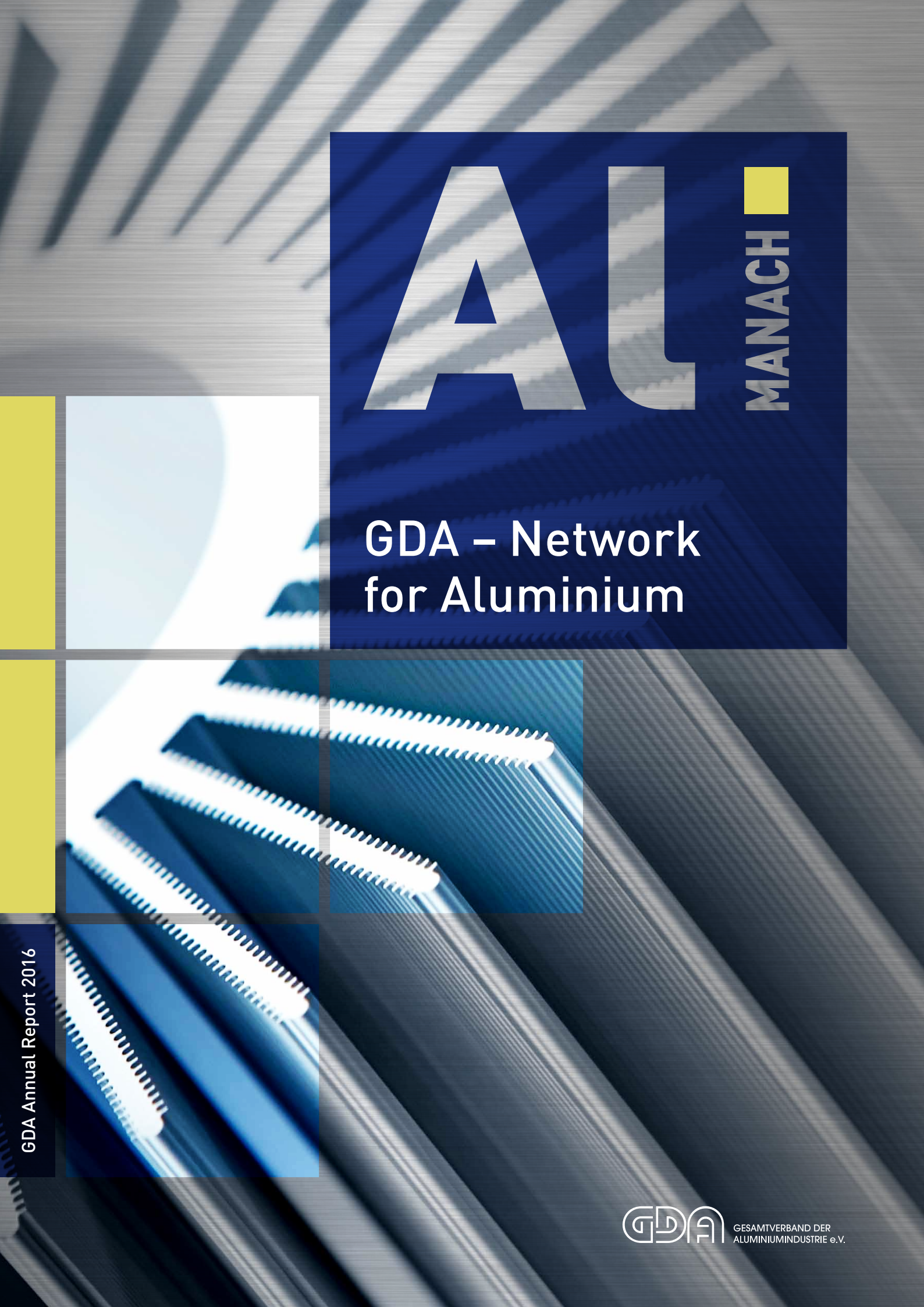
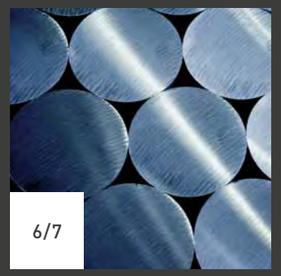


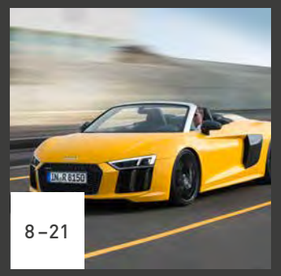
GDA – Network for Aluminium

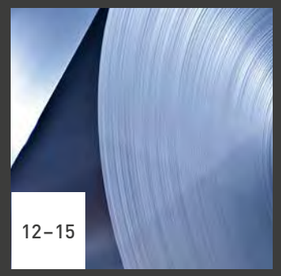
GDA Annual Report 2016

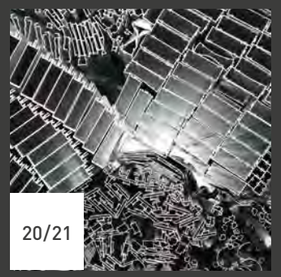
GESAMTVERBAND DER ALUMINIUMINDUSTRIE e.V.

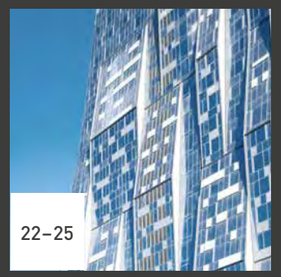
Contents

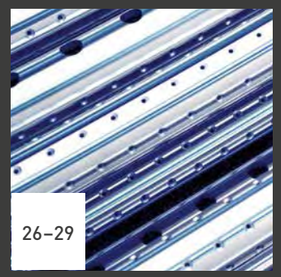


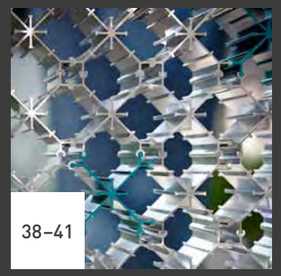












4/5
Editorial
United we achieve more

6/7
Market
Overview of the aluminium industry

8–11
Transport
Transport network – cooperation then and now

12–15
Transport
The AMAP approach to national and international cooperation

16–19
Recycling
We, the networkers

20/21
Recycling
Recycling of used aluminium products – it's the network that counts

22–25
Building
Network: corrosion, building

26–29
Building
Ban on chromium (VI) – is the market prepared for it?

30–33
Packaging
A network beats Google

34–37
Sustainability
Globally linked with a solid foundation

38–41
Education & Training
Network for the future – education and training

42–44
Communication
Trade associations are networks, communication is the link

45–47
Interview
D-A-CH – An Alliance for Aluminium

48/49
Market
Business activity in the aluminium sector in 2015/16

50/51
Statistics
Statistics

52/53
Services
Services from GDA: quick, competent, informative

54
GDA
GDA – Gesamtverband der Aluminiumindustrie e. V.

55
Committees
Committees

IMPRINT

Publisher:
GDA – Gesamtverband der Aluminiumindustrie e. V.

Am Bonneshof 5
40474 Düsseldorf

www.aluinfo.de

Layout:
DMKZWO GmbH & Co. KG, Köln
www.dmkzwo.de

Print:
das druckhaus, Korschenbroich
www.das-druckhaus.de

Cover:
BEHRENDT & RAUSCH FOTOGRAFIE

The aluminium industry is regionally rooted, has a global presence and is increasingly subject to European as well as international regulations. GDA works together closely with national and international partner associations in order to provide its members with optimal support.“

Christian Wellner, GDA Executive Member of the Managing Board

The long-term success of the metal and the industry depends on new solutions and new products. I am very optimistic that both the sector and the metal will master this challenge and in ten years’ time they will be even better placed than they are today.“

Dr.-Ing. Hinrich Mählmann, GDA President

United we achieve more

Economically, the German aluminium industry was stable and in good overall shape last year.

Economically, the German aluminium industry was stable and in good overall shape last year. Growth expectations are characterised by cautious optimism, the prospects for the sector in the medium to long term are positive because global demand for aluminium is increasing constantly. Domestic demand is being driven in particular by our export-intensive user industries – for example the car industry, where production levels are still high despite concerns regarding a crisis. Other consumer-orientated markets in Germany are also stable. There are no signs of a serious collapse in demand.

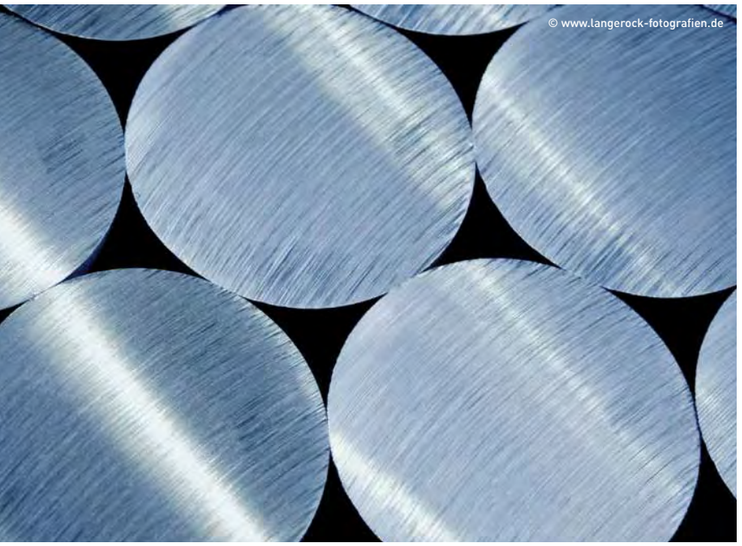
Our industry’s engine is running smoothly. Aluminium has outstanding opportunities in the most varied range of fields of application and sectors. The metal has not only developed into an innovative material in automobile engineering: the demand for aluminium will also increase in other mobility applications, such as aircraft construction, shipbuilding and rail vehicles. In the aerospace industry, for example, aluminium is and remains the dominant material and will continue to be the technology driver for the industrial use of aluminium. Although as in carmaking our metal is also subject to competition from other materials in aircraft construction, we have good opportunities there for further growth. The prerequisite is that we conduct research and development on alloys that exhibit the properties needed. Given the demographic development, we are also optimistic about prospects in the packaging sector.

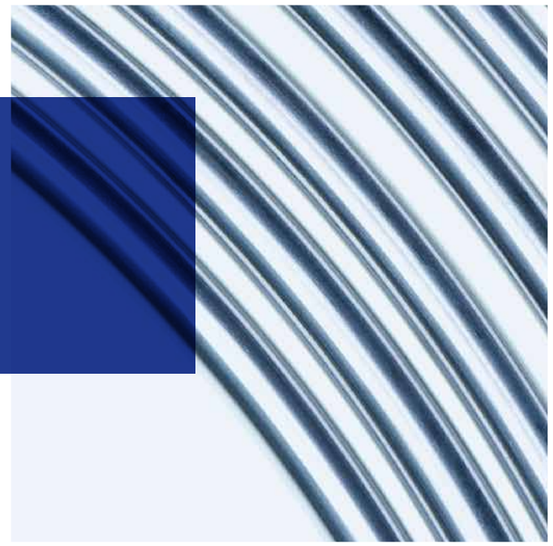
Overall, market conditions for the German aluminium industry have changed markedly in recent years: competitive pressure is increasing worldwide and the challenges for the sector are growing. It is not just competition with other materials that is giving cause for concern but also the fact that China, the world’s largest producer of aluminium and semi-finished aluminium products, could expand its exports to Europe. In order to be able to assert ourselves against global competition, we have to be in the vanguard when it comes to product development as well as the development of production processes. We have managed to achieve this so far and we are confident that we will be able to achieve it in future too. Nevertheless, we need to direct our attention more strongly to joint research and development at the pre-competitive stage than has hitherto been the case. In doing so, it is important to interact with our clients and universities and their research establishments.

Recycling will play an important role in maintaining the viability of the German aluminium industry in future. Used aluminium is a value source of raw materials for supplying metal to the processing plants, especially in a region with few natural resources like Europe. In times of dwindling reserves of raw materials and scarcer – and above all more expensive – energy, the importance of recycling resources and materials is growing. The slogan ‘Aluminium is used and not consumed’ sums up much of what the metal, its processing and the sector represents.

Cooperating means multiplying. In the modern industrial landscape there is no sustainable success without strategic cooperation. GDA works together closely with national and international organisations in order to be able to provide its members with optimal support. As the most important national aluminium association in Europe, GDA has access to a high-quality network. GDA cooperates at all levels with partners from the economy, science and politics and maintains close contacts, which result in innumerable opportunities for cooperation.

Encouraging networking, gaining clients and capturing markets: we pursue these objectives in order to be united and achieve more. Under the guiding theme ‘GDA: Network for Aluminium’, the GDA Annual Report 2016 will present GDA’s cooperation and its networks and document the key activities of the past year. To this end, GDA’s division heads report on their experience in cooperating with partners from the aluminium industry, clients, suppliers, universities and other institutions. In guest articles, some of our network partners describe their experience in cooperating with the metal and the trade association. ■





Overview of the aluminium industry

Economic environment difficult in 2015/developments in core markets positive for 2016/sector continues to be optimistic!

Overall, 2015 was a mixed year for the German aluminium industry. Although there was increased production in the primary aluminium, secondary aluminium, aluminium casting and aluminium converting fields, production of semi-finished aluminium products declined.

Turnover in the German aluminium industry in 2015 totalled 15.5 billion euros. Plants were thus able to expand their turnover by two per cent compared with the previous year. The development in turnover is closely linked to the quoted price for aluminium on the London Metal Exchange. Metal prices tended to decline during the course of the year and thus lessen the growth in turnover.

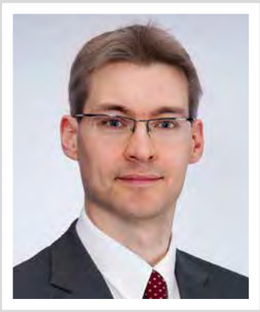
Macroeconomically, the aluminium industry plays an important role in the German economy. In 2015, its some 600 plants provided employment and income directly for 74,000 people. These plants include small businesses and medium-sized enterprises as well as international concerns. Further positive impacts on employment are generated by the branches of the economy linked to the aluminium industry.

The transport sector is the dominant segment of the German aluminium market. With a market share of 48 per cent, it accounted for almost half of total demand in 2015. The building and construction and packaging sectors together accounted for just over a quarter of demand. A further 14 per cent was attributable to mechanical and electrical engineering. The remainder went into office equipment, household goods, the iron and steel industry and other end uses.

Export markets play an important role in the development of the aluminium industry. The most important trading partners are the other member countries of the European Union. In 2015, positive economic development in the United Kingdom in particular contributed to the German industry's export successes, while customers from France and Italy demonstrated a greater reluctance to buy. Overall, exports were an important pillar for German aluminium producers in 2015.

