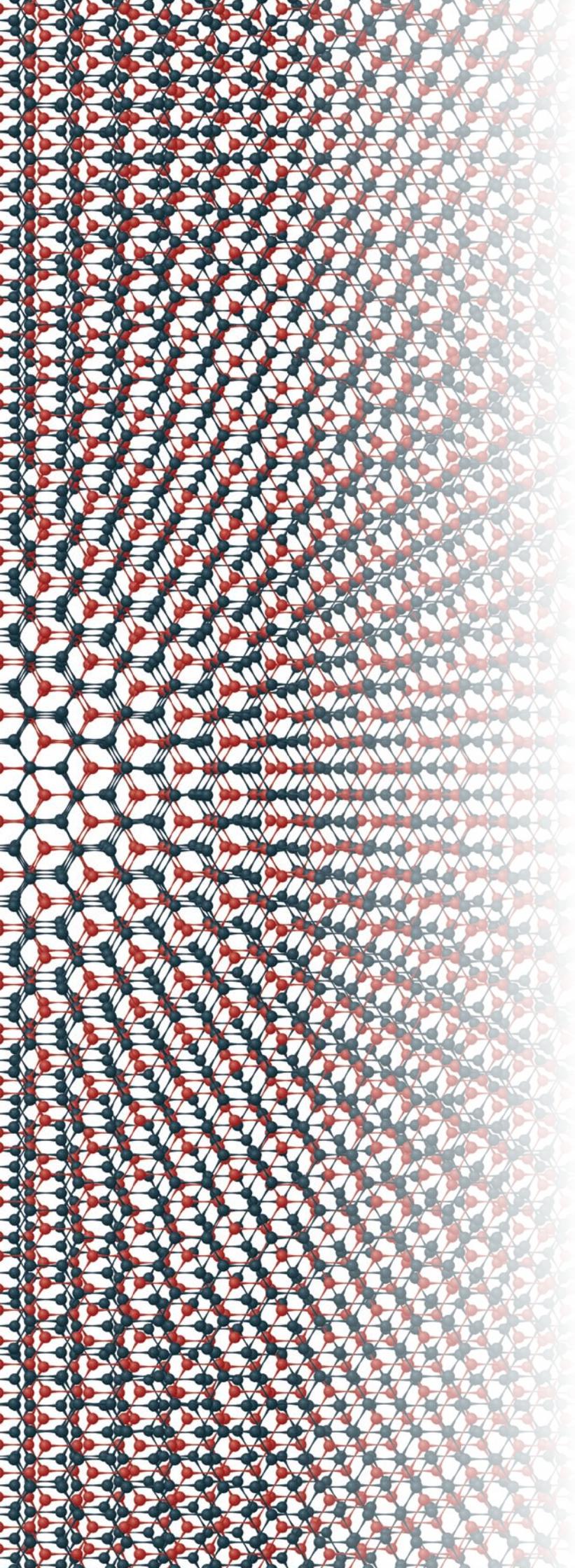


**ECGA**

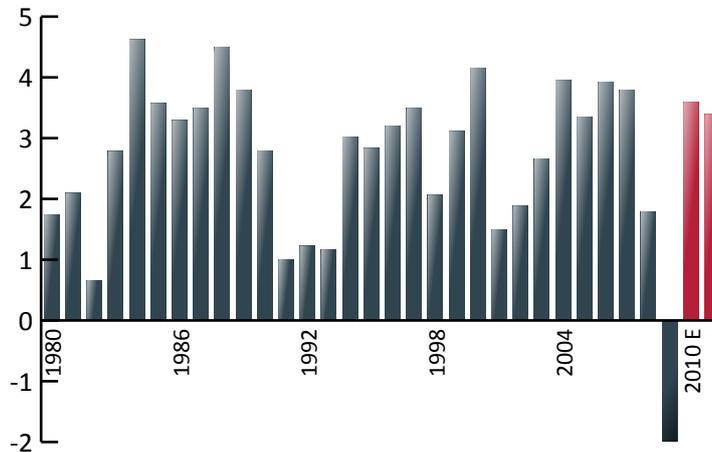
**2010**

**Annual Report**





Graph 1: World – GDP % Change Per Year



Source: IMF, market exchange rates

Nothing describes the year 2010 better than the improvement in the world's GDP compared to the crisis year 2009. Pick-up in demand and replenishment of inventories led to a reasonable recovery in 2010, a trend that is expected to continue in 2011.

Positive for the carbon and graphite industry was that most of the major customer industries slowly recovered and by mid 2010 most order books were as full as ever, the aluminium industry in Europe however being slower than the other sectors. Carbon and graphite plays an important role in the EU's industrial fabric. Main industrial sectors such as the aluminium and steel industries depend in their fabrication process on industrial products made from carbon and graphite. And as a consequence many downstream-industries in Europe, such as the automotive, construction, railway, infrastructure sectors, rely on the delivery of these industrial components.

