a case study for the analysis of fields of activity of strategic alliances for more sustainable patterns of production and consumption. This is due to aluminium as a metal and to the global structure of the industry. Furthermore, the available information base is multifaceted and transparent. And the trade association has a central contact partner and is amenable to co-operation with research facilities.'

The case studies carried out included the following topics:

- sustainability in the planning and operation of bauxite mines
- a programme for reducing emissions of perfluorocarbons
- improvement of sustainability in the transport sector using aluminium
- sector dialogue by means of a social partnership.

GDA also received support from the European Aluminium Association and the International Aluminium Institute.

GDA was also a podium member during the final discussion of the project in May 2010 and was thus able to present the value chain of aluminium with respect to innovations. The discussion was attended by about 60 participants from the field of science and from NGOs.

As always, it is not just a case of major dialogue programmes. Often it is small contacts that are nurtured for years and lead to success more in the form of an ongoing bilateral dialogue. GDA has such contacts in a whole manner of different forms.

LCA as tool for assessing ecological performance of products



Discussions about the ecological performance of products are often conducted in an emotional manner. Subjectivity, preconceptions and misrepresentation are often the consequence. In-depth knowledge only plays a subordinate role here. When it comes to evaluating the ecological performance of a product, life cycle assessments can contribute to objectification. After all, the ecological performance of aluminium products can only be evaluated by considering their life cycles, i.e. from the mining of

the bauxite via the electrolysis through to use and recycling. All steps in the life cycle of an aluminium product have to be examined. Life cycle assessments are a suitable instrument for this. It is only then that strengths become apparent.

The discussion of the ecological performance of beverage cans is far more emotional than it is for any other product. With its expertise, GDA is often consulted when life cycle assessments of aluminium beverage cans are involved. This was also the case with the recently published life cycle assessment of beverage cans commissioned by the can manufacturers and carried out by the Institute for Energy and Environmental Research (IFEU).

Life cycle assessments are time-consuming. They are nevertheless worthwhile. In order to be able to lay claim to being up-to-date they also need to be reassessed at regular intervals. GDA is often involved in these updates in co-operation with its sister organisation EAFA, or currently with etma and AEROBAL. Completely new product groups within GDA are also enquiring about possibility of carrying out life cycle inventories for their fields. They then want their area of production to appear in the life cycle assessment of aluminium products.

Utilising synergies

The size, structure and fields covered by the aluminium industry mean that not every company or sister organisation in Europe is in a position to employ its own experts. GDA has always tried to help wherever possible. In the UK, for example, where very intense discussions on product carbon footprints are now taking place. False approaches that are negative for the aluminium industry are often

cited. This results in hard-hitting technical debates in which GDA provides support under the leadership of the local trade association. The Netherlands is a similar example. Many Dutch scientists are involved in the discussions regarding life cycle assessments and the methods used. GDA is often invited to participate here, too.

Sustainable building – questions and more questions

When it comes to ecological issues, the building sector plays a key role in our industry. Ever more customers are demanding ecological information in order to make a declaration regarding their products or to be able to have them certified. International certification systems have already reached the German market. GDA is on hand to provide help and advice. GDA is also involved in the debate about 'new' approaches to recycling which is currently taking place within CEN Mandate 350 (Sustainability of Construction Works) and providing input. Here, GDA is a member

of the 'Nachhaltiges Bauen' committee, the mirror committee within DIN.

GDA is also positioning aluminium within the Sustainable Building platform of the Federal Ministry of Transport, Building and Urban Affairs (BMVB). Opinions expressed have led to minor corrections being achieved. GDA continues to be a member of the BNVB's round table on sustainable building.

There are other co-operative activities, for example with Austria.

Political lobbying

GDA is also involved in political lobbying together with its umbrella organisation Wirtschaftvereinigung Metalle. Discussions are held with members of parliament and ministries as well as with specialist institutions and public authorities, for example on the subject of aluminium beverage cans. It also covers discussions such as those with the Federal Environmental Agency (UBA) and bifa Umweltinstitut GmbH, which has con-

ducted a review of life cycle assessments of drinks packaging on behalf of UBA. Attitudes towards the beverage can have now changed. Recycling is more and more to the fore, whereby it should be pointed out that as a result of increasing recycling rates there is less rubbish in the streets and the ecological performance of the aluminium beverage can has changed accordingly.



Library and Training

Library offers searches online and ordering service

GDA's compressive reference library contains the latest articles from the established specialist journals as well as historical material on aluminium and is thus one of the top addresses for conducting searches relating to the metal. The library's archives stretch back to the 1930s and it is one of the largest German libraries covering the specialist field of aluminium and one of the largest of its type worldwide. In addition, the library also documents information on magnesium and titanium.

The reference library holds 3,500 specialist books, 8,000 articles, numerous research reports and reports on congresses and conferences and 4,000 bound volumes of periodicals.