The German aluminium industry is cautiously optimistic with regards 2016. Although the dynamics of the global economy have weakened, an increase in the growth contributions from Europe and the USA are forecast. Furthermore, the expectations from important client segments of the European industry as well as in building and construction are showing a positive tendency.

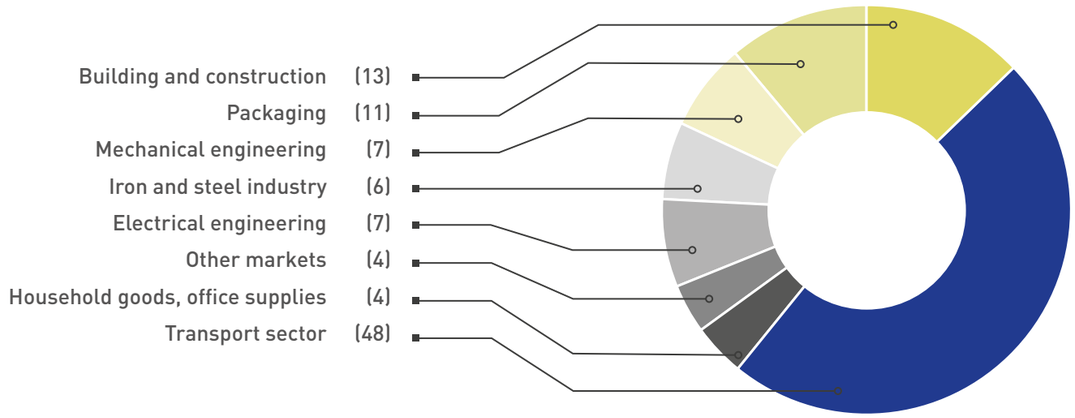
For Germany, most economic institutes and analysts are expecting a similarly positive development. However, the geopolitical risks have increased and have led to some uncertainty about future business development. Nevertheless, the expectations for the German aluminium industry for the whole of 2016 are slightly positive. ■



Dr. Andreas Postler,
Head of Economics and Statistics

"In the second half of 2016, business activity in the aluminium sector should continue to be good. Increasing demand for aluminium from the aviation industry and expanding markets in the automotive sector is continuing to maintain sentiment."

Main markets for aluminium in 2015 (in %)

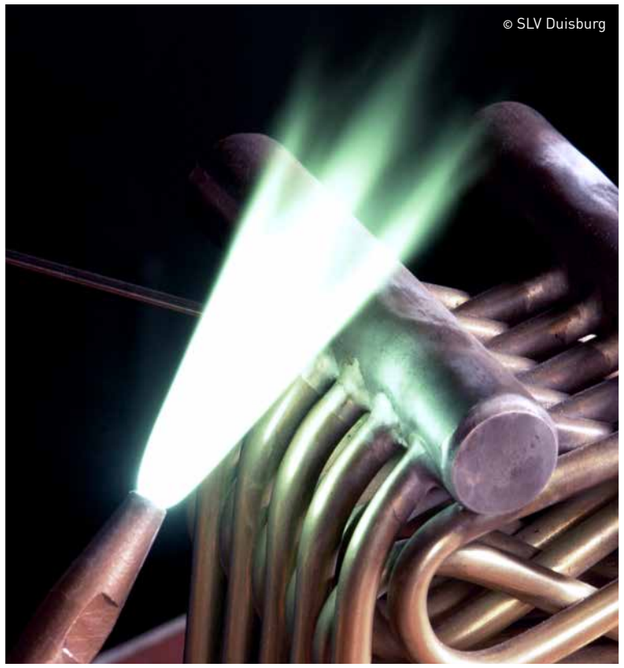


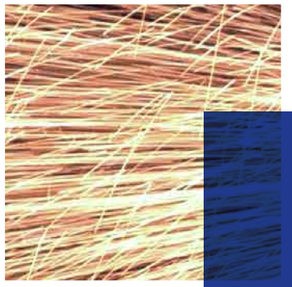
TRANSPORT

Transport network – cooperation then and now

Long-term cooperation in research and development as well as in user industries creates a solid foundation. New partnerships are constantly enlarging the network.

Even though long-term cooperation is not unusual for GDA, we were surprised to discover somewhat by chance while preparing a seminar on joining in 2010 that SLV Duisburg (SLV Schweißtechnische Lehr- und Versuchsanstalt, a welding institute) and GDA (or earlier Aluminum Zentrale) had already been cooperating since 1960, which meant the cooperation had already lasted for more than 50 years. The aim of the agreed cooperation was, and still is, to provide mutual support in the education and training of personnel in the fields of welding, soldering and brazing, and increasingly today cold joining of aluminium alloys.





Pre-competitive cooperation with OEMs

The long-term cooperation with the SLV is one of numerous examples of cooperation between GDA and institutions and organisations from the research sector and the transport industry. Since 2008, for example, very intensive cooperation has developed with car manufacturers and the German Association of the Automotive Industry (VDA) and this is currently being implemented in numerous working parties and study groups. The aim of the joint pre-competitive effort is to define standardised grades of semi-finished aluminium products for the automotive industry, to prepare appropriately harmonised product requirements for OEMs, and to develop commonly applied test specifications for the standardised determination of alloy or semi-finished product properties.

Typical examples would be the so-called PuD Aluminium, which is a test and documentation guideline for the empirical determination of the mechanical properties of rolled aluminium alloy products for CAE calculations, the revision of VDA 238-100 covering the plate bending test, and the development of a test and documentation guideline for the joining of aluminium. The results of interlaboratory comparisons were used to optimise the method for measuring the layer thickness in titanium-zirconium pre-treatment and a test method for evaluating the roping effect of aluminium body sheet.

Closely networked with research

GDA's membership of research associations like the Research Association on Welding and Allied Processes of the German Welding Society (DVS) and the European Research Association for Sheet Metal Working (EFB) means it is closely networked in the field of research. By participating in the committees of these associations, it is involved in determining the focus of research and in discussing and evaluating project outlines (research proposals). For those research projects involving aluminium-relevant topics (e.g. from AiF or IGF) that have been approved, GDA is an important contact for the institutes carrying out the work and actively participates in the respective project steering committees.

Research atlas of lightweight construction with aluminium

Lightweight construction is becoming increasingly important. GDA has already taken this into account and in 2013 together with the Institute of Forming Technology and Lightweight Construction (IUL) at Dortmund University began preparing a research atlas of lightweight construction with aluminium and establishing a network of competence in lightweight construction. The www.alu-leichtbau.de website, which already exists but is still under development, is intended to give the aluminium user an overview of completed research projects involving aluminium that were supported by public funds together with information on the research associations involved and the institutes that executed them.

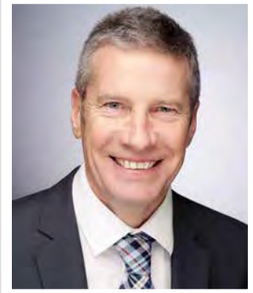
Since 2015, the growing importance of lightweight construction has also been taken into account by an initiative of the state of North Rhine-Westphalia (NRW) to boost lightweight construction in the state and an initiative of the Federal Ministry for Economic Affairs and Energy, which began to prepare a nationwide atlas of competence in lightweight construction at the end of last year.

Thanks to its presence in the executive committees and active participation at a working level, GDA is involved in both initiatives and will accordingly contribute its expertise and its own ground work on the subject of lightweight construction.

alu leichtbau netzwerk

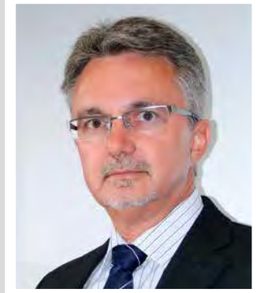
The NRW initiative is based on existing models, for example in Bavaria or Baden-Württemberg. Its aims are to make competence in non-material-specific lightweight construction in the state of NRW and the companies located there more evident, to boost existing cooperation and to initiate new ventures. The plastics industry, the steel industry via the Association of German Steel Manufacturers (VDEh) and the aluminium industry via GDA were instrumental in preparing the recommendations for action to intensify lightweight construction in NRW. Both initiatives make it clear that the idea of a network for lightweight aluminium construction developed jointly by IUL and GDA is the right approach. ■

GDA ■ TRANSPORT



Wolfgang Heidrich,
Head of Transportation, Engineering, Standardisation

„In the field of research, GDA is closely networked with various research associations via its member companies.“



Dr. rer. nat. Klaus Vieregge,
Head of Research and Development,
Hydro Aluminium Rolled Products GmbH

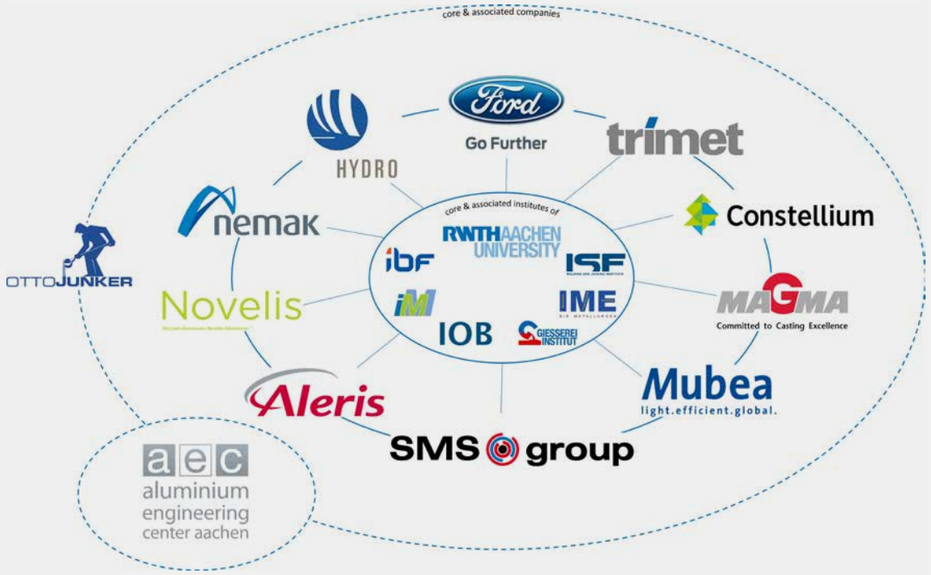
Build bridges and move forward – the AMAP approach to national and international cooperation

As an open innovation research cluster, AMAP's aim is to bring together the world of industry and the universities.

AMAP and GDA to intensify their cooperation

It is intended to extend the previously intermittent cooperation between AMAP and GDA to continuous cooperation from 2016 onwards.

In order to also place these joint activities on a formal basis, mutual sponsoring membership has been agreed between both organisations. Joint aims include, for example, the promotion of research in the field of aluminium.



The AMAP (Advanced Materials and Processes) research cluster was established in Aachen by ten international companies and four institutes of the RWTH Aachen University to achieve close cooperation in research between industry and universities as part of joint developments in the field of non-ferrous metals. All of the partners are well aware that without networking from the start it is no longer conceivable to undertake research and development work and that this will no longer be competitive in future.

However, there are considerable differences and challenges when it comes to the practical implementation, especially in an interdisciplinary development when there is a situation like the one that exists today with eleven industrial companies and six university institutes that want to work together on fundamental topics. This can cause a collision of different worlds that have to be taken into consideration without affecting the competitive advantage of joint development. In an open innovation research cluster, as is the case with AMAP, the aim is to bring together the world of industry and the universities and the AMAP example shows how this can be achieved by combining the respective company interests with focussing on common development objectives.

The problem

The different guiding principles of the company philosophies may well bring with them potential for tension. The underlying technological conditions are changing ever more rapidly, and technical advancement as well as the global pressure to bring innovative solutions to market early are increasing. These are reasons for seeking national cooperation within a research cluster and expanding it internationally.

Approaches to solving the problem

Despite the diversity of company strategies, there are definitely also similarities. Sharing knowledge and getting involved in joint projects is just as important as allowing findings and results generated to be integrated in new, profitable cooperation. In all cases, the wishes, expectations and needs of each individual partner must be understood and mutually agreed. Consideration is given to all sides in the cooperation by means of suitable drafting of contracts, customised rules for the cooperation and a clear definition of programme goals, and work and time schedules, with a selection of milestones that are easily understandable in terms of time.

The documentation of the results of the work is accessible to each project partner on a joint communication and cooperation platform and is thus useful for tracking work progress and planning further project steps. It means progress of the development work is transparent for all partners involved. The cross-project dialogue and the support of the innovation drivers, who are addressed via our organisational and communication channels, are ground-breaking. We differentiate between several levels that interact continuously; these include the team level with personnel from the industry and universities, the steering level with experienced technical specialists and the advisory level for the cluster strategy.

AMAP has an organisation with clearly defined fields of responsibility, clear core processes and cross-company and cross-institute teams with a mixture of experience and youth. Projects are important elements for implementing the cluster strategy. In order to strengthen the mutual exchange of projects, there is not only a joint information platform but additionally team members, project leaders and experts from the participating companies and or institutes meet regularly to exchange results, activities and needs with one another. The cluster management brings the projects together in a project portfolio that is a key instrument for managing the implementation of the strategy. The individual project leaders are responsible for project progress reports and project-specific communication and the members of the advisory board are responsible for preparing, developing and reviewing the project portfolio.

Modeling:

- Material properties
- Product properties
- Casting, Forging heat treatment (Through process modeling)

Product and material development:

- Surfaces
- Alloy development
- Coating

Metallurgical process technology:

- Melt treatment
- Measurement technology
- Recycling of metal
- Melting and refinery processes

Production technology:

- Casting
- Forming
- Joining
- Heat treatment

AMAP offers strategic and operative added value at all levels with topics for cooperation via support by experts and an infrastructure that has access to information. This makes it possible to exploit innovation and development potential by means of greater use of cluster synergies via multinational networking. At the same time, we concentrate important players in Aachen and offer outstanding conditions because of its proximity to the institutes of the RWTH Aachen University. AMAP strengthens its market position by means of a clear, strategic, holistic approach and by promoting innovation through goal-oriented events that are held regularly, like colloquia, workshops and information days.

AMAP aims to achieve sustainability and the establishment of long-term relationships by means of trust, respect and clear communication. The development and continual updating of an overall concept plays an important role. Here, newly developed key technologies and cross-sectoral issues have to be continually identified and classified and coordinated with other institutes, universities and new interested parties from industry.

AMAP is geared to the interests of industry and the new developments of the university institutes. The cluster is oriented towards the whole process chain from 'charge material via component through to recycling for non-ferrous materials' and this strategy involves all partners.

AMAP pursues a network approach; the cluster partners exchange knowledge and information voluntarily in order to generate and implement innovation cooperation and further measures. Jointly agreed target figures use best practices from other clusters adjusted to the specific situation at AMAP.