In other areas as well, many sectors depend on speciality applications without which a lot of products used in our day-to-day life would not function.

2010 was also the year in which the industry had to comply with the requirements of the new EU's chemicals legislation REACH and the worldwide harmonised system on classification and labelling (CLP). ECGA was instrumental in fulfilling these requirements and will continue to do so.

Equally the ECGA negotiations in connection with Europe's Emission Trading Scheme and the positioning of the carbon and graphite industry paved the way for acknowledging that the unilateral European climate change measures could have a detrimental effect on the European graphite industry in comparison to their worldwide competitors.

Finally, our Association welcomed a new member: Aluchemie in Rotterdam, the largest independent anode producer in Europe which will strengthen the role and weight of the ECGA in the future.

I want to sincerely thank our Secretary, Mrs Hebestreit, and her team for the work performed in this past year.

A blue ink handwritten signature, appearing to read 'B. Toniolo'.

Dr B. Toniolo  
President ECGA



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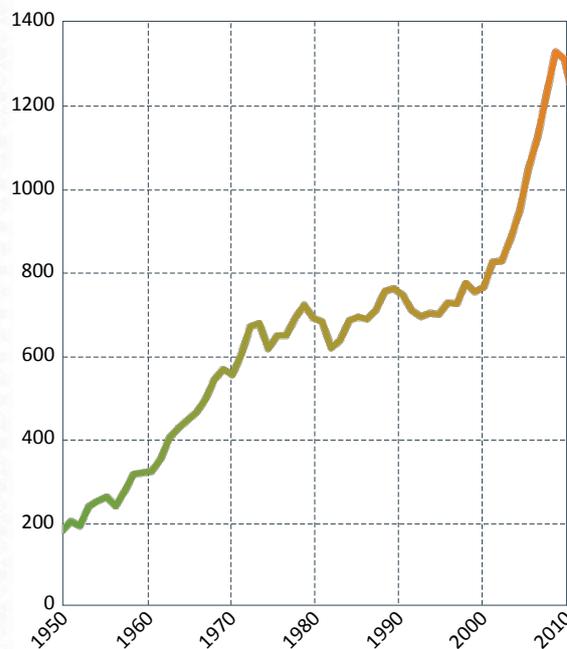
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# 1. The Steel Market

Following the financial crisis and the economic downturn in 2008 and 2009 the steel industry faced a considerable production cut-back in Europe and around the world which reached 50 % in the latter part of the year 2008 and throughout 2009.

Since April 2009 the steel production trend, however, showed a continued increase, modest but still an increase. The main markets for the steel industry had collapsed considerably as could be seen in the slow markets in the construction and transportation sectors. However, stocks had been reduced in 2008 and 2009 overall and hence the slightly increasing demand triggered as expected an uptake of production, even though at lower levels, but continuously increasing in 2010, reaching before-crisis levels.

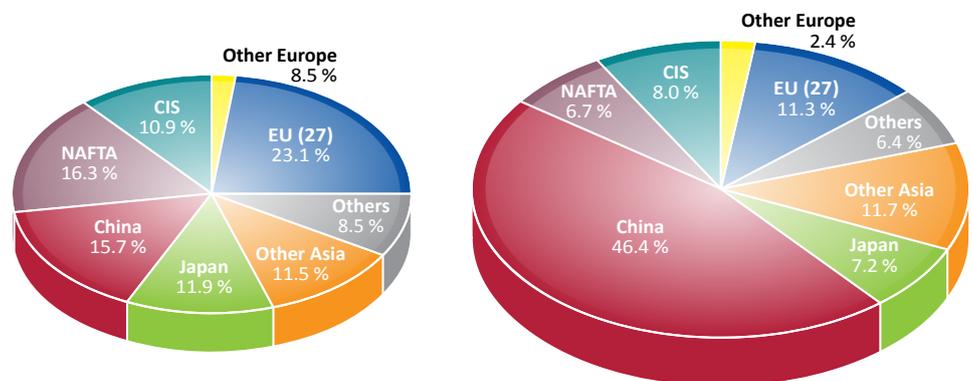
Graph 2: Total worldwide steel production



Average Growth Rates % per Annum	
Years	World
1970–75	1.6
1975–80	2.2
1980–85	0.1
1985–90	1.4
1990–95	-0.5
1995–00	2.4
2000–05	6.1
2005–09	1.8

Source: IISI

Graph 3: Steel Production & use: Geographical distribution 1999 to 2009



1999 world total: 789 million metric tons crude steel

Others comprise:

Africa	1.6 %	Central and South America	4.5 %
Middle East	1.2 %	Australia and New Zealand	1.1 %

2009 world total: 1,224 million metric tons crude steel

Others comprise:

Africa	1.2 %	Central and South America	3.2 %
Middle East	1.4 %	Australia and New Zealand	0.5 %

Source: IISI

By the end of 2010 total worldwide steel production had reached 1.2 billion tonnes.

