ACEA European Automobile Manufacturers Association

To whom it may concern

Brussels, November 2014

Subject: ACEA Comments on the public consultation on ECHA's recommendation for inclusion of Boric Acid (CAS 10043-35-3; 11113-50-1), **Diboron trioxde** (CAS 1303-86-2), **and Disodium tetraborate, anhydrous** (CAS 1303-96-4, 12179-04-03) **in the Authorisation List**

The European Automobile Manufacturers' Association (ACEA) represents the fifteen Europe-based car, van, truck and bus makers: BMW Group, Daimler, DAF, Fiat Chrysler Automobiles, Ford of Europe, General Motors Europe, Hyundai Motor Europe, Iveco, Jaguar Land Rover, PSA Peugeot Citroën, Renault, Toyota Motor Europe, Volkswagen Group, Volvo Cars and Volvo Group.

In the context of the proposed authorisation of Boric Acid, Diboron trioxide and Disodium tetraborate, anhydrous it is noted that the substances are used in the manufacturing and formulation or processing of a huge number of automotive parts (several thousand part numbers).

Boric Acid is used in
- Production of adhesive resin, silicon rubbers and sealants.
- Chromium plating
- Nickel Plating bath
- Displays

Diboron trioxide is used in
- Serigraph enamel of glass

Disodium tetraborate, anhydrous is used as
- Antifreeze (for engine coolant)
- Lubricants
- Metalworking fluid
- Water treatment chemicals
- Fuel additives
- Flux agents (in the production of stainless steel)

The above lists of applications are not exhaustive.

Boric Acid is used in Chromium plating process, in galvanization and passivation as a buffer, in nickel-plating baths and in weld joints.
These substances have important role in the production of silicon rubber articles (e.g. hoses), adhesive resins sealants and capacitors.

It's used also as cross-linker to make high-strength Polyvinyl Alcohol (PVA) fibre in displays.

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It is also used as a flame retardant in rubber.

The function of the tetraborates in the industrial fluids includes corrosion inhibition, buffering action, lubrication, stabilisation of thermal oxidation, etc.
In the metallurgy area the tetraborates are used as flux agent during the smelting operation to dissolve metallic oxide impurities so that they can be removed with the slag in the steel and non-ferrous metal production.

In all the mentioned applications, tetraborates of very high concern as well as Boric acid are only used in the manufacturing process and not contained in the finished articles, therefore consumers and the environment remain unexposed to those compounds (as identified in the Annex XV dossier).

Not in scope of authorization for Borates are the uses as intermediates in the manufacture of other substances (including in the glass and ceramic/frit sectors), uses of mixtures below the specific concentration limit for classification (SCL), biocidal product uses and laboratory uses.

In addition, substances and mixtures containing Borates intended for sale to the general public (if classified as Repr. 1A or 1B), are restricted by REACH annex XVII, entry 30. So, there is no risk of exposure of consumers and the exposure risks are limited to the workplace.

According to our supply chain, Risk Management Measures (RMMs) are currently implemented in a way that protects both the workers and the environment.
RMMs are communicated via the eSDS, which allows the site risk assessment to be carried out as required by the Chemical Agents Directive (98/24/EC); these mechanisms assist in ensuring worker safety.

As the risks are adequately managed, we think that authorization procedure is not the appropriate RMO for these substances.

According to downstream users of tetraborate-based lubricants and of boric acid-based Chromium plating, Nickel bath plating and silicon rubber processing the products cannot be replaced with the same level of performance and cost efficiency, based on their experiences from assessing alternative substances for these products.

Moreover, in Chromium plating, Boric Acid has a role in the process of CrIII technology, instead of CrVI technology, whose sunset date is scheduled for September 2017. We are extremely concerned about a substitution of a current process with Annex XIV substances, to a new process, which has taken several years development for the automotive sector, if substances in this new technique will then be subject to further substitution pressure in the future.
By placing the borates on Annex XIV, we anticipate the need to extend further the authorization for chromium VI compounds in the plating process.

Due to the issues highlighted above, we think that authorization is not the appropriate RMO for these substances and would immediately lead to a loss of competitiveness and competency for the European Automobile Industry because processes involving borates would probably be transferred outside of Europe.