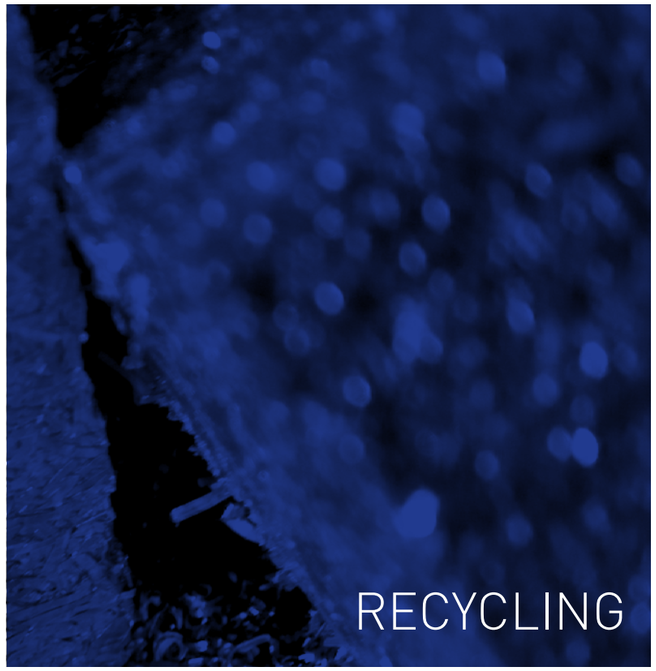
Summary

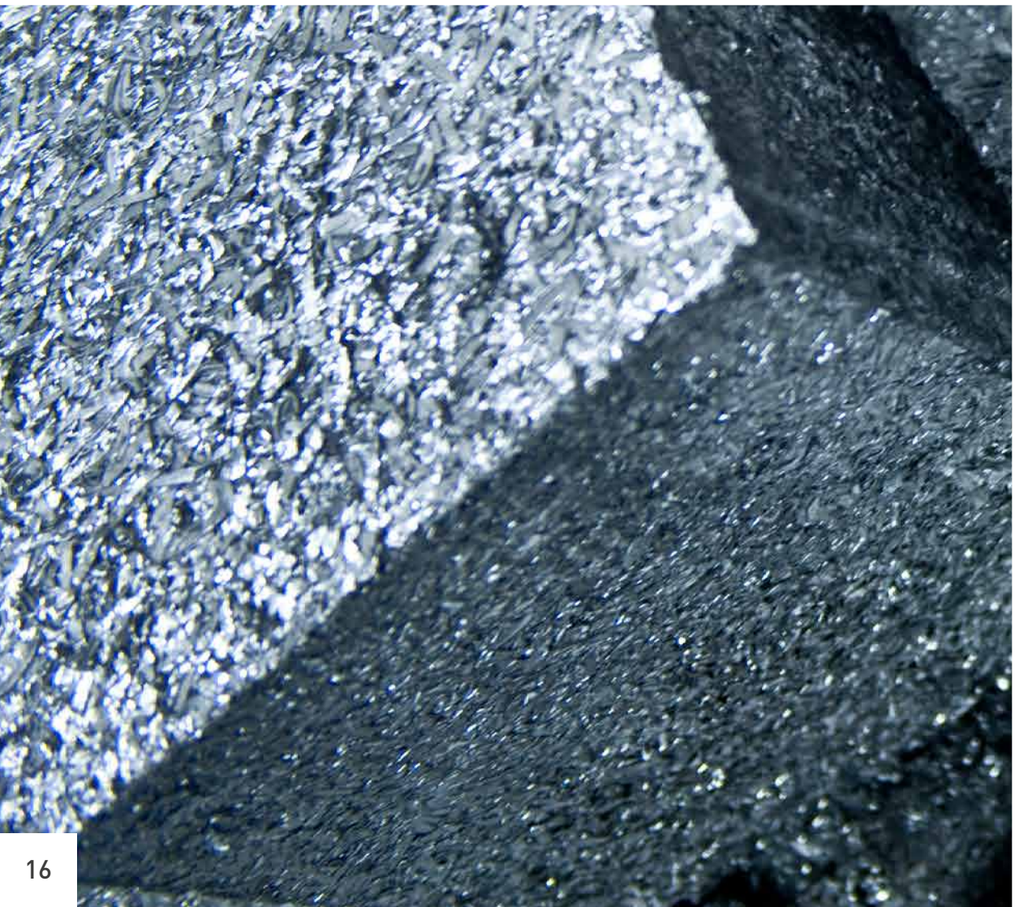
Our success factors are based on safeguarding and consolidating market position and competitiveness in all areas of the value chains for non-ferrous metals and processes:

AMAP initiates innovations and technical advancements at an early stage. AMAP hones its own competency profile in a market-driven manner. AMAP has already developed common values and cooperation standards. Integrating these is both a technical and an organisational challenge, which brings with it potential for further optimisation and thus efficiency gain. Is your company interested in cooperating in development processes? Then contact us at: info@amap.de. ■

Jörg Schäfer,
Head of Recycling and Sustainability,
Head of Metal Powder

Networks must be nurtured continually. Unilateralism and obstinacy are counterproductive. It is give and take that counts.“





We, the networkers

The dictionary definition of a network is ‘a group of people who exchange information and contacts for professional or social purposes’. What does this mean exactly? It will be illustrated here using examples from the fields of aluminium recycling and metal powder.

First of all, it should be noted that GDA offers a sound basis for collecting, collating and specifically processing information about our metal, our products and our industry thanks to its numerous aluminium industry members as well as its internal structure. Sources of information are the industry itself as well as other relevant institutions, such as science, standardisation, non-government organisations, trade associations and politics. An essential element in this context are the diverse international partnerships that GDA maintains – whether it be in Europe or worldwide.

Activities associated with aluminium recycling are embedded in this structure. Although this subject has a long tradition within GDA, the integration of the Verband der Aluminiumrecyclingindustrie (VAR) into GDA and with it the establishment of the Aluminium Recycling trade association and its complete integration as a division of GDA did not occur until 2013. In Europe, this field of activity is closely linked to European Aluminium's Recycling division.

The exchange of information regarding topics related to European legislation plays an important role here – permitted lead contents, recycling industry and waste management, and emission limits just to mention some of the most recent relevant topics. The outflow of scrap from the EU is also high on the agenda. GDA committees promote competitiveness, sustainable development, quality management and standardisation for the most part in Germany, but this does not rule out the resultant findings, experience and developments also being of importance and used elsewhere in Europe or even worldwide.

Networking is give and take

The interlaboratory comparison of the determination of the chemical composition of aluminium alloys based on spectroscopic analysis (spark spectroscopy) is a good, concrete example of the use of the network at the level of a GDA working group. Basically, samples of aluminium alloys – one cast alloy and one wrought alloy – travel round Europe where they are tested in laboratories, and not just in those belonging to our members. The participants include insurance companies, clients, universities and other research establishments. Even the authorities can participate in the interlaboratory comparison. The only limit is the number of participants, which should not exceed 25. The overall objective is to optimise quality management. After all, when one analyses aluminium samples there is – at least theoretically – only one possible result. However, the fact that 25 participants determine the composition of an aluminium alloy 25 times, mostly using different methods, reflects the reality. Nevertheless, each participant is in a position to classify his or her own measurements on the basis of the overall result, also with respect to whether or not tolerances have been observed. This is not only important when complaints are received but also to enable one to obtain one's own points of reference with respect to performance and thus to assess the accuracy of an analysis that one has carried out oneself.

In the interlaboratory comparison there is ultimately a panel of experts that evaluates or scrutinises the results. The participants receive a report on the results that is not only of significance for in-house quality management but also promotes communication with the client and ultimately strengthens one's own position. Networks are thus a matter of give and take – those who participate in the test provide and receive information. In the previous interlaboratory comparison the sample passed through five countries in Europe before coming back to GDA. Basically, the test is open to a large number of interested parties. However, because of demand, the procedure adopted is in accordance with the principle: first come, first to have a chance to participate.

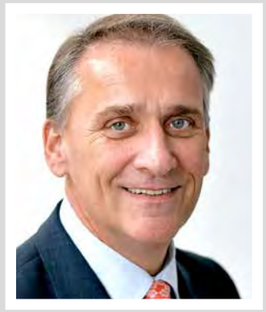
Global network – coordinated by GDA

The field of metal powder also provides a concrete example of a global network. Important content-related aspects in this field throughout Europe are coordinated within GDA. The main fields of activity are legislation, standardisation and quality and safety management. There is no European umbrella organisation; the association's work and networking is carried out within GDA. Important partners at association level are the Aluminium REACH Consortium of European Aluminium, Wirtschaftsvereinigung Metalle and Eurometaux.

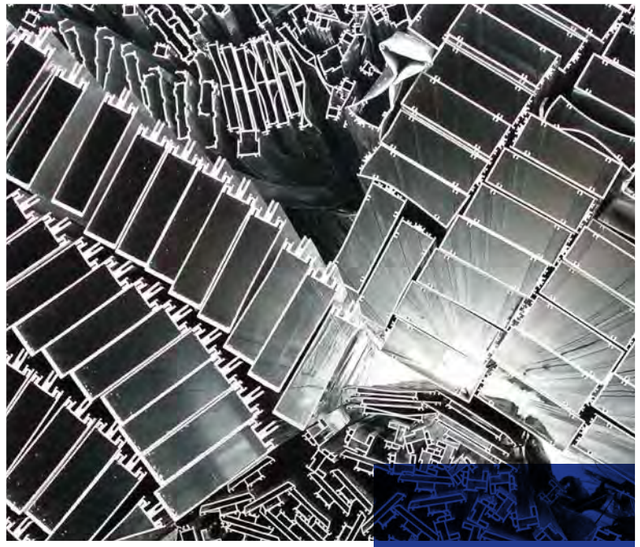
Particular attention is given to the subject of safety. The traditional, close relationship with the Aluminum Association of the United States serves as an important basis here. This cooperation has developed over decades. Every two years GDA organises a Safety and Health workshop in collaboration with partners from abroad, which is held alternately in the USA or in Europe. Under the motto 'Safety During Handling and Production of Aluminium Powder Affects Us All' participants report on and discuss their own experience with the aim of preventing accidents. Companies from Asia and Latin America have also been welcome guests at the workshops. The participants have to take part in the presentations and discussions. Here, too, the network and the workshop thrive on the contributions of the participants.

A proactive approach by the sector and the association is important. The work of GDA regarding metal powder is unique in Europe, if not worldwide. Long-term, well maintained and established contacts are important pillars for the success in the powder field as well.

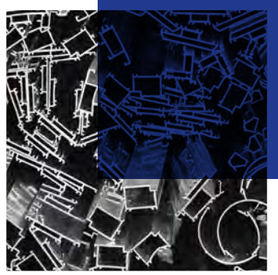
The dictionary definition of a network is 'a group of people who exchange information and contacts for professional or social purposes'. What the dictionary definition does not emphasise is that networks are not static. Networks must be nurtured continually. Unilateralism and obstinacy are counterproductive. It is give and take that counts. These examples from work in the fields of aluminium recycling and metal powder make this clear. ■



Thomas Reuther,
Board Member, TRIMET Aluminium SE



© TRIMET Aluminium SE



Recycling of used aluminium products – it's the network that counts

Metal trading is the important link between collection and melting of scrap.

Aluminium scrap is one of the most economically valuable secondary raw materials. Its recovery and recycling conserves resources and makes an important contribution to limiting the increase in greenhouse gases. The aluminium industry therefore has a vested interest in keeping existing scrap in the material loop. Every step towards optimising the material loop counts and every link in the network is of crucial importance. It begins with collection and ends with remelting. Nevertheless, a lot happens between collection and the melt, particularly with post-consumer scrap: before the scrap can finally be melted down and processed into new products, it has to pass through a mechanical processing stage several times – it is shredded, sorted, compacted, delacquered and/or de-oiled. Sometimes untreated scrap is charged directly into the melting furnace – whether it be a twin-chamber furnace, in which the adherent organic substances are stripped thermally, in batch furnaces with upstream stripping or in rotary-drum furnaces, in which contaminated scrap is melted down with the addition of salt. The well-coordinated network involving the aluminium industry and the metal trade is of fundamental importance in the material loop.

Car recycling as an example

In the case of end-of-life vehicle recycling, the steps involved from collection through to the smelter are as follows: vehicles are taken off the road and brought to a dismantling plant where they are drained and cleaned to remove ecologically relevant substances. 'Serviceable' parts are removed if necessary. The end-of-life vehicle is compacted and subsequently reduced to small pieces in a shredder. The aluminium still present goes through these steps. Eddy-current separators are then used to separate aluminium from the other fractions. From a metallurgical point of view, this results in a cocktail of different alloys which metal traders return to the smelters. Recycling thus realises further potential CO_2 savings to add to the CO_2 savings made during the use phase of the vehicle.

The aluminium obtained in this way from a component weighing about 20 kg for example emits some 150 kg less CO_2 than during the production of aluminium via electrolysis. However, many vehicles from Germany end up abroad – especially in Africa, the Middle East and the former Eastern Bloc. Looked at globally, this aluminium has not been removed from the material loop, but locally it has – in this case at least in Germany.

One possible optimisation might be to sort the cocktail from the shredded aluminium fraction even further in order to separate the alloy groups according to alloying elements, such as zinc or copper. This allows the scrap to be used more flexibly.

Used-can scrap as an example

Since the introduction of the deposit system, the recycling of used beverage cans has been optimised continually. Today, some 96 per cent of the beverage cans are collected. The consumer is an important part of the functioning network and returns the used can. Used cans are returned to a reverse vending machine located in the supermarket or manually at the filling station. The beverage cans are machine-compacted and the retail trade sends them to the refiner. This material stream is already defined by the beverage can alloys. The recycling of a 15 g aluminium beverage can means a reduction in emissions of some 120 g CO_2 compared with production via electrolysis.

The metal trade as an important part of the network

The question arises as to who will be 'credited' with the potential savings in emissions and energy: the processing plant, the trade or the refiner? The answer is simple: it is a property of aluminium that brings about this potential. Every step in the recycling chain and every player in the network makes a contribution towards realising this potential.

The metal trade has an important role to play in the supply chain between collection of the scrap and its melting down. It purchases the most diverse range of scrap, sorts it and brings it to the place where it is required. The metal trade partially processes the scrap in that it shreds it or compacts it: these tasks might also be carried out by recycling or disposal companies that undertake the processing and sorting together with melting down. The main thing is that the network functions properly.

The metal trade has the job of making scrap available at the desired place at the right time and with the desired composition and in the required quantity.

Optimising the scrap potential further

Besides the metal trade, the scrap industry also has an important role to play in the network when recycling scrap aluminium. The material that is returned today is heterogeneous in many ways when it comes to purity and alloy type. It might therefore be more important in future to use modern sorting technologies to remove foreign materials from the material stream and charge scrap specifications that are as homogeneous as possible into the melting furnace.

Nowadays, primary aluminium and alloying elements are often added to the molten aluminium scrap to obtain an end product with the desired composition. As a rule, the more one melts down scrap that has been sorted according to material type, the less virgin metal one needs to add and the smaller the addition of alloying elements required. It is important to also include sorting processes in the network. ■

BUILDING

Werner Mader,
Head of Surface Technology,
Corrosion and Construction

For over 30 years, aluminium industry experts have provided an industry-internal platform via the GDA 'Corrosion Chemistry' working group."