As a consequence, the graphite industry producing electrodes for the steel industry recovered in 2010.

The only market that continued to grow as in past years was China. By the end of the year the Chinese crude steel production amounted to more than 50 % of world steel production. Asia and Oceania without China still accounted for 18 % of world production, with Japan accounting for 8 %.

*Graph 4: Crude Steel Production 2008 – 2010 (in thousand metric tons)*



Source: IISI

August 2010 production rose for example by 4 % compared to August 2009. It is expected that this development will continue, maybe not at the same speed, but with a continued upwards trend. Whilst at the moment the crude steel production is dominating the Chinese production, electric arc furnace steel will gradually increase with the availability of scrap.

Over the years the Chinese carbon and graphite industry has grown and continues to export graphite electrodes at below cost prices. This has already led to anti-dumping cases in several jurisdictions.

*Graph 5: Crude Steel Production 2008 – 2010, China (in thousand metric tons)*



Source: IISI

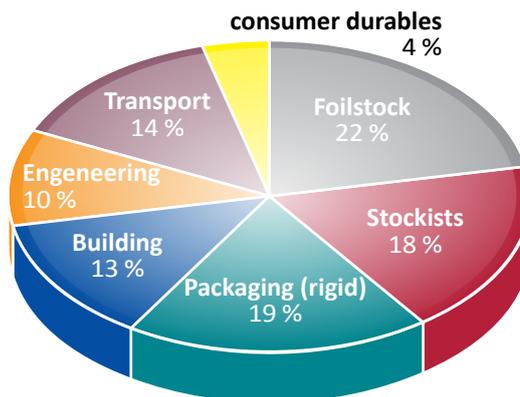
# 2. The Aluminium Market

One of the major global markets for carbon and graphite products is the primary aluminium industry. The carbon and graphite industry supplies furnace linings for the primary aluminium industry in the form of cathode blocks with which the floor of the electrolytic reduction cells are lined as well as pieces for the surrounding sidewalls. Both types of blocks are manufactured in a number of different fired qualities. Carbon ramming pastes are used to seal the joints between the fired blocks.

The worldwide economic crisis had hit the European aluminium industry very hard in 2009. Primary production in 2009 had decreased by more than 20 % in the EU-27. Some smelters had to close down completely; others went into care and maintenance. Imports of unwrought metal had declined by about 30 % in 2009.

The semi-fabricated products also suffered from the economic crisis: rolled product orders declined by about 13 % compared to the previous year, extruded product order

Graph 6: Main end-use markets for aluminium rolled products in Europe 2006



Source: EAA



After two years of decline, the aluminium industry finally recorded positive growth in some market segments during 2010. However, the crisis has also brought to light numerous challenges that will need to be faced in the coming years, such as the volatility of markets, which will require our industry to become more and more flexible.

Of the aluminium-using industries, the automotive sector was one of the main drivers of the recovery in 2010. Exports of premium cars to Asia boosted demand for rolled products and use of aluminium in volume cars became more widespread due to increased focus on light-weighting. Order intakes for rolled products increased by about 25 %, following a drop of 13 % in 2009, while orders for extruded products rose by 18 %, having fallen by 20% in 2009.

In the second half of 2010, demand in the mass transport sector was also found to be picking up.

Demand for aluminium cans and foil, which had been much less affected by the crisis, continued to grow at a stable rate.

Recovery in the building sector presented a mixed picture in Europe, also due to longer economic cycles in this sector. A major element in the upsurge in demand was the boom in solar applications.



However, despite a huge increase in metal demand, primary aluminium production in Europe only recovered by 4 % in 2010, after the fall of 22 % (29 % in the EU-27) in 2009. The low growth rate of primary production in Europe shows that the primary industry is finding it very difficult to compete with other regions in the world. Indeed, extra demand for aluminium is being met by fast-growing imports from Russia and the Middle East, and even Mozambique. This in turn has consequences for the carbon products related to the aluminium industry, such as cathodes, anodes and ramming paste which therefore continued to also extend their exports to other parts of the world.

# 3. Graphite Specialties

Europe has some of the leading carbon and graphite specialty producers. The year 2010 was a reasonably good year for the carbon and graphite specialties, whether in the more traditional applications such as for mechanical industrial applications or carbon brushes for electrical industrial applications.

Let's not forget that most modern technologies for transport or energy generation require such electrical units, be it the electric car or the wind energy generators.

This market segment recovered in 2010 and turnover could be increased substantially in the order of 10 – 20 % depending on applications.



For the fuel cell powered electric cars in the future, the bipolar plate that is made of graphite is one of the most important components. Until now no other material is able to meet the extremely high requirements with respect to chemical stability, conductivity and thermal stability. Graphite will surely play an important role in this technology of the future.