Hoping that the Committees will find this information useful, we gladly offer further consultation with representatives of the automotive industry to help define a sensible and pragmatic approach to the current issue.

With best regards

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ACEA – European Automobile Manufacturers Association

Attachments

Annex A: Key Information on the Automotive Sector

A. KEY INFORMATION ON THE AUTOMOTIVE SECTOR

1. Importance and Structure of the EU Automotive Market

Vehicle manufacturing is a strategic industry in the EU, where 16.2 million cars, vans, trucks and buses were manufactured in 2012. In the same year, the sector employed 12.9 million people (representing 5.3% of the EU's employed population) and the 3 million high-skilled jobs in automotive manufacturing represented 10% of EU manufacturing employment (ACEA, 2013).

ACEA's members operate 208 vehicle assembly and production plants in 22 countries across Europe. In 2012, motor vehicle production in the EU-27 accounted for 19% of worldwide motor vehicle production and passenger car production accounted for 23%. The European automotive industry is truly a global player, delivering 6.6 million 'Made in Europe' vehicles around the world, and bringing in a €92 billion trade surplus. The €840.5 billion turnover generated by the automotive sector in EU 27 in 2011 represented 6.9% of EU GDP and the industry has ripple effects throughout the economy, supporting a vast supply chain and generating an array of business services (ACEA, 2013).

Figure 1 provides a breakdown of the EU automotive market (based on the ca. €800 billion turnover of the industry).

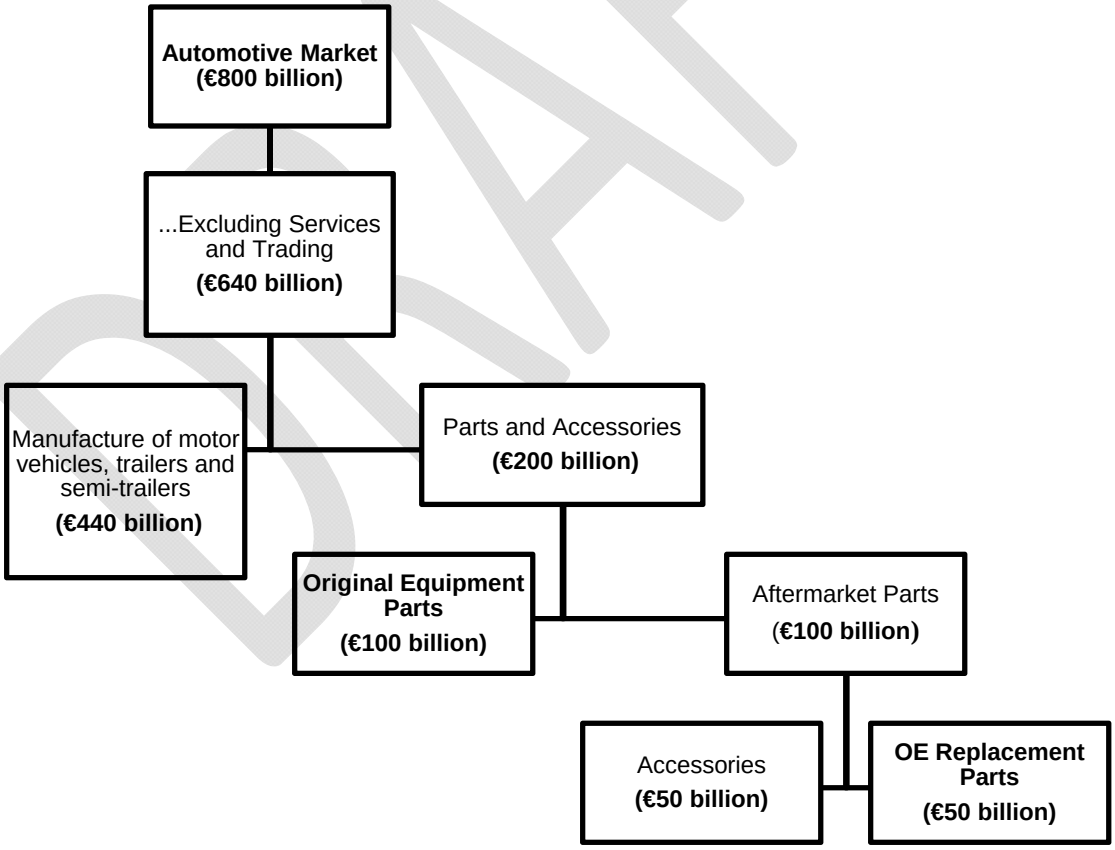

Figure 1: EU Automotive Market Breakdown (DG Enterprise, 2012a)