Network: corrosion, building

Nothing endures but change. This finding is not something new: Heraclitus of Ephesus (540 – 480 BC) already came to the same conclusion as he reflected on the important things in life.

Only the speed with which the world is changing at the moment is different, accelerated as it is by information technologies. Processes and rules are becoming ever more complex. Interdisciplinarity and interface management between specialist fields are becoming ever more important as processes become increasingly team-based. The demands made on the participants are growing. With the generational change taking place within companies one can also detect an erosion of knowledge and experience that cannot be compensated for by information from the internet.

Safeguarding knowledge and research

During the period 1960 to 1990, extensive fatigue testing was carried out at the Technical University of Munich, in the then Department for Lightweight Metal Construction and Fatigue, and in the aluminium industry and a software package was prepared to evaluate and document the information. This created the essential foundations for high-cycle fatigue (HCF) and the dimensioning of structures stressed in such a way, such as chassis components and aircraft parts. However, there was a threat here that the findings would no longer be usable because of changes in information technology and a lack of compatibility.

In the field of low-cycle fatigue (LCF) there are still uncharted regions on the knowledge map, especially with regards the dimensioning of welded aluminium components. Such gaps are often plugged in practice by means of over-dimensioning or excluding the use of aluminium because of an absence of design rules. Short-term vibratory stresses occur during all start-up and shutdown operations, such as in the bodywork of cars and railed vehicles, the impact on noise barriers of gusts of wind created by passing high-speed trains or when filling or emptying containers. (Fig. 1)

In cooperation with the Chair of Metal Structures of the Technical University of Munich, companies from the aluminium, automobile and aerospace industries and trade associations are carrying out a publicly funded research project. The aim of the project is to safeguard research results obtained in the past, verify them and thus counteract the erosion of knowledge and close gaps with regards dimensioning in the LCF range.

These results will also be used in Eurocode 9, which is a design standard valid in the building industry throughout Europe for the construction of aluminium structures. GDA is actively represented here in the European and national standards committees.

Building and construction

Besides the structures commonly used in architecture – windows, façades and conservatories – ever more bridges for pedestrians and cyclists have also been made from aluminium in recent years. The benefits are the good corrosion behaviour and the to a large extent low maintenance required. Bridges can be assembled completely in the workshop and thanks to the light weight erected quickly and cost-effectively at site. Bridges have traditionally been the domain of steel construction. On the building site, the rules for corrosion protection that apply for constructional steelwork are often also demanded for aluminium, which negates the material's benefits for such structures. In collaboration with the Federal Highway Research Institute (BAST), GDA has prepared explanations regarding corrosion and corrosion protection in order to complement the relevant guidelines. (Fig. 2)

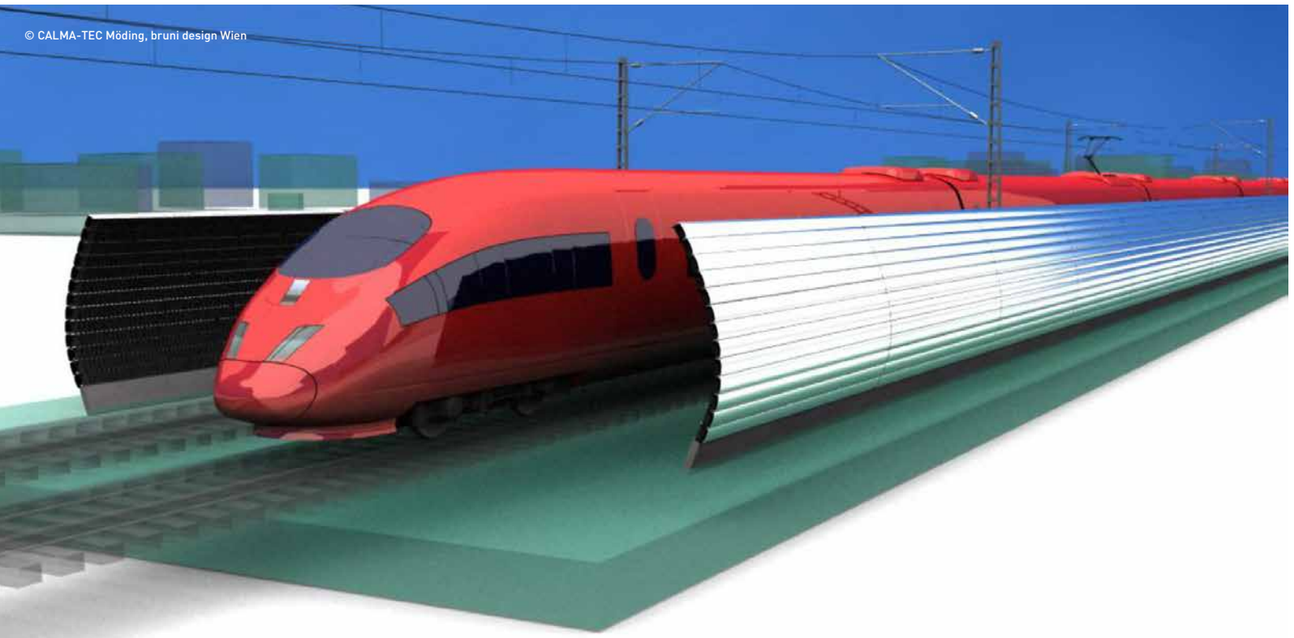


Figure 1: Noise barrier for high-speed trains

Corrosion

Corrosion is an interdisciplinary discipline involving chemistry, materials technology and mechanical engineering. The use of multi-metal structures and lightweight construction is leading to greater complexity in this specialist field. One therefore strives to use alloys of higher strength whilst reducing wall thickness at the same time. Corrosion attack that could be tolerated earlier now possibly means the end for a component, an alloy or the material as a whole.

The aluminium industry experts in the GDA Corrosion Chemistry working group have provided an intra-industry platform for more than 30 years. Besides the exchange of information, research projects and current corrosion problems, an additional task is carrying out interlaboratory comparisons in the corrosion laboratories of the aluminium industry. The results of corrosion tests, such as those on intergranular corrosion, can exhibit a broad scatter and are affected by specimen preparation, testing procedure and test evaluation. The test standards often allow discretion here, which can lead to contradictory results. Things get interesting when in-house tests and client's tests give different results. Interlaboratory comparisons in the laboratories contribute here to creating uniform conditions. (Fig. 3)

The GDA Corrosion Chemistry working group is closely linked to the Corrosion and Corrosion Protection of Aluminium and Magnesium working group of Gesellschaft für Korrosionsschutz e.V. (GfKORR), Frankfurt. The aluminium, car and aerospace industries are represented in this working group together with aluminium converters and research and university institutes. Besides an exchange of information, research projects are initiated and carried out.

Thus, for example, in a project carried out by the Fraunhofer Institute for Ceramic Technologies and Systems (IKTS), Dresden, the current-voltage behaviour during hard anodising was optimised in order to avoid thermally induced cracking. ■

Figure 3: Test facility for stress corrosion (constant load)

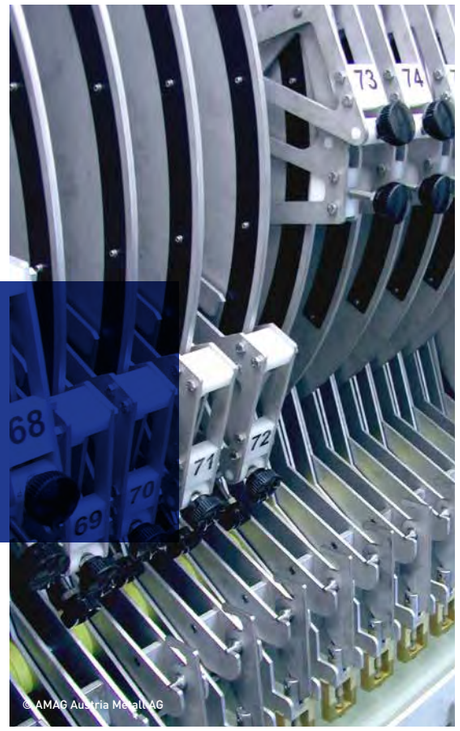
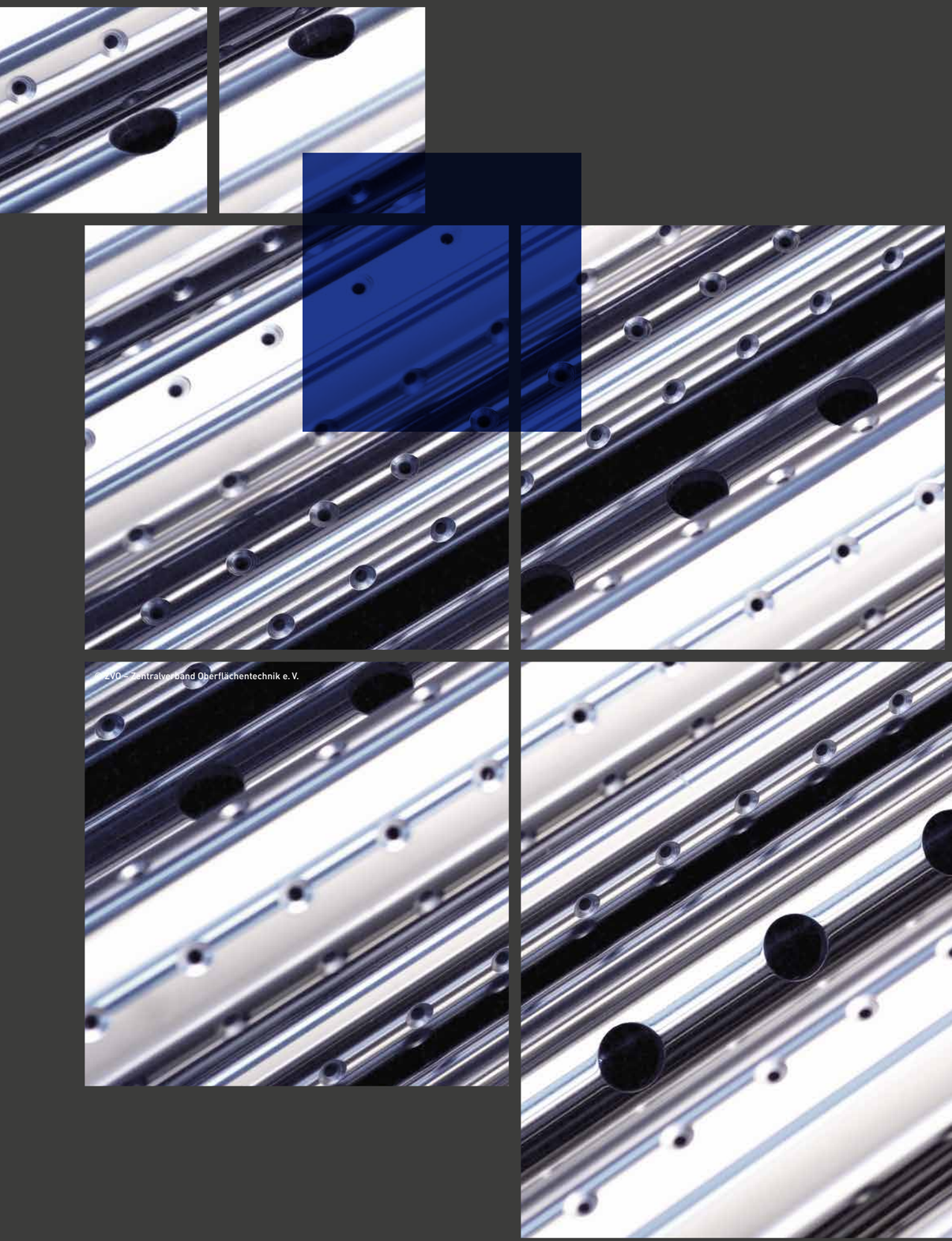


Figure 2: Aluminium bridge construction for the 'Kongresssteg Saarbrucken' project



Ban on chromium (VI) – is the market prepared for it?

As of 21 September 2017, it will no longer be permitted to use or market certain chemicals containing chromium (VI), such as chromium trioxide or chromates. However, requests have been submitted for authorisation for continued use for specific applications, including for chrome-plating and conversion coatings.

Dr. Saša P. Jacob,
Managing Director, ZVO Zentralverband Oberflächentechnik e.V.

Werner Mader,
Managing Director
GSB International e.V.

Ban on use

The ban on the further use of chemicals containing chromium (VI) is final. As of 21 September 2017, the so-called sunset date, certain chemicals containing chromium (VI), such as chromium trioxide or chromates, may no longer be used or marketed. The ban also applies to existing stocks. Processes in which chromium (VI) is used must then cease operation and the respective production units closed down.

In order to keep open the possibility of continuing further use within the scope of the REACH regulation, applications for authorisation for further use had to be submitted by 21 March 2016.

Authorisation for continued use

The authorisation for continued use is an approval to use the substance under certain conditions. The authorisation can occur along the supply chain or the user can submit a request himself for authorisation of his application.

In the case of authorisation along the supply chain, the manufacturer of chemicals containing chromium (VI) for example submits an application for authorisation, which is then passed on to the users of the chemicals. This means that after authorisation has been granted, every direct customer and every indirect customer in the downstream direction can use chromium trioxide or chemicals containing chromium (VI). In this case, downstream users in the supply chain will not require their own authorisation after 21 September 2017. The user must only ensure that his application is covered by the notification of authorisation.

Applications for authorisation

Bodies that are known to have prepared requests for authorisation are the Chromium Trioxide Authorization Consortium (CTAC), represented by the law firm Jones Day, and the registered association VECCO, represented by the consultancy Eupoc GmbH.

The companies Atotech Deutschland GmbH, Aviall Services Inc., Bondex Trading Ltd., Cromital Spa, Elementis Chromium, Enthone GmbH and Lanxess Deutschland GmbH joined forces in CTAC and submitted requests for authorisation for the following applications (see Table).

The CTAC application for authorisation was part of the public consultation that began on 12 August 2015 and ended on 7 October 2015. It was possible to submit comments and contributions confidentially in German.

ZVO participated in this consultation and submitted a comment in support. The key message in its comment was that ZVO supports the statements made in the CTAC applications regarding chemical safety (CSR), the socio-economic aspects (SEA) and the analysis of alternatives (AoA).

Furthermore, ZVO backed the review periods of 12 years requested in the applications but also recommended that for those uses for which a review period of seven years had previously been requested that this period be extended to 12 years so as not to jeopardise the continued existence of German and EU plants engaged in electroplating and surface treatment.

It should be added that authorisation continues to exist after the review period has expired. However, a check is then made to see whether conditions and prerequisites that justify the authorisation continue to exist. Authorisation will only be withdrawn if this is not the case.