For other products more innovative solutions in carbon and graphite fibres for technical products or carbon foils and felts are becoming indispensable.

Once the crisis was overcome in many areas the growing markets for semiconductors and fibre-optics have seen a further increase in the market.

Traditionally silicon is the most widely used material for the manufacture of integrated circuits and other semiconductor devices. However, there are several major applications for graphite in the semiconductor sector with most of them requiring purification to at least 10 ppm ash.

Graphite is extensively used in this application for a number of reasons related to its properties. In the semi-conductor technology the key properties of graphite provide the possibility of matching certain material properties with a given specification through varying raw materials and production methods.

The carbon and graphite industry is actively involved in the EU's European technology platform and the European Advanced Materials Platform. In the future cooperation of various research platforms of downstream user industries will contribute with new research and innovative developments to the material demands of the future Europe.

# 4 The EU Raw Materials Initiative and Natural Graphite

The EU's carbon and graphite industry supported the Commission's initiative on sustainable access to resources which was published in 2008 and continued with a second Communication in February 2011.

With its basic pillars:

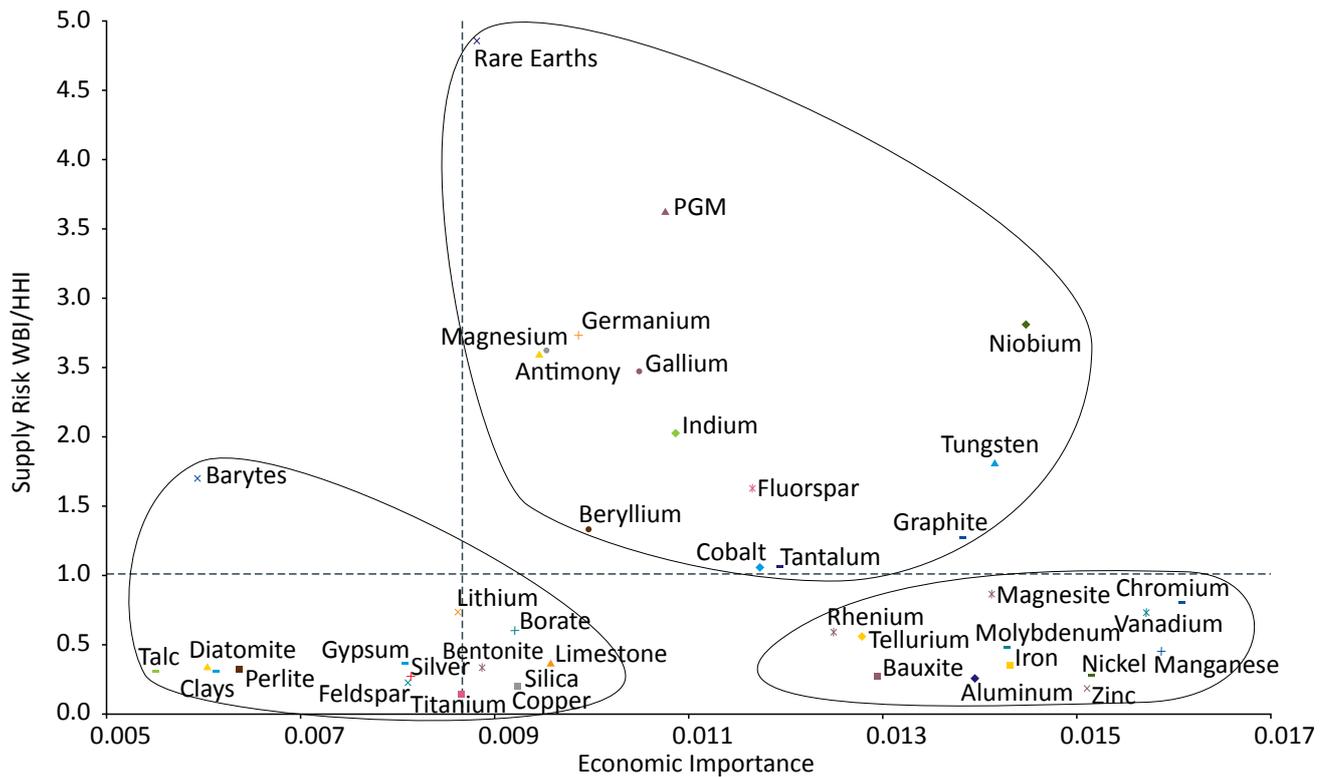
- increasing access to resources from European sources;
- improving the transparency and level playing field with regard to resource inputs from outside of Europe;
- improving the efficiency of resource use in the EU;
- improving the human capacity in and outside of Europe in order to deal with resource management in a sustainable manner; and
- increasing the knowledge base about our resources,

the key questions of future supply are addressed.