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Automotive parts are generally defined as either:

- *Original Equipment (OE)* parts, which are used in the assembly of a new motor vehicle or are purchased by the manufacturer for its service network; or
- *Aftermarket* parts, which can be divided into two categories: **past model service parts** (which are automotive parts built or re-manufactured to replace original equipment parts as they become worn or damaged and accessories) and **accessories** (which are parts made for comfort, convenience, performance, safety, or customisation, and are designed for add-on after the original assembly of the motor vehicle) (DG Enterprise, 2012a).

The *manufacture of parts and accessories* accounts for around **€200 billion** (ca. ¼ of the market) and aftermarket parts is estimated at around half of this (€100 billion), split evenly between the independent side (accessories) and the original equipment side (past model service parts) (European Aftermarket Report, 2009; DG Enterprise, 2012a). As shown in Figure 1, the manufacture of **current vehicle parts** and **past model service parts** forms a significant proportion of the overall automotive market and this is perhaps not surprising when one considers the incredibly diverse nature of systems and components produced and used within the automotive industry.

2. Numbers of Components and Parts

Typically, in a single vehicle, there are between 4,000 – 9,000 different **main** components and assemblies (without multiple entries for one specific part). The following figures give an indication of the range of parts and components used in automotive manufacture[1]. Figure 2 shows (in the main) a car dismantled into its constituent parts, and Figure 3 shows the principal parts of a car engine.

Figure 2: A car dismantled into constituent parts (Volkswagen AG, 2013)

[1] Please note: As these examples are **illustrative only,** their technical accuracy has not been verified.

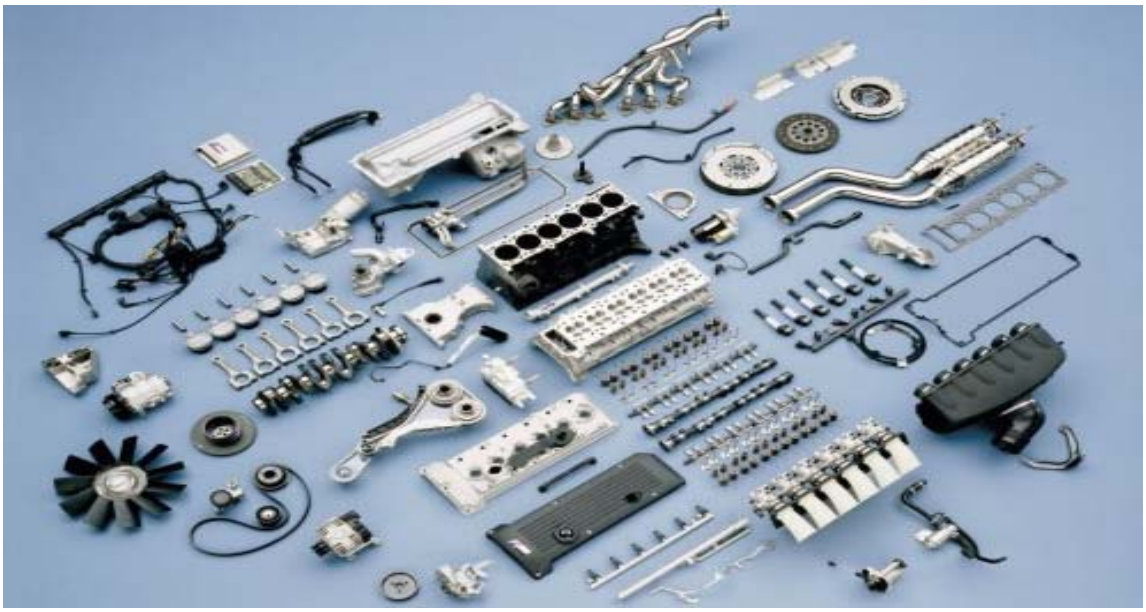


Figure 3: Principal engine parts of a car (HubPages, undated)

3. Structure of the supply chain

In addition to being one of the most economically important industries in the EU, the automotive sector is also one of the most technically complex. This high degree of technical sophistication within the industry has also characterised its supply chain structure, which has formed over the decades as companies have focussed on their core competencies to preserve high efficiency.