In its comments, GSB drew attention to the effectiveness of surface pretreatments free from chromium or chromium (VI) for coating aluminium and presented the state of the art.

Analysis of the alternatives to chromium (VI)

As part of Application 0032-05 there is also an analysis of whether alternatives to the use of chromium (VI)-containing surface treatments exist.

The analysis is based amongst other things on the report 'Chromium-free Surface Pretreatment for Aluminium, Documentation of the State of the Art', which GSB published in 2012, and on the GSB Quality Regulations AL 631.

In the analysis, GSB's multi-stage test and approval procedure for alternative pretreatments is evaluated as the most stringent and most demanding procedure that is carried out by quality organisations.

This highlights GSB's technology leadership in the approval and testing of alternative pretreatments. GSB already began developing quality standards and testing alternative pretreatments 20 years ago.

Outlook

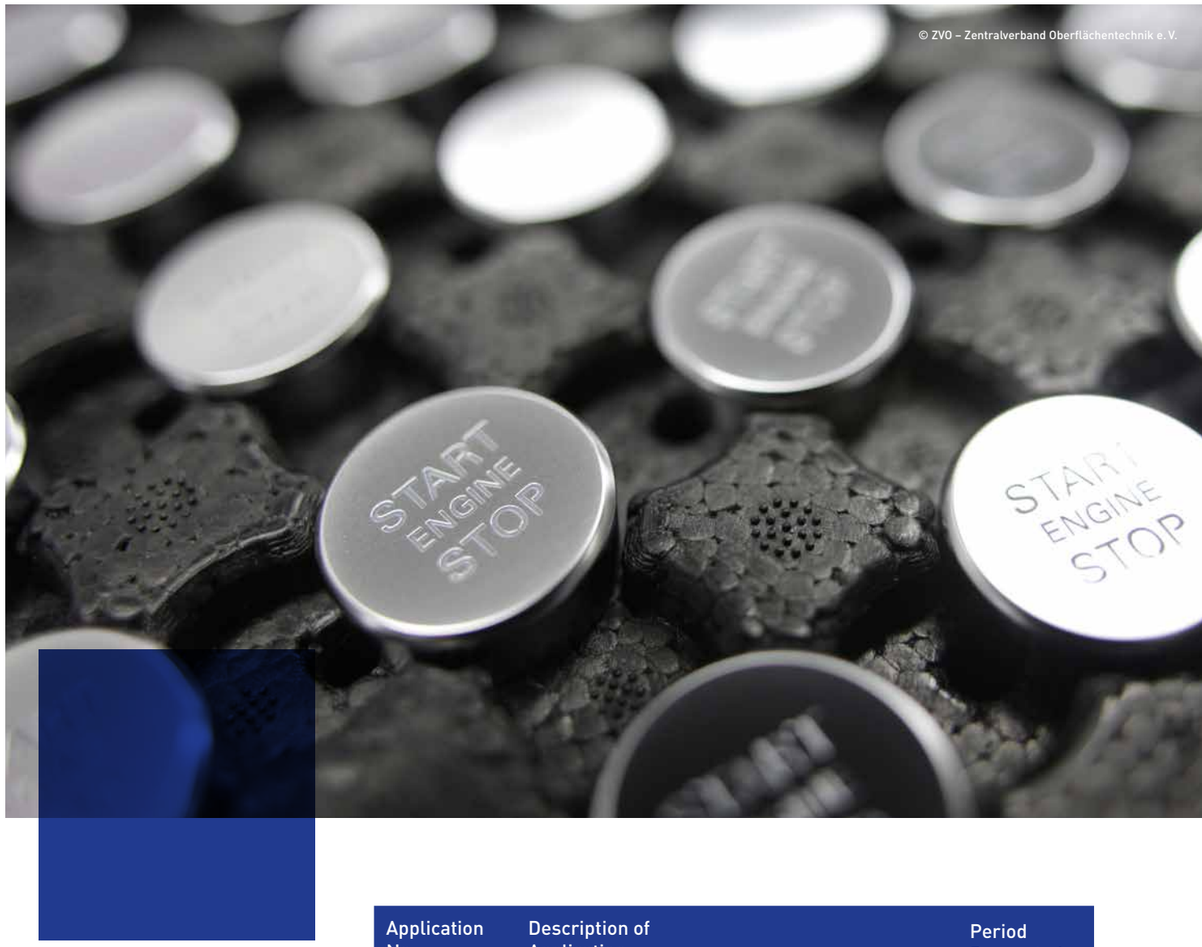
At the end of June 2016, CTAC issued a press release stating that in their draft recommendations the European Chemical Agency's RAC (Risk Assessment) and SEAC (Socio-Economic Analysis) Committees were supporting the six applications for approval. They were recommending review periods of seven years for formulations, hard chrome plating and surface treatment for applications in the aerospace industry and four years for functional chrome plating of a decorative nature, surface treatment in other industries and ETP. The ECHA recommendations will be submitted to the EU Commission for a decision after the summer break

Of course, a decision in favour of the continued use of chromium (VI) does not revoke the ordinances and regulations that already prohibit the use of chromium (VI), such as the Directive on End-of-Life Vehicles and the Restriction of Hazardous Substances (RoHS) Directive.

The use of chromium (VI)-free pretreatment has been increasingly demanded in the building sector since 1995. Building-certification schemes for sustainable building (DGNB, BREEF, LEED, Green Building) award extra points in the evaluation when a chromium (VI)-free pretreatment is used for aluminium. Investors and building owners are increasingly demanding such building certification with a high quality classification.

Over 60 % of the GSB coaters have already modified their plant in order to fulfil these requirements.

Architects are increasingly specifying chromium (VI)-free and chromium-free in invitations to tender. Many district councils and towns are demanding chromium (VI)-free or chromium-free pretreatments for aluminium (e.g. Berlin, Munich and Düsseldorf). Well-known system houses are currently revising their specifications to include alternative pretreatments.



Concluding remark

It remains a business decision of the individual company whether and when it converts its pretreatment processes.

GSB International has tested and approved alternative pretreatment processes for coating that have demonstrated their effectiveness and competitiveness in practice for over ten years. ■

Application No.	Description of Application	Period Requested
0032-01	Formulations and production of mixtures	≥12 years
0032-02	Functional chrome plating	12 years
0032-03	Functional chrome plating of a decorative nature	7 years
0032-04	Conversion coatings for applications in the aerospace industry, without reference to applications of functional chrome plating and functional chrome plating of a decorative nature	12 years
0032-05	Conversion coatings (except ETP) for applications in various industries, namely the building sector, automotive industry, metalworking and mechanical engineering	7 years
0032-06	Passivation of galvanised steel – electrolytic tin plate (ETP	4 years

Table: Applications listed in the CTAC application for authorisation

Gregor Spengler,
Head of Packaging, Head of Tubes and Cans

„A first-rate social and professional network is the basis for solving complex challenges.“

A network beats Google

When unresolved, complex or less complex questions or issues arise in everyday life, my children are constantly prone to say, “Ask Google, they know.” This simple rule may well be adequate for some everyday questions, but it does not come out trumps when looking for solutions to complex challenges in the packaging chain. Then I say to my children, “Establishing a high-quality social and professional network is more important than Google.”

That is precisely everyday practice in GDA's packaging sector where a close-meshed global network of contacts and experts that can help master complex challenges throughout the whole supply chain has come into being – not least because of the establishment and expansion of two divisions that are affiliated to GDA, namely the European tube manufacturers association (etma) with its 41 members from 20 countries and the International Organisation of Aluminium Aerosol Container Manufacturers (AEROBAL) with its 22 members from all over the world.

Different legitimate vested interests mean such challenges cannot be solved by the individual player going it alone but necessitate close cooperation within the network.

Cooperation in networks as key to success

Let us take as an example the substances that are used as protective inner coatings on aluminium packaging, such as tubes and aerosol cans and that rightly or wrongly have fallen into disrepute (keyword: Bisphenol-A). Thanks to the network that they have established over a period of many years, GDA, etma and AEROBAL were able here to bring together partners in the supply chain, i.e. coating manufacturers, packaging manufacturer and filling plants (brand manufacturers), in a cross-industry working group at an early stage in order to work together on finding a solution to this complex challenge.

Joint meetings have heightened mutual awareness of the requirements and challenges at every stage in the supply chain, broadened the horizon for structurally improved cooperation and sharpened the focus for achievable and sustainably viable solutions.

The result of this work will be a guideline accepted by all participants that describes a clear structure for crisis management should similar challenges in the supply chain occur again in future so that long-term alternative or new lacquer systems will come to market in as short a time period as possible as a result of efficient cooperation within the supply chain.

Or let us take another example: the Sustainable Aluminium Packaging Summit, which has become established within GDA in the last five years and which has brought together the whole of the supply chain with companies that produce, convert and use aluminium e.g. feedstock suppliers, packaging manufacturers, fillers and the trade in order to discuss jointly topics relating to sustainability and recycling.

Here, too, a robust network involving the filling industry (in other words clients of GDA member companies) and the trade that has been built up over a period of many years comes to the fore, and without which the successful establishment of this arrangement would not have been possible.

Only by bringing together all of these partners in the supply chain is it possible to convey effectively in dialogue the positive sustainability and recycling messages of our metal and reinforce these in the minds of the partners. The inclusion of the filling industry and the trade has led to a better understanding in our industry of what makes brand manufacturers and the trade tick when it comes to the sustainability of packaging and the core requirements that derive from it. Navel-gazing by our own industry is not enough here. That would just be like coals to Newcastle.

Visits to aluminium smelters, aluminium rolling mills, packaging manufacturers, and plants for collecting, sorting and recycling scrap add practical relevance to the summit. Aluminium to touch and understand, as it were.

Many clients of our industry only know aluminium production, processing and recycling from the media, and it is not unusual there for reports to have a critical undertone.

The above list of GDA network activities could be extended if desired: for example by including the lobbying carried out in the field of food-contact materials together with European Aluminium (EA) or the subject of aluminium and health which was taken up globally by the International Aluminium Institute (IAI) and which in the recent past was covered controversially in the media, especially in Germany; here GDA has contributed to ensuring the discussion is objective by issuing a special publication on the subject.

Networking is more than just accumulating contacts

GDA, etma and AEROBAL have long since become nationally and internationally recognised 'network brands' where aluminium or aluminium-containing packaging is concerned. Thanks to the global, closely meshed network of members with its comprehensive specialist knowledge and personal contacts built up continually with the upstream and downstream industries, GDA and its internationally networked divisions in the packaging sector are in a position to offer a solid and competent platform for discussions within the supply chain on common challenges. Companies gladly take up this offer.

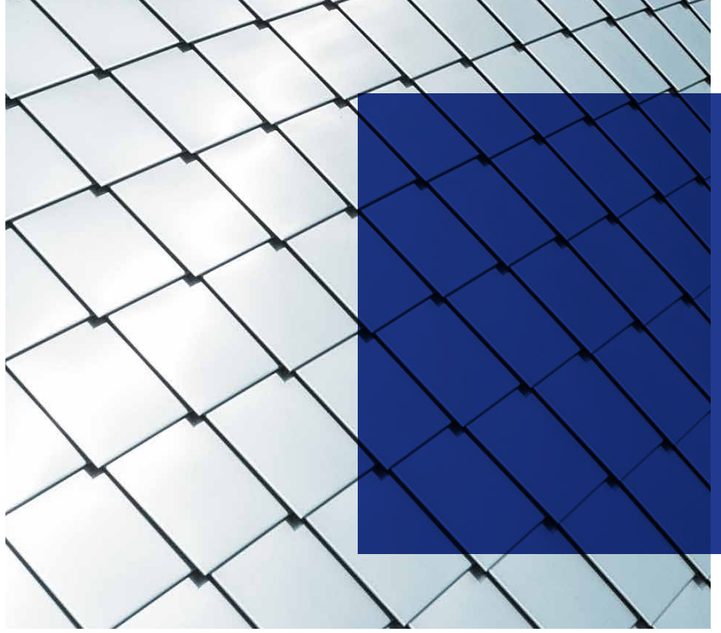
And this is where in my thoughts the loop closes again. I will not tire of telling my children that networking is more than simply collecting (so-called) friends or followers on Facebook or in other social networks. Instead I will tell them, "Networking is not about collecting contacts, but more about developing strong relationships." By the way, I found this apt saying using Google. Sometimes, Google really does help. ■

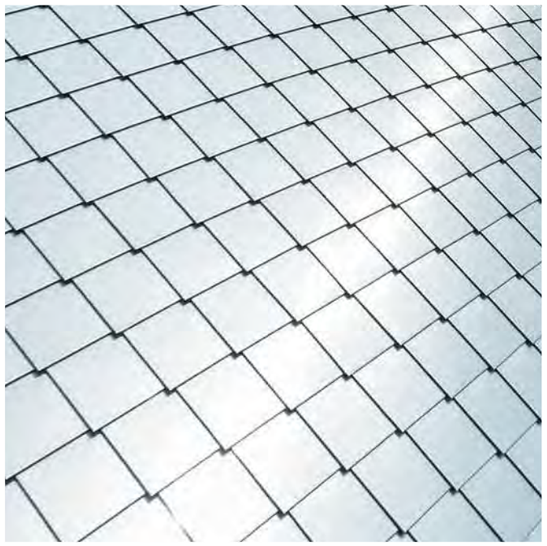
Adam Cymmer,
Recycling and Sustainability,
Metal Powder

We achieve our goals together by dedicatedly developing solutions that are the most effective and the most sustainable.“

Globally linked with a solid foundation

Sustainability: goals and tasks of the Eco Platform.





Reaching one's goals is easier when one works collectively to achieve them and is able to implement a joint idea by means of careful handling. This also applies to achieving climate protection goals.

Material and energy efficiency are particularly relevant in the building and construction sector. In Europe, about a third of all waste produced annually is attributable to this sector. The European building and housing sector accounts for about 50 per cent of the energy consumed and the materials produced and approximately 30 per cent of water demand. Overall, the building and housing sector accounts for about 35 per cent of Europe's climate-relevant emissions.

Taking a holistic view of goods is a prerequisite for a sustainable optimisation process. During recent decades, numerous individual national solutions have become established in the building sector throughout Europe. These have one basic idea in common: being able to assess the sustainability buildings throughout their complete life cycle.

Together with national and international partners, GDA has always played a pioneering role in shaping the sustainability process for products by making the relevant product information available. Statistical surveys and environmental monitoring of various production areas of our sector have actively contributed to the aluminium industry's knowledge edge, for example in the preparation of emission standards for European legislative and standardisation processes, product standardisation for alloys, surfaces and packaging, through to the description of best practices at national and international level. Such information is also crucial for life cycle analyses.

Internationally active network

In the building and construction sector, cooperation means GDA's international network spans the German-speaking region (Germany, Austria and Switzerland, D-A-CH) and includes initiatives carried out jointly with the Institut Bauen und Umwelt, such as the preparation of information material on the use of aluminium in the building sector and the joint publication of environmental product declarations (EPD) for aluminium building products. The network is thus directly linked to the authorities and political decision makers.