The topics are categorised into 25 main groups and over 1000 sub-groups. Over 90 national and international specialist journals are evaluated regularly and the data transferred to the database. Topics covered include the aluminium industry, the extraction of aluminium, material properties, metallurgy, materials testing, corrosion, primary processing, heat treatment, mould casting, chipless forming, machining, joining, design, surface treatment, uses, building and construction, chemical engineering, food, packaging, electrical engineering, transport and defence technology. The literature database is thus growing continually and is updated daily for online access.

The contents of the library can be accessed online via a link on the GDA homepage. Online access and searches in the online catalogue are free of charge. Visitors can conduct searches in titles and abstracts or carry out systematic searches. Articles can be ordered directly online for a fee. The article is then sent by post in paper form to the customer. By prior arrangement, the library is accessible to

all interested parties without any restrictions. This applies both to personal visits and online access.

Since the end of 2008 there has been co-operation with the information centre of the Bundesverband der Deutschen Gießerei-Industrie (BDG) in Düsseldorf.



Comprehensive range of teaching materials

The educational tools issued by GDA, such as the case, folders and the metal-processing courses for use in teaching and vocational training, are being increasingly used in schools and companies. The materials are now being used in Austria, too.

GDA has produced two teaching DVDs about aluminium in co-operation with MedienLB, Munich, the producer of media for curricula and standards of education. Both DVDs are available in German, English and Turkish.

The Aluminium I DVD offers an easy introduction to the subject and is the optimal companion where teaching of the light metal is involved.

The Aluminium II DVD graphically describes the whole material chain from the extraction of the aluminium oxide and the production of primary aluminium through to downstream processing, use and recycling.



DVDs for teaching chemistry

Current programme of publications

GDA's comprehensive programme of documentation is continually kept up to date. Technical documentation and image brochures are also continually updated and extended to include topics of current interest.

Education and training

GDA is also supporting the KEMIE project, which enables children to experience chemistry with their parents and get them interested in the topic at an early age; it is part of 'Didactics of Chemistry' at the Ruhr-Universität Bochum.

Outlook

GDA's comprehensive range consulting and other services will also strengthen the image of the metal and promote its acceptance by the various target groups in future. The actions and measures taken by GDA are aimed at communicating the benefits of aluminium, also in competition with other materials, and increasing the use of the 'material of the future'. The basis for this are continual media work, a competent advisory service and presence at important trade fairs.

Aluminium in education and training

GDA plans to further strengthen its education and training activities relating to the metal aluminium. The target group comprises primarily students at universities and vocational schools as well as employees of the alumin-

ium and aluminium-processing industries. GDA will also continue its programme of training courses for school teachers at member company's plants.

Continual media work

GDA will intensify and foster its personal contacts with journalists in future and thus ensure that the metal, the industry and the trade association are positioned in the important publications of the business, trade and popular press.

Trade fairs and events



In 2010/2011, GDA will again be presenting the information and services it has to offer at trade fairs and other events, where it will maintain its dialogue with fabricators and end-users of the light metal. In the spring of 2011, GDA, EAFA, etma and AEROBAL will have a joint stand at the interpack trade fair, the leading fair for the global packaging industry. In the autumn of 2011, GDA is planning the European Aluminium Congress.

Basic technical information about the metal

GDA's *Technical Informations* offer customers and users in-depth information on special topics. *Technical Information 04*, which deals with anodised aluminium for decorative purposes, and *Technical Information A8*, which covers sinusoidal alu-

minium profiles, are currently being revised. A start has also been made on the revision of *Technical Information V6*, which deals with the adhesive bonding of aluminium. There are also plans to produce a *Technical Information* covering mechanical joining.

Specialist seminars for the sector

GDA's well-established seminars covering surface treatment, extrusion and joining will again be held in the final quarter of 2010 and the first quarter of 2011. GDA's specialists will also be available for in-house seminars.





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Imprint

Publisher

GDA - Gesamtverband der Aluminiumindustrie e.V.
Am Bonneshof 5
40474 Düsseldorf
Germany

Layout

Sektor GmbH, Düsseldorf

Printed by

Das Druckhaus, Korschenbroich

Photos

Aerocan UK Ltd., Wiltshire, England (18)
Boxheimer Architects, Viernheim (1, 32)
F.W. Brökelmann Aluminiumwerk GmbH & Co. KG,
Ense-Höingen (1)
GDA - Gesamtverband der Aluminiumindustrie e.V.,
Düsseldorf (7, 22, 24, 26, 35)
HONSEL AG, Meschede (1, 13, 27)
Hydro Aluminium Deutschland GmbH, Neuss (1)
LINHARDT GmbH & Co. KG, Viechtach (18)
Christian Lietzmann, Berlin (22*)
Plus Pack AS, Odense, Denmark (18)
Reed Exhibitions Deutschland GmbH,
Düsseldorf (1, 14, 23, 37)
Sapa GmbH, Düsseldorf (1)



Aluminium for Future Generations



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