Automotive supply chains will typically evolve around Original Equipment Manufacturers (OEMs), who assemble vehicles and deliver them to dealers. The assembly is performed in a network of manufacturing plants. These plants do not merely put together vehicles but form a multi-tier manufacturing system including the manufacturing of such parts as exterior sheets and engines (Chandra & Grabis, 2007).

Traditionally, the value chain of the automotive industry can be said to be in a pyramid structure, as shown (simplistically) in Figure 4, below.

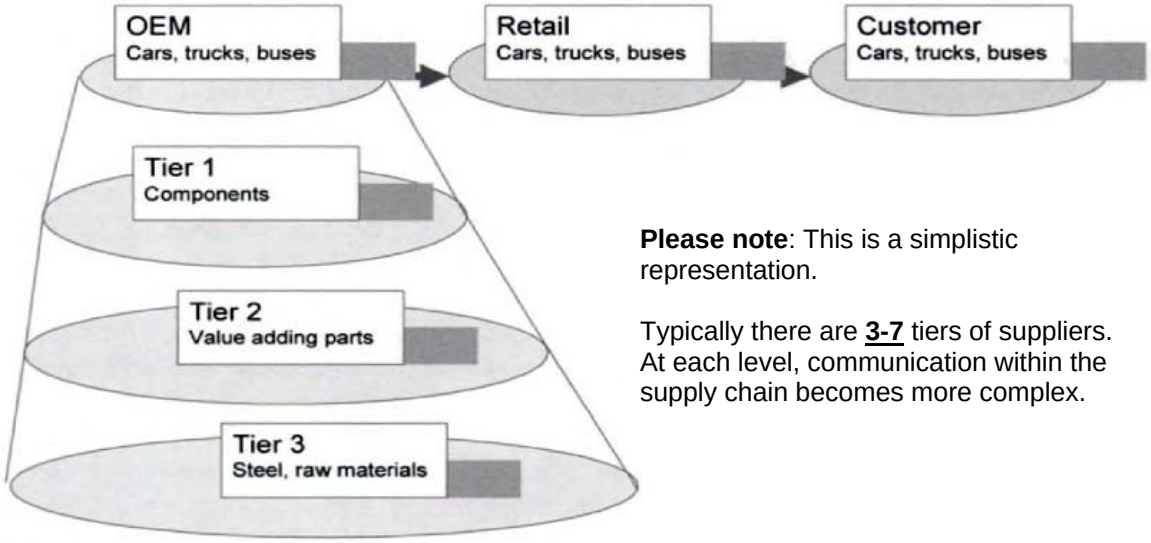


Figure 4: Basic structure of the automotive industry (Heneric et al., 2005)

Typically, around 75% of a vehicle's original equipment, components and technology are sourced from automotive suppliers (European Commission, 2013).

As reported by DG Enterprise (2012b), **Tier 1** suppliers are component manufacturers delivering directly to the final vehicle manufacturers or OEMs. These suppliers are typically responsible for the manufacture of separate technical units and components (such as the safety belts, tyres, glass, exhaust systems, replacement brake linings, etc.) and, as such, have the primary responsibility for seeking type-approval for them. Tier 1 suppliers work closely with vehicle manufacturers/OEMs to design, manufacture and deliver these complicated automobile systems, although they rarely deliver their products to only one OEM. Tier 1 suppliers also tend to be large or very large enterprises originating from the USA, Japan, or Europe (but all active within Europe) and may be active not only in the manufacturing of motor vehicles, but also in other sectors such as electronics, mechanical and electrical engineering, information technology, steel, chemicals, plastics, metals and rubber, etc. These suppliers also have considerable turnover and the

largest Tier 1 suppliers have over 1,000 subcontractors (mostly SMEs operating in lower tiers). A few SMEs can also be found in niche segments of the automotive market at this tier (e.g. body builders).

