

ELECTRIC VEHICLES COULD CAUSE CARBON FIBRE GROWTH EXPLOSION BY 2030

Author: Mark Victory | OCTOBER 2016

On 10 October the Bundesrat, the German federal council, passed a resolution calling for an EU-wide ban on combustion engine cars by 2030. The resolution is nonbinding. Nevertheless, it is a clear signal of intent that it believes the future of automobiles is electric vehicles (EVs) and hydrogen-fuel cells.

The resolution also beseeches the EU to change duty and taxation legislation to favour emission-free cars.

With multiple announcements from various European automobile manufacturers on the development of new electric vehicle models in the wake of the VW emissions scandal, it is clear that models that use neither petrol nor diesel are increasing their public profile and political agency.

A focus on non-petrol engines has obvious repercussions for the petroleum industry as it will reduce need once current models reach end of life.

Nevertheless, a shift away from combustion engine models would likely provide strong growth stimulus for plastic markets.

A similar push towards electric vehicles is occurring in China, meaning that sector growth is unlikely to be limited to Europe.

There remain significant barriers to attracting customers, not least of which are battery life and recharge time.

With current model ranges topping out at around the 200-mile limit, electric vehicles may be suitable for most European countries with compact populations, but in areas such as the Americas and Australia which have significant land mass between major cities, this creates major infrastructure barriers and is likely to cause slower adoption rates.

One of the simplest and most used methods of improving battery life in EVs is reducing vehicle weight.

This would mean adoption of lightweight materials, with plastics already frequently used as an alternative to metals and alloys.

One of the most exciting materials for designers is carbon fibre, which is strong enough to replace the traditional metal chassis, but has a roughly 30% weight saving compared with aluminium.

We discussed in detail in [our recent white paper why EU emissions regulations being brought in for 2020-2021](#) would likely push traditional lightweight alternatives such as PP, nylon, PVC and ABS as alternatives for combustion engine models rather than carbon fibre. Carbon fibre continues to have a significant barrier in terms of cost, being significantly more expensive than aluminium and eating in to profit margins.

Nevertheless, the carbon fibre market is working hard to address this cost barrier, with innovations such as woven carbon fibre instead of knitting, and continuous fibre-reinforced thermoplastic (CFRTP) composites. Coupled with this, increased metal costs caused by investor flight to safety amid recent turbulent macroeconomic conditions have closed some of the gap in cost.

Significant growth in the carbon fibre market would support upstream acrylonitrile (ACN)– with polyacrylonitrile (PAN) becoming a precursor for carbon fibre. In recent years many global acrylic fibre companies have scoped a transition from acrylic fibre to carbon fibre production because acrylic fibre demand was struggling in the face of lower priced alternative fibres. Although acrylic fibre demand has strengthened in 2016 because of an improved cost position, growth is expected to be flat in Europe in 2017, according to market estimates.

SGL Group subsidiary Fisipe has already converted part of its acrylic fibre production at Lavridio, Lisbon, to PAN. It is unclear how much capacity has been converted, but the new PAN line came onstream in September. The move forms part of SGL Group's wider strategy of targeting a 50% sales increase in composites and graphite material and systems by 2020, with the automotive sector being a key target market for that growth.

“With the new precursor line at our Lavradio site we now have the complete value chain of high-quality carbon fiber materials available in-house to further support our customers in developing and utilising innovative lightweight solutions” Andreas Wullner, Chairman of the business unit Composites – Fibers & Materials (CFM) at SGL Group, said in a press release.

The carbon fibre market in Europe is growing, with a rate of 10-20% expected in 2017, according to market estimates, although it only accounts for a minor share of ACN consumption at present.

If the cost barriers can be overcome, carbon fibre could become a major downstream industry for ACN and acrylic fibre, with some market sources expecting a significant increase in demand by 2020, in part driven by innovation.

“There’s a lot of developments in 2016... if it keeps growing it will be an important sector [for ACN],” an ACN producer said on the sidelines of the 50th annual European Petrochemical Association (EPCA) meeting in Budapest, 1-4 October.

Although this is likely to come too late for 2020 emissions targets in combustion engines, EVs have more scope to experiment because of the lack of legislative barriers.

The extended battery life that would make EVs a better consumer prospect could act as a counterweight to carbon fibre cost. If significant tax breaks and incentives are introduced for EVs – as the Bundesrat is calling for – this could effectively overcome the cost versus battery life trade-off and make carbon fibre the production material of choice.

GLOBAL AUTOMOTIVE REPORT

ICIS has launched a Global Automotive report covering the major automotive chemicals markets, auto-industry and macroeconomic trends.

This must-have monthly report provides a global and regional summary, detailed macroeconomics, information

on the ICIS Basket of Petrochemicals (IBAPs) globally and within each region which are updated in every issue.

The report also includes monthly price tables and market summaries of the major petrochemicals used in the automotive industry, all written and compiled by over 30 of our expert editors.

[Find out more and download a sample](#)



PRICING INFORMATION

We provide regional price assessments and market analysis, including price history, enabling you to understand price drivers and set your own prices with confidence.

[Request your free sample price report today](#)



NEWS SERVICE

Our 24-hour global coverage of breaking news includes production updates on plant capacity, output and shutdowns.

[Request a free trial of ICIS news](#)



ICIS is exhibiting at K, the World's N° 1 trade fair for plastics and rubber

19-26 October / Hall 08A / Stand C20 / Trade Fair Centre Dusseldorf

[Find out more](#)



PRICE FORECAST REPORTS

Produced by ICIS Consulting, forecast reports give a rolling 12-month price forecast, trade balances and indepth analysis into where markets are heading - providing a valuable tool to support your short to medium term plans.

[Find out more about the price forecast reports](#)