The Commission's expert Working Group on Criticality identified those substances that were "critical" to the supply of the EU's industry, meaning that the supply of these was economically important but at the same time could easily be interrupted due to concentrations of supply and political instability in the supplying country.

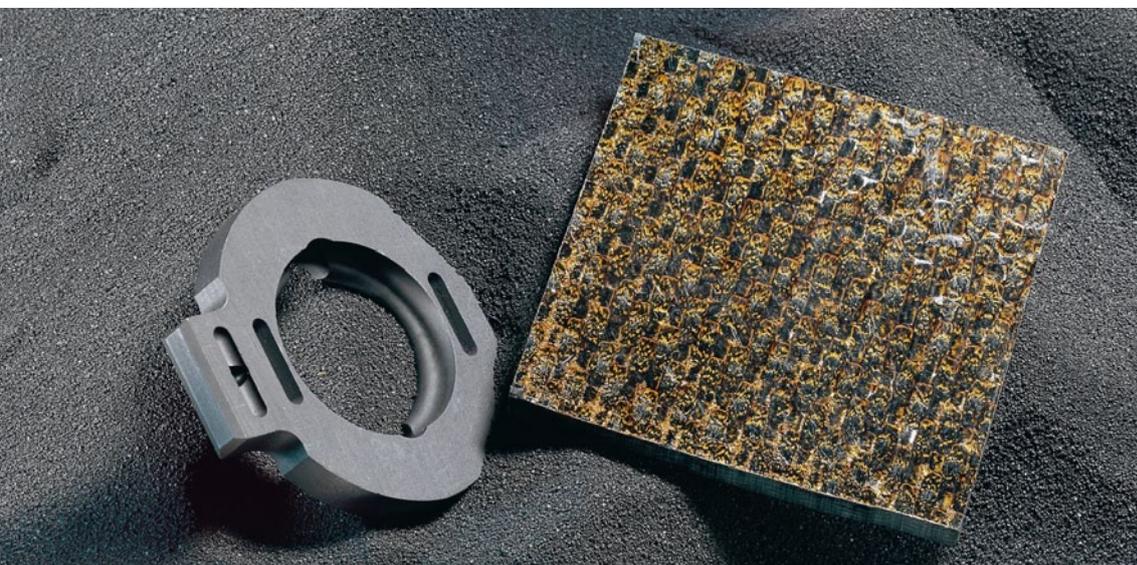
Graph 7: Critical raw materials

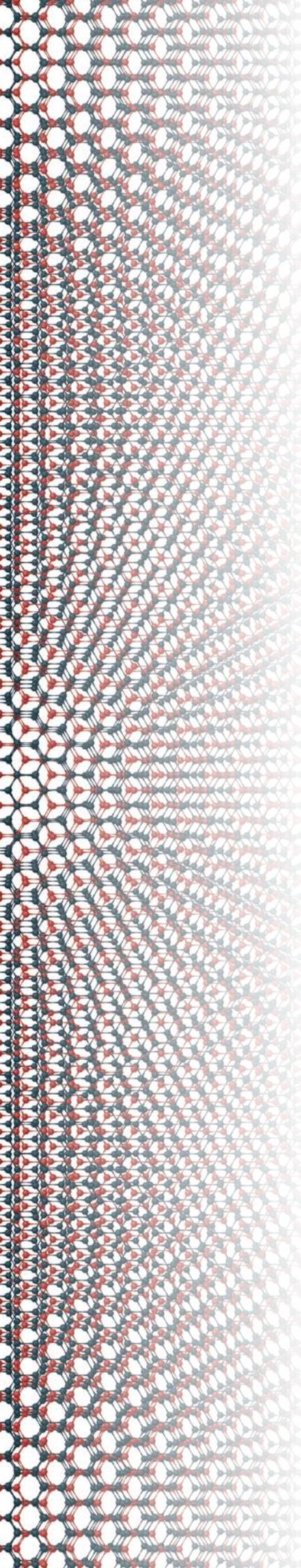


Source: DG Enterprise and Industry, European Commission

Natural graphite was identified as one of these substances which will trigger efforts of the European Commission to improve access to international resources, improve conditions for extraction in the EU where possible and to investigate, through research and innovation, the possible substitution of natural graphite in applications and to increase recycling. 2011 and 2012 will therefore probably see some policy actions, in particular in the context of the EU's Resource Efficiency Roadmap expected for June 2011, which will address in particular material efficiency and recycling issues.

However, only primary raw materials were analysed in the context of this Working Group on Criticality. Other important raw materials, mainly by-products or first stage products were not analysed, but are equally important to the supply chain and their inaccessibility or unavailability can have equally serious impacts on the EU's industry, examples being needle coke and coal tar pitch.





# 5 Graphite and its contribution to energy efficiency

Of equal importance is securing energy at competitive prices for European industries.