Tier 2 suppliers are companies that produce value-adding parts or more simplistic individual components (e.g. the housing of a fuel pump) in the sub-assembly phase. Tier 2 suppliers buy parts or raw materials (from Tier 3 and others) and deliver components to companies in the higher tiers. A significant proportion of SMEs in the automotive sector are generally found in this tier of suppliers.

Tier 3 and lower suppliers are companies supplying engineered materials and special services, to companies in the higher tier. They rank below Tiers 1 and 2 in terms of the complexity of the products they provide and SMEs can also be found in this tier of suppliers.

4. Key Issues: Current Production Parts

At the present time, OEMs are facing enormous challenges – with ongoing globalisation, companies are competing against more competitors and deal with expanding individual customer requirements. Competition is also becoming more complex (Schmitt & Schmitt, 2013).

In order to meet customer requirements and remain globally competitive, the pace of innovation has accelerated, product lifecycles are getting shorter and the variety of different product variants is increasing. As a result, the ramp-up phase (i.e. the phase between the development and serial production) is of high importance as it is passed through more often. Indeed, for OEMs the number of ramp-up processes has tripled in the last two decades and, at the same time, the number of different vehicle versions had increased 61% (between 1999-2005) (Schmitt & Schmitt, 2013).

These tendencies are of major economic importance and a delayed product launch results in lost sales which cannot be compensated for due to shorter product lifecycles, especially since prices are higher shortly after entering the market. Furthermore, resources are tied into finding and implementing solutions generating additional costs. A major cause for delays is fulfilling quality requirements. Most product flaws and defects originate from early product phases (Schmitt & Schmitt, 2013).

The automotive industry has rigorous testing and validation procedures to prevent these failures reaching the customers. This means that a longer period of time may be required to effectively substitute the use of a particular substance.

As discussed, thousands of individual components are used to manufacture automobiles, and where a substance is to be phased out or replaced in the affected components, the automotive industry must revalidate all relevant components and parts using suitable alternative materials. To implement such changes requires significant efforts and time from a variety of actors in the supply chain. Indeed, even identifying the original source of the parts is a very complex task - increasingly complicated supply chains have created a situation where parts' data is distributed across a wide network of suppliers' databases. The challenge of parts tracking in this environment requires maintaining data views across constantly-restructuring networks of information systems as new suppliers are contracted and subassemblies are outsourced (Robson et al., 2007).

Furthermore, what was not previously noted in relation to Figure 4 is the sheer number of companies operating at each level of the automotive supply chain and the potential for individual companies to also act at more than one level, e.g. a single company may be a Tier 1 supplier to one company and a Tier 2

supplier to another (see Figure 5). Industry experts note that an OEM can have (on average[2]) between 1500-4500 Tier 1 parts suppliers and a Tier 1 supplier can have between 500-1500 Tier 2 suppliers. Combining the lower estimates with a conservative assumption that a Tier 2 supplier has 50 Tier 3 suppliers, suggests that even the shortest automotive supply chains have the potential for millions of potential supplier linkages for individual components. As a result, it is often very difficult for the end user to identify the country of origin.