Such cooperation makes a decisive contribution to systematically preparing ecologically relevant information for users and offers the relevant base data in order to illustrate the environmental properties of a product as well as details of the technical properties that are necessary to evaluate the performance of products, such as the service life. In addition, GDA makes a decisive contribution at a European level by taking on a role regarding product life cycles and preparing environmental reports e.g. via European Aluminium. Cooperation with sector initiatives, such as the Wirtschaftsvereinigung Metalle, Eurometaux and Metals for Buildings, allows GDA to become actively involved in the diverse developments at European level.

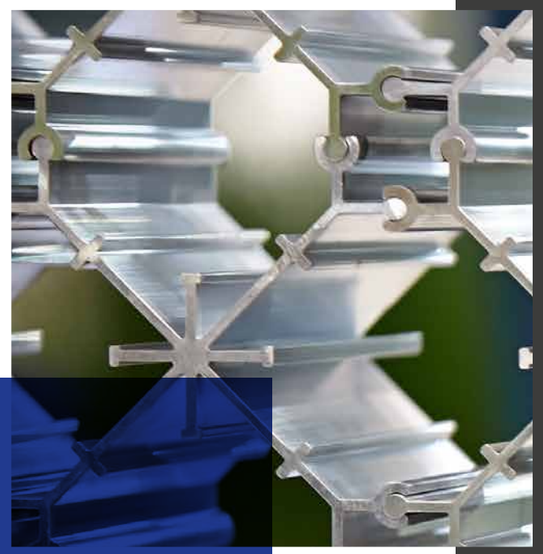
Acting in a coordinated and future-oriented manner

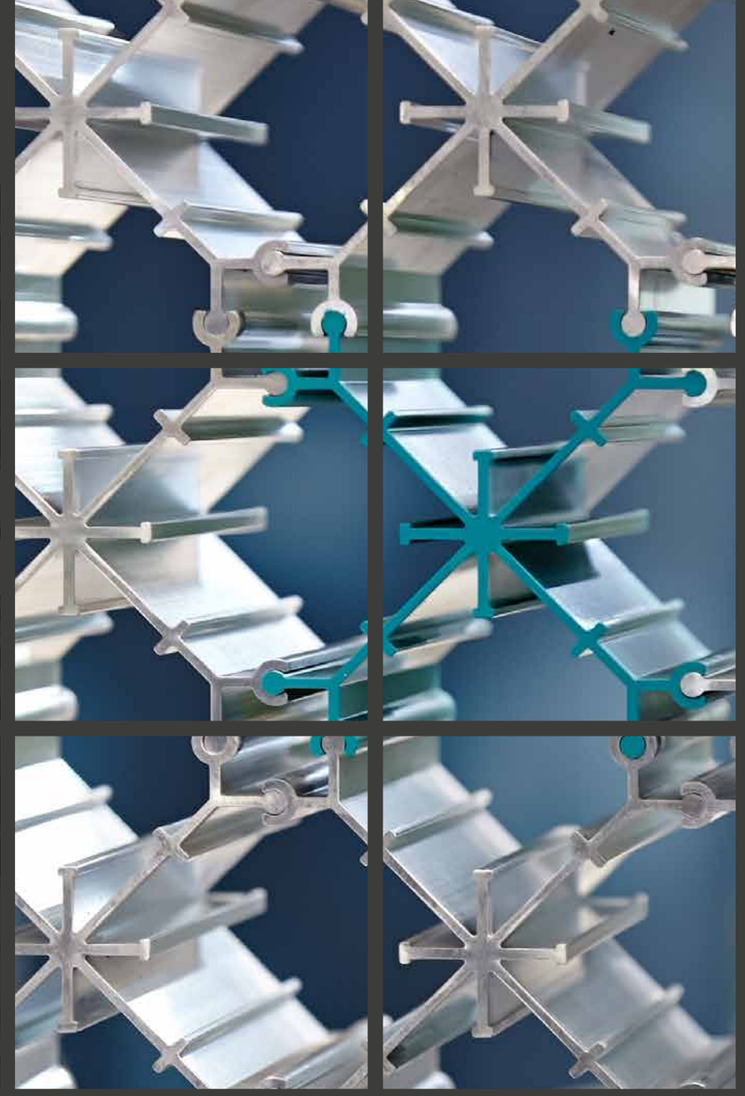
In the field of building and construction, the drafting of product environmental footprints (PEF) and standardisation processes is currently relevant and is aimed at reducing emissions in Europe (CEN/TC 350 Sustainability of construction works). This area is supported in addition by close cooperation with the Institut Bauen und Umwelt and the European ECO Platform. Here, the key to success is acting in a coordinated, prudent and forward-looking manner, which can only be achieved sustainably by means of open and close cooperation within the sector.

For the past three years, the ECO Platform has brought together national EPD programme operators within Europe. The aim is to generate a core EPD that is recognised throughout Europe based on the standards EN 15804 (Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products) and ISO 14025 (Environmental labels and declarations – Type III environmental declarations – Principles and procedures), which provide a uniform content structure for life cycle assessments. This will also facilitate communication and certification processes at a global level in the field of building certification. The ECO Platform mark symbolises conformity with the requirements with respect to quality management and the verification procedure of the various EPD programme operators. EPDs that carry the ECO Platform EPD mark thus represent the best possible comparability in terms of an agreed European solution.

The ECO Platform's network of experts for preparing and coordinating EPDs represents the interests of the sector with respect to sustainability assessment of buildings outside Europe as well and coordinates, for example, the acceptance of the product declarations in America and Asia. With the publication of the association's four EPDs for building products made from aluminium, GDA has been firmly anchored in this continually growing network from the start and is participating in shaping the process.

Globally networked with a solid foundation, GDA and its members and partners are thus actively contributing to fulfilling national, European and international climate protection targets and is ensuring a structural change without structural breaks in order to avert the danger of irreversible climate changes and open up the way for a sustainable resource economy in a generation-spanning manner. ■



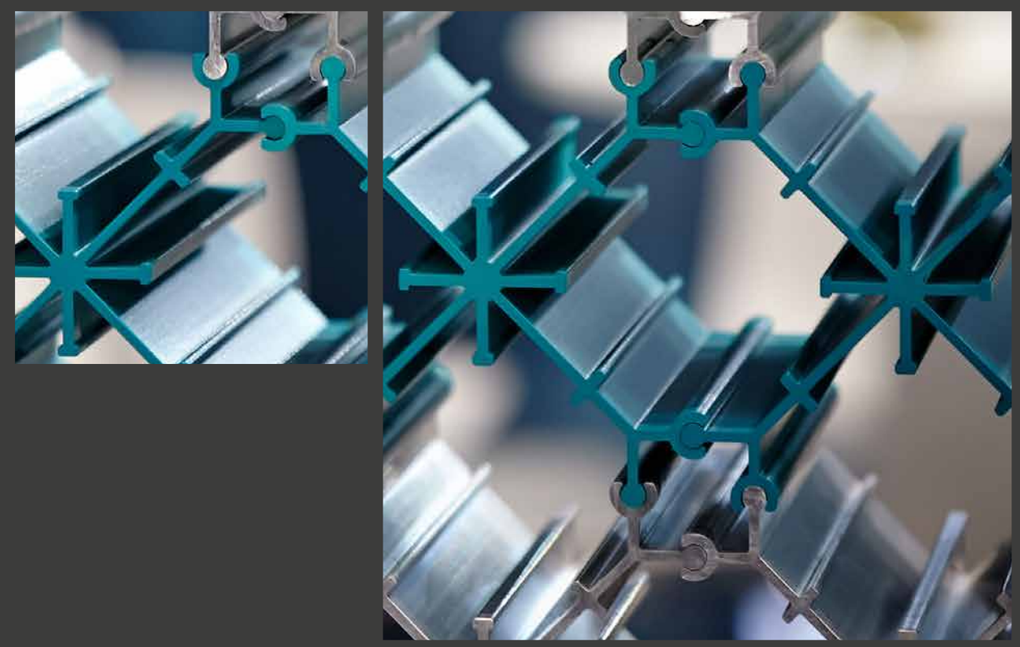


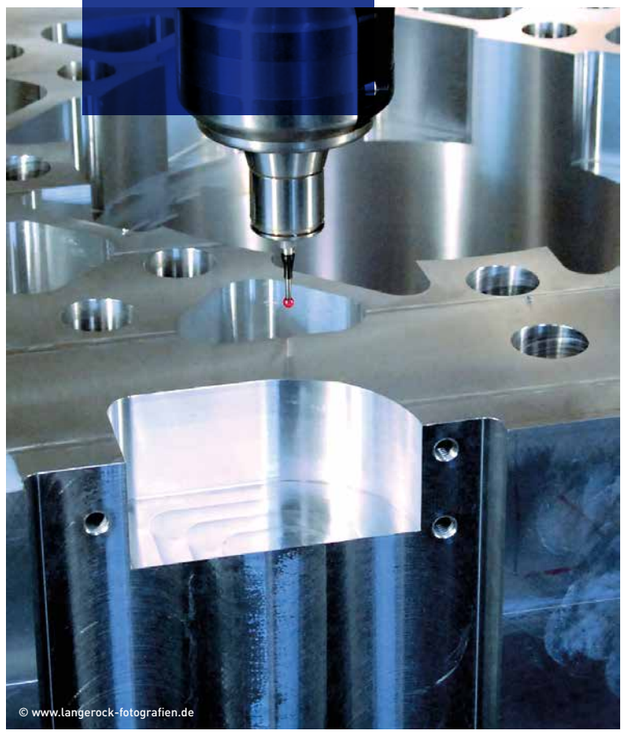
Network for the future – education and training

GDA has long since attached importance to the dissemination of knowledge about aluminium in schools, training centres and universities. It has developed suitable teaching materials and media, and new items are continually being added.

Dr. Karsten Hein,
Head of Technical Literature,
Education and Training

GDA developed the special publication on aluminium jointly with a co-operation partner that has considerable experience in working with schools and a large network of direct contacts in schools.“





After implementing different concepts, such as folders for teachers, educational films on DVD and brochures with metalworking courses that are strongly curriculum-oriented, for the next project thought was given to a new type of approach with regards distribution. Unlike in previous years, GDA undertook a search for a cooperation partner with extensive experience in collaboration with schools and a large network of direct contacts in the schools.

Special issue covering aluminium

As a result, the planning took directly into account the development of a concept for a special publication covering aluminium and selling it to schools directly. The cooperation with the editorial staff of the youth magazine SPIESSER opened up a sales channel that because of its nationwide network ensured that a new teacher's book would directly reach contact partners in the staff rooms at 2500 schools. Furthermore, the editorial staff of SPIESSER had specialised in preparing brochures on specific topics. Under the guidance of GDA, a special issue on aluminium was prepared that was suitable for use in general and vocational schools.

The GDA 'Aluminium überall' school file, which is DIN A4 sized and comprises 16 pages, was finalised in the middle of 2015. It explains clearly and in an easy-to-understand and illustrated manner why the light metal is indispensable for constructing machines, high-rise buildings, aircraft or kickboards. The file describes aluminium's qualities, history, extraction, processing and uses. It also outlines two important aspects, of course: sustainability and recycling. The aim is to provide a good overview that is appropriate for schools and create general curiosity in the metal. The fresh design with its modern infographics and collages is an invitation to browse through the school file.

Schools nationwide were informed about GDA's new offering via a letter sent to teachers. It was delivered by courier directly to the schools. Following the announcement in the letter, orders for 2000 files were received so the planned initial print run had to be increased from 2000 to 3000. The free special issue on the sustainable metal reached up to 50,000 students via this 'teacher' method of distribution. The complete stock of 3000 copies had been exhausted by the end of 2015. Furthermore, one benefit of the folder is that it can also serve as a general introduction to the world of the metal aluminium although it was conceived for teaching in schools. In this way it is as suitable for use as introductory literature for trainees and those starting a job in the aluminium industry as it is as a handout for those visiting the plants of our flourishing industry.

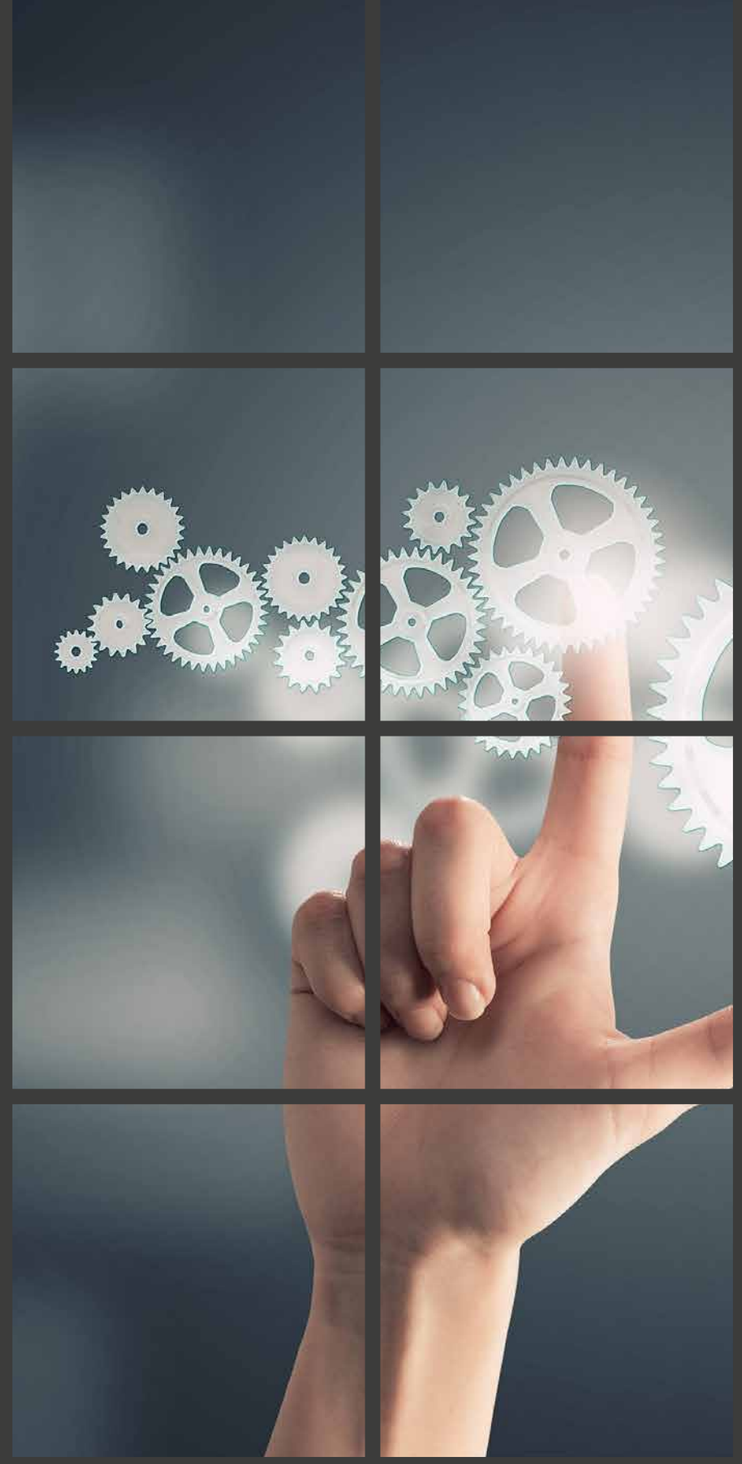
Besides being distributed free of charge to schools, Aluminium überall! has also developed into a bestseller. After its acceptance by schools had proven to be extremely successful, GDA advertised the folder in a circular to its members. There was such a huge response here as well that as a second step GDA ordered a reprint of a further 10,000 copies of the folder in the middle of 2015. By the beginning of September, there were already advance orders for 8000 copies of the second print run from here. By the first quarter of 2016, 8700 copies had been sold.