In this context in particular the graphite sector, itself also a major user of electrical energy, has been monitoring the rising costs in the past years which have threatened its competitiveness in comparison to its global competitors.

Parts of the carbon and graphite industry can be considered energy-intensive due to the fact that, for example, the graphitisation step in the production of electrodes – an integral part of all types of steel making - requires substantial amounts of energy.

The carbon and graphite sector is contributing to the goal of energy efficiency in many different ways. On the one hand through its products and on the other hand through a continued effort of the operations to reduce their own energy consumption and optimise processes.

Like for many other products that are embedded in the industrial value chain, graphite products contribute to energy efficiency through their high performance functionality. They make a specific energy saving contribution in the whole life cycle of many other products.

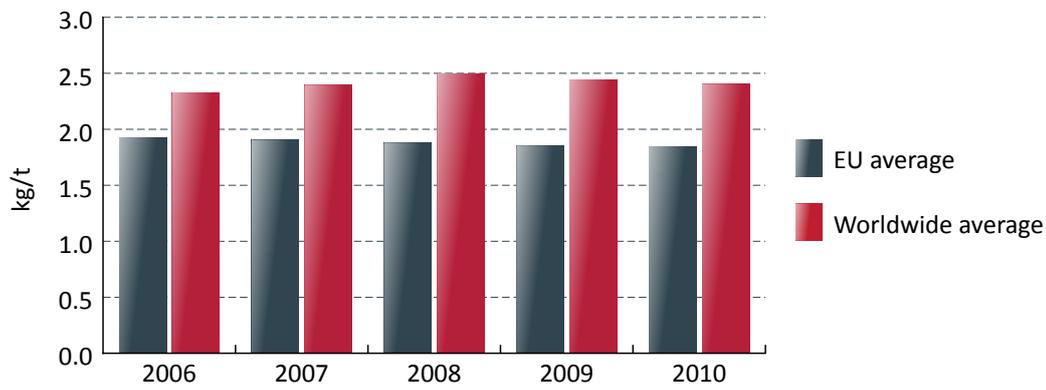
## Example: Steel Making

In the steel making process, the industry has actively contributed to a saving in resources and energy consumption through the continuously increased efficiency of the specific graphite electrode consumption. The specific consumption of electrodes per ton of steel has steadily decreased over the past decades and continues to decrease. However, improvements in electrode and steel quality and the additional environmental protection measures in both industrial processes of graphite electrode and steel production have increased the overall energy consumption.

Thus the increase in efficiency in electrode consumption could only partly offset the increased energy consumption per tonne of final product. Graphite electrodes also contribute to creating the so called “Cycle Economy” which makes optimal use of the resources iron and steel. With the ever growing share of electric arc furnaces operated worldwide to recycle steel scrap, this trend continues.

A comparison of the efficiency of graphite electrodes shows that whilst in Europe the reduction in specific consumption stagnated in 2010, the worldwide situation is improving. This is the result of improving qualities of electrodes produced and improving operating conditions in steel works in non-EU countries.

Graph 8: GE specific consumption



Source: ECGA

Other examples:

## The aluminium industry

The product quality improvement in the area of cathodes and anodes used for the aluminium industry have seen similar improvements and therefore also contribute to resource and energy savings.

## Energy generation

In other areas such as new developments in fuel cell technology or in wind power generators for example, graphite contributes to the generation of new and cleaner energy generation which will in the long term reduce the consumption of fossil fuels and emissions.

## Transportation

Energy savings are also achieved when applying carbon fibres in transportation since its lightweight factor reduces fuel consumption whilst at the same time providing strength and performance.



## 6 EU Climate change policies and competitiveness

The EU's climate change policy, in particular the ETS (European Trading Scheme) scheme post 2013, will be a constraint on the competitiveness of the European graphite industry by imposing further costs on the enterprises which competing producers worldwide do not have to reckon with. This will be the case in two ways: the need to buy emission rights for direct process emissions and compensation for the expected increase in electricity prices which is of significant importance in the case of the graphitisation step. This step is in order to obtain a performing electrode, but it makes the production of electrodes energy intensive and therefore more costly.

After the efforts made in 2009 with the objective of being placed on "the carbon leakage list", the ECGA actively engaged during 2010 in securing that the graphite sector be given a fall-back method for allocation of free allowances for its process emissions.

Given that the sector is a small industrial sector in comparison to others in Europe and its products are spread through many applications, this was not an easy exercise.

The discussions with regard to the allocation of compensation for the expected price-hike in electricity prices will need to be continued in 2011. The political and legal discussions between Member States and the Commission about what can be considered an unfair subsidy in this context, always have to be seen in the light of the competitiveness of the industrial base in Europe.