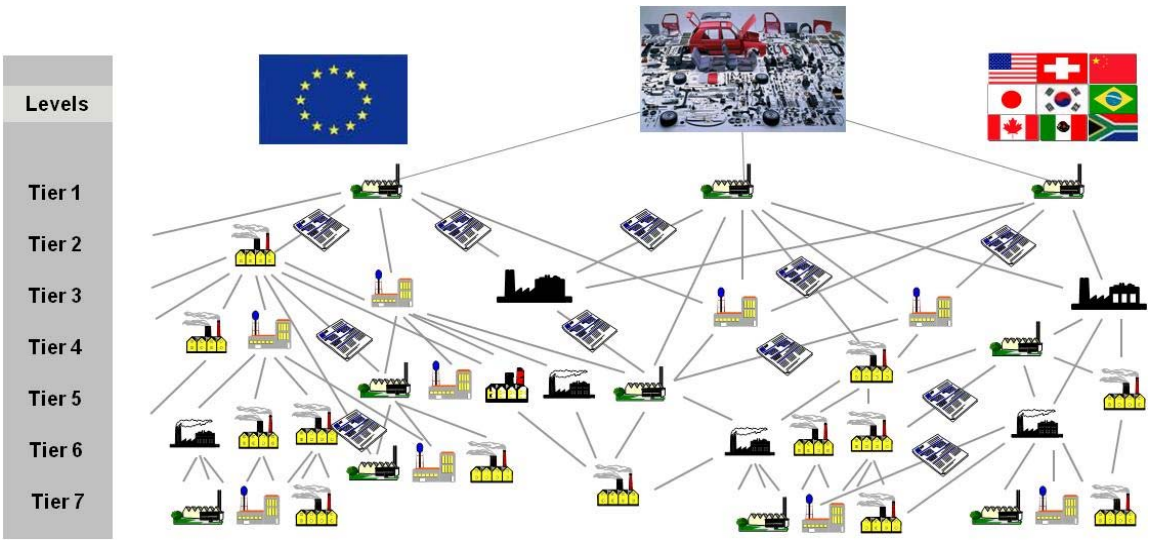


Figure 5: Schematic representation of the automotive supply chain (ACEA, 2009)

The traceability of parts is further complicated by the following issues (as discussed in DG Enterprise 2012a):

- Tracing capabilities are heavily customised to support existing trading partner relationships, with a lack of the transparency needed to track parts flows across the entire supply chain. With no means to trace defective parts to the subset of vehicles affected by them, auto manufacturers have, as a matter of safety, followed a sweeping approach in which vehicles of entire model years are recalled. This may be the single most important reason that recalls are so costly and inefficient ;
- Most components are currently traced by lot and stored at the point of manufacturing or assembly, rather than by serial number. Because of the lack of a one-for-one relationship in identifying the actual parts that make up the final assembly and the unique identification of the final assembly itself, this creates a blind spot in tracing a part genealogy. Also, while engines, air bags and other safety-related parts are traced by serial number, most existing traceability solutions for non- safety-related parts are not automated; and
- Traceability data is often stored in multiple applications, and seldom shared with supply chain partners. Different coding and presentational formats also increase the technical effort at the supplier side and make data capture difficult.

The above information also has to be considered within the framework of the overall development cycles for automobiles within the automotive industry, which is 3-5 years.

[2] Depending on the size and sourcing strategy of the individual OEM.

The automotive industry needs sufficient time to revalidate components containing the affected substances, and subsequently the availability of the affected components could be affected. Furthermore, attempts to replace components with alternatives not evaluated thoroughly enough could occur if substitution were to take place within an accelerated timescale. Such pressures could lead to failures in the field and later product recalls. As well as the paramount issues of consumer safety, such recalls have the potential to damage carefully developed brand equity, spoil customers' quality perceptions, tarnish a company's reputation and lead to losses of both revenue and market share (Ciravegna, 2012).

It is pertinent to also consider that, given the difficulties that may be faced by EU manufacturers in producing alternative components by the sunset date, OEMs may be required to bridge the supply gap by importing more components and systems from non-EU material / component suppliers who are not covered under the auspices of authorisation requirements. This effect would also be magnified for EU based OEMs (i.e. those headquartered in the EU) who typically use 70-80% EU suppliers (contrasting with non EU OEMs who use ca. 20-50% EU based suppliers)[3]. Based on these figures, and when one also considers that an EU OEM could be using up to 4500 different suppliers, up to 3600 of these suppliers for EU based OEMs may be based in the EU.

Furthermore, given the symbiotic nature of the automotive supply chain, if the manufacturers are unable to bridge the supply gap for parts, the lack of availability of affected parts could affect vehicle production volumes which, when considering the economic importance of the automotive industry to the EU economy, could have widespread negative effects.