Other projects

As in previous years, two issues of GDA's online publication AL – Die Aluminium-Literaturschau also appeared in 2015. These included new additions to GDA's database of technical literature on aluminium in the form of abstracts and were distributed as a pdf file to almost 1000 email addresses. The full text of technical papers presented as a short abstract in AL can be ordered from GDA. ■

Georg Grumm,
Head of Information and Communication

„Our aim is to bring together all sections of the economy, politics, the media and the general public and inform them about aluminium.“



COMMUNICATION

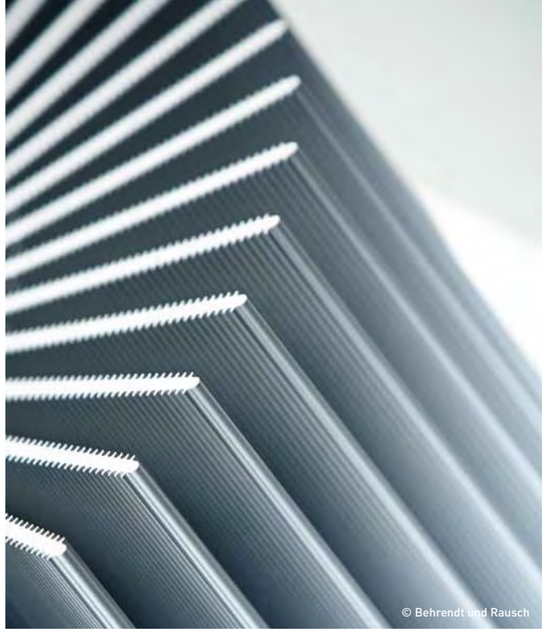
Trade associations are networks, communication is the link

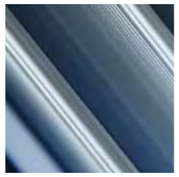
Trade associations pursue two objectives in their communication activities. The one is to actively pursue the wishes of their member companies and the other is to maintain constant dialogue with their member companies in order to inform them of their various activities. Good communication and PR are a strategic success factor for an association.

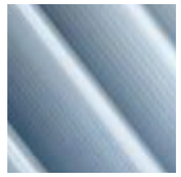
The continual dialogue with GDA member companies and with representatives from politics, the media, science and the public is a key task of the association and one where we can fall back on our comprehensive knowledge of materials and brand-relevant issues.

GDA tackles future issues concerning the metal and the sector proactively. The aluminium specific topics that are dealt with here are in line with market needs and everyone benefits from them: medium-sized companies as well as the large concerns. Many topics can only be dealt with by the sector as a whole. These include promoting the metal's image, discussions on sustainability and resource efficiency, and collaboration with customers industries. In this way our wishes are advanced jointly – nationally and internationally.

With today's diverse and sophisticated media landscape it is essential to address stakeholders in a target-group specific manner via the individual media channels. Anyone who wishes to be heard and understood, wants to create an image or wants to make a topic his own has to know the expectations and demands of his target groups.







Professional dialogue with journalists

Continual and up-to-date press work is the basis of GDA's communication activities. Information for the press covering economic data, events and personal data, which appears regularly, makes the aluminium sector transparent and interesting for editors. In addition, the continual presence of the metal and the trade association in the daily, trade and business press ensures there is regular contact and background briefings with journalists as well as exclusive contributions and technical papers. By speaking to editorial offices regularly, systematically and personally, it has been possible to further improve the results of the press work both qualitatively and quantitatively. All information is also accessible to journalists online at www.aluinfo.de.

Trade fairs and congresses

Being present at important leading exhibitions like ALUMINIUM or organising specialist congresses are other important integral parts of GDA's communication activities. Here GDA's specialists are in direct contact with experts from the aluminium industry and representatives of customers industries. GDA has the opportunity here to talk about current topics and answer visitors' questions directly. The central forum for the transfer of knowledge is the European Aluminium Congress which is held every two years and brings together high-calibre professionals from all over the world.

Newsletters, brochures and publications

Other communication measures for GDA's various target groups include the compilation of publications and brochures covering the latest topics in the sector. Three or four times a year, GDA aktuell provides information on the trade association's latest activities. GDA has summarised the important aspects relating to aluminium and health in a special issue of GDA aktuell in order to conduct a more objective discussion of topics such as antiperspirants and deodorants and health.

PR activities network

Those responsible for communications at member companies and the trade association meet regularly in the PR activities network. Usually, the company representatives are responsible for managing the corporate communications department or act as press officer as the case may be. At the meetings the participants discuss the current press coverage of the aluminium industry and possible reaction to it, make preparations concerning future issues and if necessary coordinate their media activities and other actions.

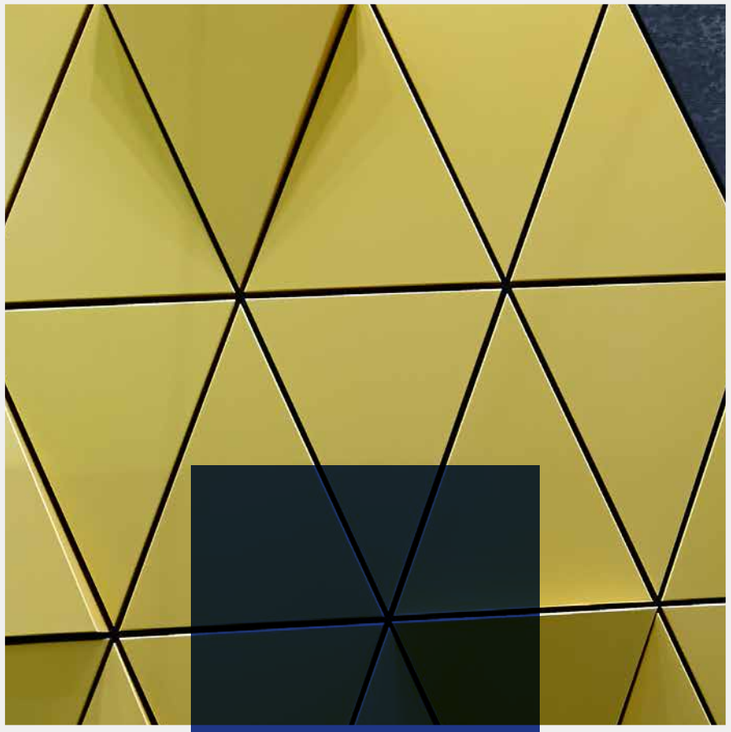
Digital communication

GDA reaches the general public via its website. Users are provided with information about aluminium, supplemented by current news items, quickly and in a goal-oriented manner. In addition, member companies have exclusive access to GDA's pool of data. GDA will also be visible in social networks like Facebook, Twitter or YouTube in future and will use these platforms as a tool to complement its internal and external communications. On these platforms, we also want to conduct a topical dialogue with member companies, their employees, professional associations and working groups. ■

D-A-CH – An Alliance for Aluminium

Interview with the managing directors of the aluminium associations of Germany, Austria and Switzerland.

Al D·A·CH
Alliance for Aluminium
Germany - Austria - Switzerland



Austria, Switzerland and Germany can look back on a long aluminium tradition. The three countries, the so-called D-A-CH region, is a huge market with the largest language group in Europe: there are almost 100 million inhabitants of whom some 95 per cent have German as their mother language. Five years ago, GDA, the Swiss aluminium association alu.ch and the non-ferrous metals trade association of the Austrian Economic Chambers (WKO, Wirtschaftskammer Österreich, Fachverband NE-Metallindustrie) agreed to work together more closely.

In this interview, the managing directors of the associations, Marcel Menet (alu.ch), Roman Stiftner (WKO) and Christian Wellner report on the cooperation and projects that are planned.

The three associations have been cooperating for five years under the 'D-A-CH – Alliance for Aluminium' banner. What is your goal?

Roman Stiftner: The German, Swiss and Austrian aluminium industries are the centre of the European aluminium conversion industry. Aluminium processors from the D-A-CH countries supply the broadest possible range of markets with technologically sophisticated products. The three countries constitute by far the largest European economic region with a common language and our members are active throughout Europe. So it makes sense to coordinate the work of the associations when it comes to cross-border projects and to intensify cooperation. We want to identify synergies in as many areas as possible and then make use of them.

What impetus is the collaboration providing?

Marcel Menet: The challenges trade associations and their industries face are no longer national affairs in many fields. We have to abandon 'inside-the-box' thinking and tackle these tasks together. We are now a strong network, exchange views and profit from the experience and activities of the others. An important aspect of the cooperation is raising awareness of the fact that aluminium is indispensable for solving the challenges society is facing, such as climate protection, renewable energies and sustainable mobility. This is achieved primarily by means of appropriate PR activities. In addition, we have managed use joint projects to realise synergy potential.

How do the national aluminium industries benefit from the cooperation of the trade associations?

Christian Wellner: Protecting the environment and resources, new forms of mobility or the energy revolution are issues that affect every region in Europe and do not stop at national borders. This is where transnational collaboration comes into play. We want to tackle common challenges jointly. Bundling the D-A-CH economic area together allows us to achieve better lobbying on behalf of our companies, especially at European level as well. Many of our member companies are in two or even three of the D-A-CH national organisations. Adopting a common wording in important documents makes it easier to identify with the concerns of our industry and duplication can be avoided. This increases efficiency and effectiveness.

At what level does collaboration take place? How often do you meet?

Roman Stiftner: Besides discussing transnational projects we exchange information on national activities and decide in which areas it is appropriate and expedient to undertake joint activities. There is a regular exchange both at executive level and at specialist level. Personal meetings are organised according to need and the progress of the issues, and usually take place several times a year. A focal point of the collaboration in the D-A-CH region is our commitment within the European aluminium association. The common interests of the D-A-CH region are thus given more weight at European level in Brussels, to the benefit of our member companies.

Which projects have you implemented so far?

Marcel Menet: Our first major project, which also served as a model, was the preparation of the D-A-CH brochure titled Planning for the Future – Building with Aluminium in 2011. Since then we have regularly cooperated in various joint activities, for example in the preparation of statements such as the one regarding the red-mud accident in Hungary. In addition, we develop joint strategies on issues and problems that affect us all.

The highlight of our collaboration so far was the very well attended European Aluminium Congress 2015 in Düsseldorf, which met with acclaim far beyond the German-speaking region.

Which issues are particularly important for you in the Alliance for Aluminium?

Christian Wellner: Mobility, conservation of resources and reuse, Industry 4.0 or new materials are megatrends that are driving the markets of the future and which will also have a decisive influence on aluminium's future. We are discussing these issues and their impact on our sector. In particular, strengthening lobbying on behalf of our member companies is of enormous importance for us. A strong common voice and more intensive communication of the benefits of aluminium are especially important here. Other key aspects are PR and training.

Time and time again, aluminium is the subject of critical media coverage. Do you cooperate in communications and PR work too?

Roman Stiftner: : It is an important aspect of our collaboration. There is broad acceptance in society for our sector but it must also be said that there are also various groups that are critical of the metal, its products and the production conditions. Unfortunately, over and over again we are confronted with false reports that aluminium poses a risk to health. It is completely safe to use metallic aluminium. That is the reason why a common task in the D-A-CH region is communication and efforts to convince stakeholders. Our first action, for example, was a joint information letter to our members when the red-mud accident occurred in Hungary. This was followed by a joint statement on the TV programme 'Die Akte Aluminium' (The Aluminium File) that was broadcast by various TV stations. We are also planning to coordinate our communication activities with regards certain issues in future.

How can your member companies get involved in the cooperation?

Marcel Menet: Ideas and suggestions are always welcome. Our collaboration should not be 'l'art pour l'art' (art for art's sake) but take place in close coordination with the needs of our member companies. We inform them continually about the D-A-CH collaboration and the projects. This then also leads to new suggestions and ideas for joint activities. A successful example here was the D-A-CH Aluminium Congress, which was jointly organised in November 2015 in Düsseldorf and in which our member companies actively participated with presentations and contributions to the discussion.

From left to right:

Christian Wellner
Executive Member of the Managing Board
Gesamtverband der Aluminiumindustrie e.V.

Roman Stiftner
Managing Director
Austrian Non-Ferrous Metals Federation
WKO – Austrian Economic Chambers

Marcel Menet
Managing Director
alu.ch – Aluminium Association Switzerland

What issues do you see as further opportunities for cooperation?

Christian Wellner: Recent years have shown that innovative business models or the use of innovative product ideas or technologies are prerequisites for future success. Innovation is the essential driving force of our member companies, therefore in future we have to bundle together cooperation in the field of research and science and thus further strengthen the network. Additive manufacturing and Industry 4.0 are topics where we will exchange views. Overall, the market conditions for our industry have changed markedly in recent years and the pressure of global competition is growing. That is why China and its exports to the European region continue to be a topic on our agenda. Furthermore, health, sustainability and resource efficiency are issues whose significance is becoming increasingly important. Here, too, we see further potential for close cooperation.

What joint projects are you planning in future?

Marcel Menet: A further possibility is the issue of training, for example. The common language means it would make sense to jointly prepare teaching materials for use in schools. Another key aspect is the continuation of the joint events with the focus on special topics in the aluminium industry.

Roman Stiftner: A further possibility is the issue of training, for example. The common language means it would make sense to jointly prepare teaching materials for use in schools. Another key aspect is the continuation of the joint events with the focus on special topics in the aluminium industry.