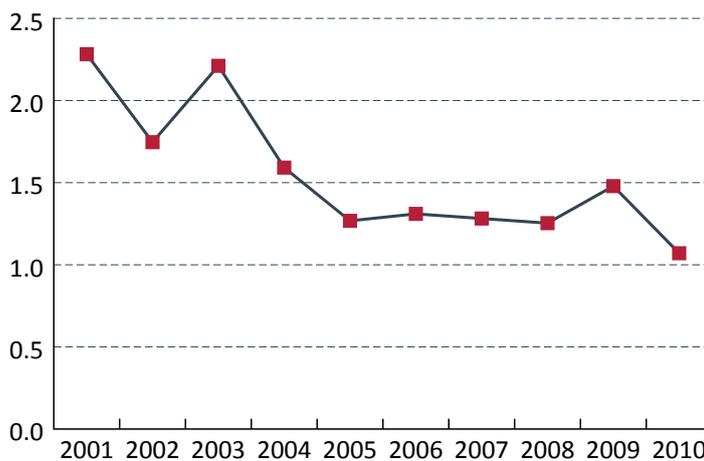
A lack of competitive energy prices in Europe would jeopardise the competitiveness of many industrial sectors in Europe. The example of the slow recovery of the primary aluminium industry in Europe despite a rising aluminium demand is a clear indication that base industries do no longer find the framework conditions in Europe favourable to investment and production. Even the most well-meant EU Communication on Industrial Policy recognising explicitly the need for a European industry and turning away from the concept of a pure service society which prevailed so many years, is not going to change this as long as the EU's climate change and environmental policies do not acknowledge industrial and economic basic facts.



# 7. Environment, Health and Safety

For almost 10 years now, the Association members have been monitoring their performance in terms of accident frequency and severity rates. 2010 saw a continued effort to reduce the frequency and the severity of accidents in the industry. The continued decrease is a result of plant modernisation and streamlining, specific process instructions, consistent internal auditing and detailed accident and incident investigations, training and awareness rising.

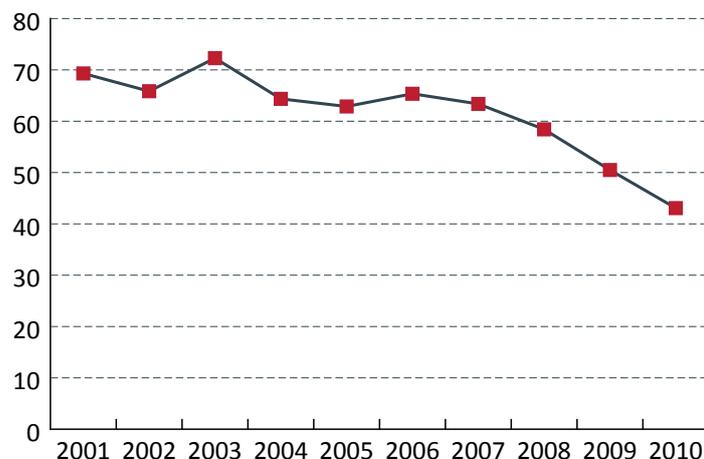
*Graph 9: Frequency Rate Index for ECGA members*  
(Number of lost time accidents related to 200 000 hours worked)



Source: ECGA

The ECGA's EHS Committee also continues to discuss appropriate measures to further reduce the severity of the lost time accidents by assessing reasons and causes for such accidents and implementing safety management systems in all plants. The curves prove that continued improvement is still possible.

*Graph 10: Severity Rate Index for ECGA members*  
(Number of lost calendar days related to 200 000 hours worked)



Source: ECGA

The development of occupational diseases has been equally minimised due to the high quality technical equipment as well as personal protection equipment. Investment in training in behavioural attitudes in the workforce has also paid off. In many areas the professional, circumspect behaviour of workers has improved considerably and lead to lower accident figures.

# Compliance with new EU legislation: REACH

2010 was the year of completing the first registrations of substances under the EU REACH regulation (Regulation for Registration, Evaluation, Authorisation and Restriction of Chemicals). It entered into force on 1<sup>st</sup> June 2007 with the objective to streamline and improve the former legislative framework on chemicals of the European Union (EU). REACH, placing greater responsibility on industry to manage the risks that chemicals may pose to health and environment, applies to all chemicals.



In 2009/2010 ECGA acted as the Secretariat of several SIEFs (Substance Information Exchange Forums) and consortia founded by the ECGA members which included members producing and importing such chemical substances as synthetic and expanded graphite, acid treated graphite and sulphuric acid treated graphite.

Having conducted all the necessary tests and analyses, the consortia submitted their dossiers on synthetic and expanded graphite and sulphuric acid treated graphite in 2010, none of which required classification according to the Classification, Labelling and Packaging Directive. ECGA acted as a contact point for all companies which had REACH related questions to these substances.

In the second half of the year the REACH dossiers were finalized and then successfully submitted to the European Chemical Agency before the deadline. Since then ECGA has been representing the consortia in selling the so-called Letters of Access to those that have to register these substances in the coming years.