5. Key Issues: Past Model Service Parts

To enable the automotive industry to continue to supply **past model service parts**, an unlimited exemption for authorised substances is required for the following reasons:

- Legal type approval requirements and minimum 10 year warranty obligation (availability of past model service parts) must be fulfilled;
- Stockpiling of past model service parts has only limited possibility: Storage capacity / availability , expiry dates e.g. for rubber parts;
- Re-development & re-validation is very costly and technically very difficult;
- Substitution of substances can cause changes in function, geometry, thermal durability and may have an unexpected impact on other related parts.

Both of these requirements and the surrounding issues are discussed individually below. These discussions should be read bearing in mind the context provided on the structure and importance of the EU automotive market (Section 1 above), the vast array of parts and components manufactured (Section 2 above), and the complex and intertwining activities of actors at all levels of the supply chain (Section 3 above).

As discussed above, past-model service (or 'aftermarket') parts form an important and economically valuable piece of the automotive supply chain (a more detailed breakdown of the aftermarket landscape can be seen in Figure 6). The production and supply of past model service parts essentially addresses a

[3] These figures are based on a recent investigation the automotive industry has performed in order to better understand the complexity of its supply chain.

major challenge in the automotive industry with regard to the different lifecycle periods associated with entire vehicles versus their integrated components (i.e. as the life cycle of a vehicle is significantly longer than the lifecycle of, for example, embedded electrical components, these will need to be replaced during the vehicle's lifetime, and therefore past model service parts need to be available to the consumer).

Typically, past model service parts are provided during the production life of the vehicle but also for a **minimum** of ten years after serial production has finished. This period can often extend to the lifetime of a vehicle which was produced thirty or more years ago.

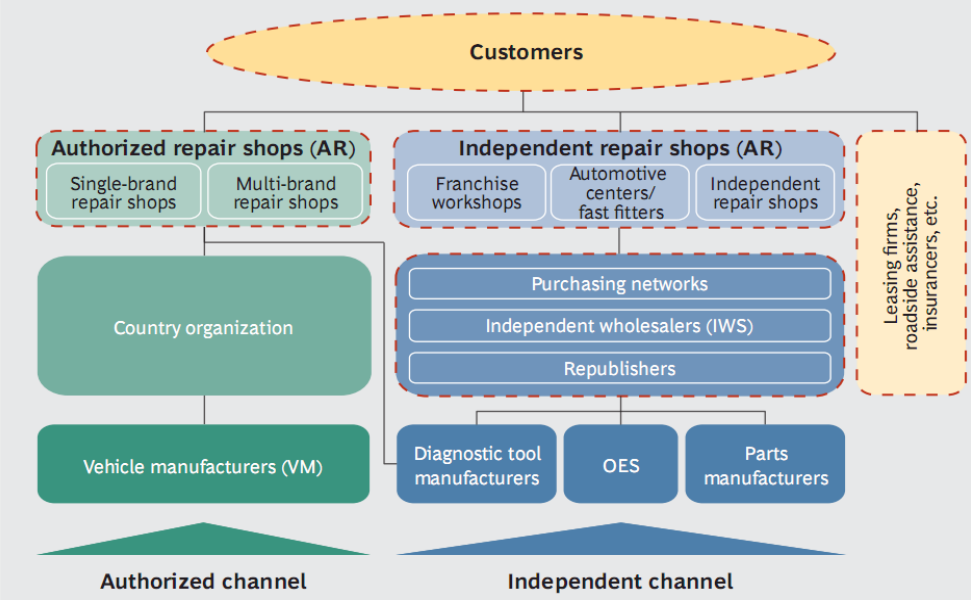


Figure 6: Overview of European aftermarket landscape (divided into 'authorised' and 'independent' channels) (BCG, 2012).

As can be seen in Figure 7, ca. 36% of the EU passenger car fleet (which, based on an overall figure of 224 million (from ANFAC, 2010) equates to ca 80 million cars) is over 10 years old. When one considers the age of the fleet, the importance of guaranteeing an efficient past model service parts supply beyond the end of serial production cannot be over-emphasised. Essentially, long supply periods are vital to offer a high degree of service for many millions of EU consumers.