Christian Wellner: Lightweight construction, resource efficiency and research are topics that offer numerous points of contact for trilateral collaboration. Furthermore, we are already collaborating transnationally in some GDA working groups. In order to survive in the competition between materials we must further extend cooperation and partnerships within the sector and with clients. ■

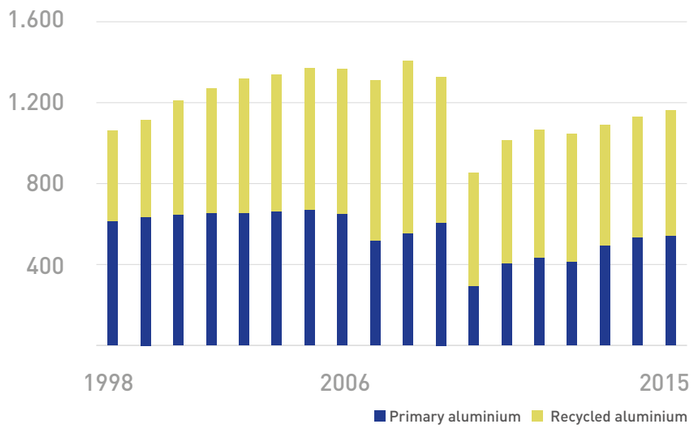
Business activity in the aluminium sector in 2015/16

The aluminium industry found itself in a difficult economic environment in 2015. The German aluminium industry is also capable of mastering difficult situations thanks to its high level of competitiveness.

Primary and recycled aluminium

In Germany, about 1,161,500 tonnes of raw aluminium were produced in 2015. Production was thus 2.8 per cent higher than the previous year's level. It comprised 541,400 tonnes of primary aluminium and 620,100 tonnes of recycled aluminium or remelt aluminium. Compared with the previous year, the production of primary aluminium rose 2.0 per cent, while that of recycled aluminium showed a gain of 3.5 per cent.

Production of Primary and recycled aluminium in Germany from 1998 to 2015 (in 1000 tonnes)



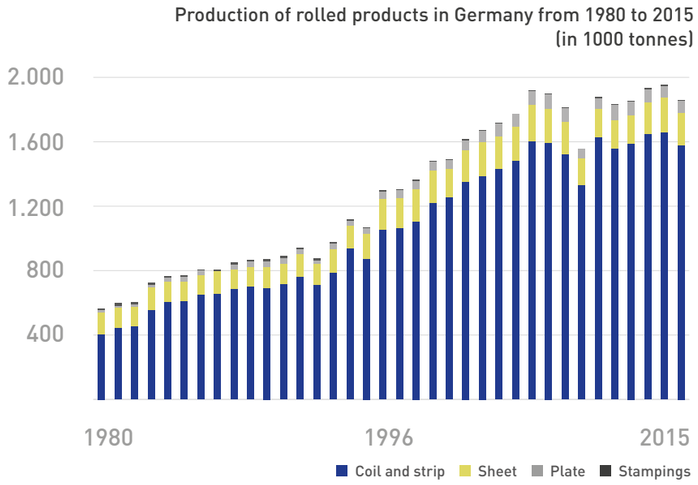
Production of aluminium semi fabricates declines

The production of semi-finished aluminium products totalled 2.45 million tonnes in 2015. This was a fall of 3.9 per cent compared with the previous year. The product portfolio here includes rolled products, extruded products, wire and forged components. Semi-finished aluminium products are the most important sector of the German aluminium industry in terms of quantity.

Slight fall in production of rolled products

Production of rolled products in Germany in 2015 totalled 1,857,300 tonnes. This represents a decline of 4.9 per cent year-on-year. The production of plate was the only positive development. Here output rose from 70,900 to 73,000 tonnes.

Production of rolled products in Germany from 1980 to 2015 (in 1000 tonnes)



Production of extrusions slightly down

Some 570,100 tonnes of extruded products were produced in Germany in 2015 and this was one per cent less than the previous year. The production of profiles and tube declined, although the industry managed to increase bar and rod production.

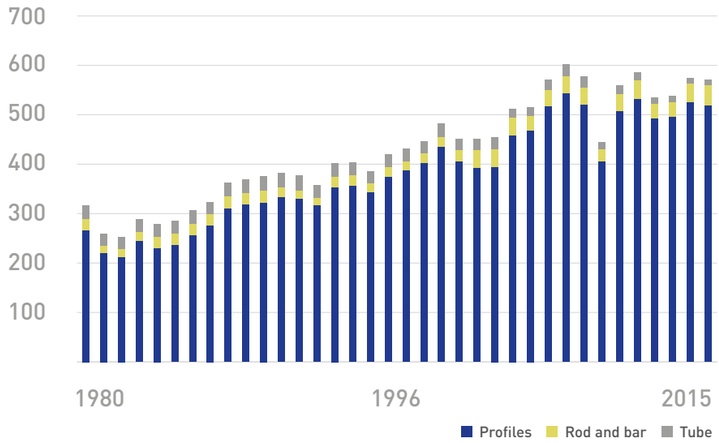
Exports pleasing

Exports of semi-finished products were pleasing: German industry exported a good 1.7 million tonnes in 2015. Exports rose 9.1 per cent compared with 2014. European partner countries play a significant role as consumer markets for the German semi-finished aluminium products industry. Exports to Europe in 2015 accounted for about 82 per cent of all exports and those to the EU had a share of 75 per cent.

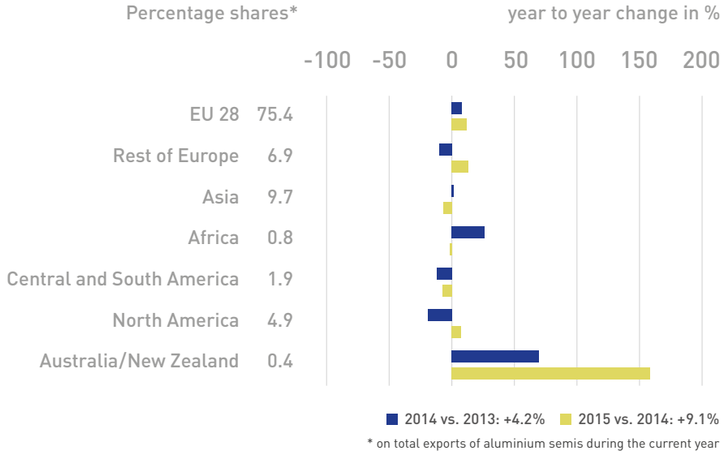
Further processing of aluminium

A total of 351,500 tonnes of aluminium was converted in Germany in 2015. Production volume thus rose 0.6 per cent year-on-year. Conversion is divided into three sectors: foil and thin strip, tube, aerosol and other cans, and metal powder. The growth driver was the tube, aerosol and other cans sector with growth of 3.5 per cent. ■

Production of extruded products in Germany from 1980 to 2015 (in 1000 tonnes)



Exports of semi-finished aluminium products according to region in 2014 and 2015



* on total exports of aluminium semis during the current year

Outlook

The German aluminium industry is cautiously optimistic with regards 2016. Expectations for global economic development may have become overcast in recent months but they are nevertheless still positive for important markets – such as North America or Europe. In addition, important macroeconomic indicators for these markets can be evaluated as showing a positive tendency. This applies to developments in the job market as well as consumer sentiment. Furthermore, the underlying conditions for widespread growth in the building and construction industry and industrial markets is positive. In contrast, the development in the BRIC countries is causing concern, especially the waning dynamism of the Chinese economy. This might not only suppress growth in the aluminium industry's customer industries but it could also lead to an increase in Chinese exports of semi-finished aluminium products to Germany and Europe. Opportunities for expanding German production remain unchanged. However, these opportunities are confronted by increased geopolitical risks. Nevertheless, the German aluminium industry remains cautiously optimistic.

Statistics

Production

Semi-finished aluminium products (tonnes)	2014	2015
Rolled products	1,952,000	1,857,000
Rods and bars	39,000	42,000
Profiles	524,000	518,000
Tubes	11,000	11,000
Wires	17,000	17,000
Forgings	N/A	N/A
Conduction material	5,000	4,000
Total	2,548,000	2,449,00

Aluminium castings (tonnes)	2014	2015
pressure die-casting	576,000	615,000
Permanent-mould casting	303,000	332,000
Sand casting	106,000	111,000
other casting processes	8,000	8,000
Total	993,000	1,066,000

Further processing of aluminium (tonnes)	2014	2015
Aluminium foil	271,000	274,000
Tubes, Cans and Impact Extrusions	43,000	44,000
Aluminium powder	35,000	35,000
Total	349,000	353,000

Foreign trade

Raw aluminium (tonnes)	2014		2015	
Country	Import	Export	Import	Export
EU 28	1,453,800	375,800	1,381,700	358,100
EFTA	542,800	22,700	469,100	78,100
Eastern Europe	253,800	1,200	275,900	1,100
Rest of Europe	0	0	0	0
Europe total	2,250,400	399,700	2,126,700	437,300
North America	40,600	1,600	36,300	6,000
Central and South America	9,600	0	7,500	0
Africa	62,500	0	77,800	100
Asia	223,600	8,200	234,900	9,600
Australia/New Zealand	4,400	0	400	0
Rest of the world	108,300	0	95,300	0
Total	2,699,400	409,500	2,578,900	453,000

Aluminium semis (tonnes)	2014		2015	
Country	Import	Export	Import	Export
EU 28	835,400	1,147,100	868,100	1,285,500
EFTA	195,600	46,900	240,400	47,100
Eastern Europe	193,300	62,500	183,200	70,400
Rest of Europe	> 0	> 0	> 0	> 0
Europe total	1,224,300	1,256,500	1,291,700	1,403,000
North America	9,000	78,300	48,500	84,300
Central and South America	5,800	34,500	6,300	31,900
Africa	26,300	14,300	18,600	14,100
Asia	50,700	177,600	86,900	165,000
Australia/New Zealand	> 0	2,900	100	7,500
Total	1,316,100	1,564,100	1,452,100	1,705,800

Services from GDA: quick, competent, informative

GDA rigorously pursues a policy of being a modern trade association for its members, customers and those with an interest in the sector, offering the aluminium industry and its partners a comprehensive range of services.

GDA's comprehensive range of services covers education and training, technical advice, information such as statistics and the library, and specialised events. The services offered are aimed at GDA members, establishments of further education and the public at large. The following list is an overview of the services offered.

... supports rapid searches for information on manufacturers of aluminium products via its **products and manufacturers database.** A simple system and online search form helps the user find innovative companies and optimal solutions.

... is actively engaged in the area of **schools and education and training.** The future of work does not begin in the production facilities. When it comes to determining future direction, important steps are already taken during school education. GDA develops teaching materials, such as folders or DVDs, and provides information on practical training and works visits in the aluminium industry.

... offers comprehensive information on aluminium as a material **on its website at www.aluinfo.de.** The extranet section is for GDA member companies and contains statistics, presentations and reports from the working groups, and can be accessed exclusively by GDA members and their employees.

GDA ...

... answers practically any question relating to aluminium via its **library.** GDA's library is the largest German library dedicated to aluminium. The library's archives contain one of the most extensive collections of information on aluminium – all well documented and edited.

... provides specific advice on the processing and application of aluminium, including topics such as standardisation, alloy designations and alloy data, via its **Technical Advisory Service.**

... provides information on the current economic and business situation in the German and European aluminium industries together with the latest **statistics.** Statistical data on indices, employment, turnover, production or foreign trade help analysts and market players asses market developments.

... publishes its information **online.** Anyone interested can download technical information sheets, technical papers, brochures and fact sheets directly.

GDA – Gesamtverband der Aluminiumindustrie e. V.

Gesamtverband der Aluminiumindustrie e. V. (GDA) with headquarters in Düsseldorf, Germany, was established in its current form in 1992 in Dresden. It is an association of aluminium companies that produce raw aluminium or aluminium products, including composites with other materials. As an industrial sector association, GDA represents the interests of an efficient aluminium industry and the jobs it offers with the aim of:

- conveying the economic, ecological and technical benefits of aluminium
- implementing the ecological, economic and social aims of the aluminium
- continuing determinedly to pursue the implementation of sustainable, future-oriented development in the aluminum industry.

As the representative of the aluminium industry, GDA strives to maintain an open dialogue with the general public in order that customers and consumers have a more transparent view and better understanding of aluminium and the products of its member companies. To this end there is a continual exchange of experience and ideas within the association; this ensures that the interests of all member companies are represented effectively, also externally.

GDA and its specialist trade associations have made it their job to represent the common interests of all of their members and thus the whole sector in all areas of the economy relating to aluminium. This involves the collection and processing of market information and planned legislation at national and international level. In addition, the association carries out media and public relations work for its member companies. GDA is also co-operation partner and promotional supporter of the world's largest aluminium trade fair ALUMINIUM. ■

Executive Committee

Dr.-Ing. Hinrich Mählmann (President)
OTTO FUCHS KG

Dietrich H. Boesken (Honorary President)
Boesken GmbH

Kjetil Ebbesberg (Vice President)
Hydro Aluminium Rolled Products GmbH

Oliver Höll (Vice President)
Karl Höll GmbH & Co. KG

Dieter Höll
Constellium Singen GmbH

Roland Leder
Aleris Rolled Products Germany GmbH

Thomas Reuther (Treasurer)
TRIMET Aluminium SE

Eric Tonkowski
Novelis Deutschland GmbH

Christian Wellner
(Executive Member of the Managing Board)
Gesamtverband der Aluminiumindustrie e. V.

Steering Committee

Dietrich H. Boesken
Boesken GmbH

Frank Busenbecker
Erbslöh Aluminium GmbH

Kjetil Ebbesberg
Hydro Aluminium Rolled Products GmbH

Bernd Gebhardt
AFM aluminiumfolie merseburg gmbh

Hans-Peter Grohmann
Johann Grohmann GmbH & Co. KG

Dr. Cornelius Grupp
Tubex Holding GmbH

Dr. Michael Heußen
KNAUF INTERFER Aluminium

Dieter Höll
Constellium Singen GmbH

Oliver Höll
Karl Höll GmbH & Co.KG

Stephanie Hueck
Gerhardi AluTechnik GmbH & Co. KG

Dr. Martin Iffert
TRIMET SE

Roland Keller
Oettinger Aluminium WH GmbH

Ralf Köring
Real Alloy Germany GmbH

Frans Kurvers
apt Hiller GmbH

Roland Leder
Aleris Rolled Products Germany GmbH

Dr. Dieter Lutz
ECKART GmbH

Dr.-Ing. Hinrich Mählmann
OTTO FUCHS KG

Manfred Mertens
Hydro Aluminium Rolled Products GmbH

Thomas Reuther
TRIMET SE

Bernd Schäfer
Alcoa GmbH

Eric Tonkowski
Novelis Deutschland GmbH

Rigas Tzortzis
GUTMANN AG

Thomas Utsch
Hueck GmbH & Co. KG

Burghard von Westerholt
Aluminium-Werke Wutöschingen AG & Co. KG

Christian Wellner
Gesamtverband der Aluminiumindustrie e. V.

Leopold Werdich
TUBEX GmbH

Theo Wingen
Drahtwerk Elisental W. Erdmann GmbH + Co.

GESAMTVERBAND DER
ALUMINIUMINDUSTRIE e.V.

Am Bonneshof 5
40474 Düsseldorf
Germany

P.O. box 10 54 63
40045 Düsseldorf
Germany

Phone: +49 211 47 96 0
Fax: +49 211 47 96 408

information@aluinfo.de
www.aluinfo.de