ECGA also served as a facilitator for the Carbon SIEF and assisted in questions of classification of calcined anthracite which was exempt from the REACH registration obligation and does not require any classification.

For other substances, the year 2013 is the registration deadline and ECGA will assist in the preparation of the acid treated graphite dossier and possibly of the carbon fibres one.

With regard to the substances exempt from REACH registration like calcined anthracite or natural graphite, ECGA remained active in communicating the position on the exemption to all relevant institutions.

The REACH dossier on coal tar pitch, of which the carbon and graphite industry is one of the major users, was under preparation by the pitch producers. In this context ECGA members were requested as down-stream users to provide exposure scenarios aggregating available data and performing (where necessary) new testing schemes. HT coal tar pitch has been placed on the candidate list for authorisation/restriction in use, but not on the priority list.

In the meantime, ECGA conducted a small socio-economic analysis to prepare the argumentation for authorisation, in case the substance would be put on the priority list.

The sector expects that as a result of the REACH registration exercise after 2010 many more reviews of health and safety practices in the plants will be due, although already a lot of effort has been put into making work places safer.

In view of the pressures on reducing PAHs at the workplace the sector conducted a Europe wide occupational exposure measurement cycle in 2010 and detailed workplace investigations related to the results will be conducted in 2011 with the aim of identifying best practices for the future.

Most ECGA member companies nowadays have installed integrated management systems which have been certified and audited, not only in the area of quality management but also for environment and health and safety.

In the carbon and graphite industry the efforts and measures of the ECGA members to establish and maintain high-level environmental standards have paid off and made the companies more sustainable and resource efficient.

Last but not least it should be noted that the relationship to the competent authorities in a number of countries has also undergone a change over the past years, turning from a mere inspecting authority to an advising and cooperating authority.

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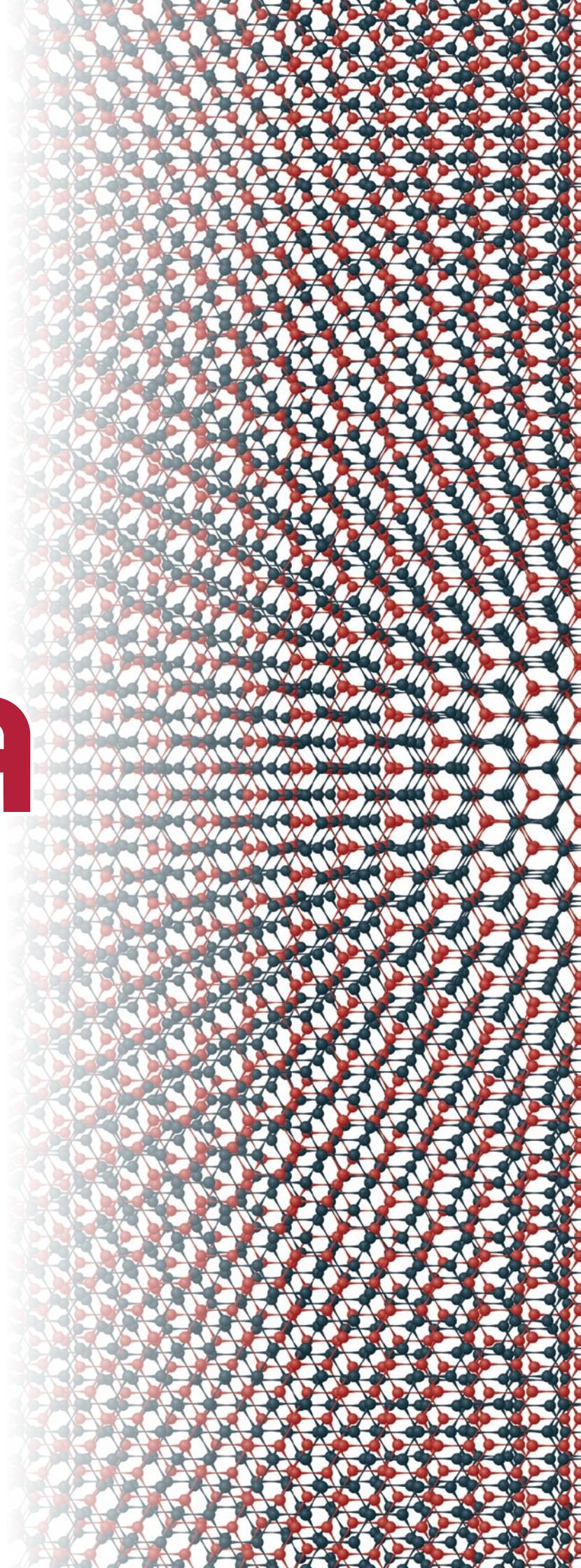
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