Figure 7: EU Passenger car fleet (% share by age in 2010). Note: Information from 12 EU member states where information was available (ACEA, 2013)

As parts cease production for running series / volume manufacture, quite often the tooling and bill of designs are transferred from a large manufacturer to another supplier (usually an SME) to enable low volume manufacture of spares to continue, extending the serviceable life of the vehicle.

These SMEs have the technical capabilities to produce the past model service parts according to the original method; but are likely to lack the expertise necessary to develop and test an alternative spare part (as would be the necessary case if no exemption to the use of authorised substances in these parts was

granted[4]). Changing one or more substances used in the current past model service parts is not a simple, straightforward task; it requires serious efforts for development and testing, which is in many cases neither economically nor technically feasible when one considers the low production volumes of these service parts. Furthermore, distributing the costs of development and testing between such a small number of products would drive the prices of past model service parts produced by EU manufacturers to an excessively high level, and only seek to encourage the import of components and parts from outside the EU. Furthermore, the re-validation of the altered spare part has to be based on the original vehicle, which in many cases may not be available to the spare part manufacturer. In addition, each model has been tested for safety; reliability etc. with the past model service parts currently in production; there is no guarantee that the same standards would be met after changing affected substances. Substitution of substances can cause changes in function, geometry, durability and may have an unexpected impact on other related parts. Consequences of failing to meet the original standards cannot be overstated when considered in the context of safety critical applications.
The impacts of the substance having to be phased out by the sunset date may have considerable impacts throughout the supply chain (including on consumers), causing overall business disruption, as well as potential problems related to disposal of unsold parts. In addition to the aforementioned concerns, a decrease in the availability of past model service parts could also cause an increase in the dangerous import of counterfeit automotive parts. This is a particular concern at this time as Europol (2013) have recently reported that automotive parts (such as counterfeit brake pads, tyres, suspension components, steering linkages and other accessories) are being distributed and sold to consumers in greater volumes. Not only could this be a major concern for the health and security of consumers but it could also threaten legitimate EU suppliers.

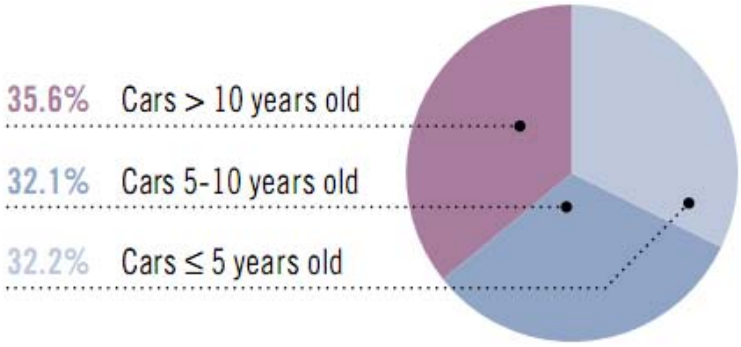
There is also no guarantee that a substance used as a replacement for an authorised substance would not itself face the requirements of authorisation in the future, meaning the industry would again have to also repeat expensive requalification and remanufacturing campaigns. Similarly, other substances used in past model service parts, although not currently under authorisation, may undergo authorisation in future. This further justifies the need for an unlimited exemption for past model service parts, **for all substances**).

6. Conclusions

Manufacturers of service parts for past models require an unlimited exemption, due to the potentially long service life of these vehicles and the need to ensure that their safety is not compromised. This exemption is also essential to ensuring that industry warranty obligations and legal type approval requirements are fulfilled. It must be emphasised that ACEA's general wish and recommendation is that an exemption is extended to all substances which undergo authorisation in the future (and is not limited to any "applied-for uses"). In this context, we would seek to obtain this general exemption for past model service parts in a similar manner to the End-of-Life Vehicles Directive Annex II exemptions. For example, we would propose adding to REACH Annex XIV a **repair-as-produced clause for each substance listed on Annex XIV** such as:

[4] These arguments stand not only for DEHP, but are also relevant for any other substances used in the manufacture of past model service parts which may undergo authorisation in the future.

"Substances for past model service parts that are manufactured after the sunset date, which are used for vehicles that ceased production before the sunset date shall be exempted from the provisions of Article



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