

Support of AfAs for the production of chrome-plated components in Europe – long-term planning certainty for the automotive industry is essential

A) Planning reliability in the authorisation process – early decision on upstream approach with reasonable review periods to allow for competition in Europe

The European automotive supply chain uses chromium trioxide under high levels of occupational safety to manufacture chrome-plated parts in significant numbers for use by vehicle manufacturers¹. Chromium trioxide is used during the production of the chrome layer and it is not present in the final chrome layer. Chrome-plated parts can be imported into the EU without restrictions.

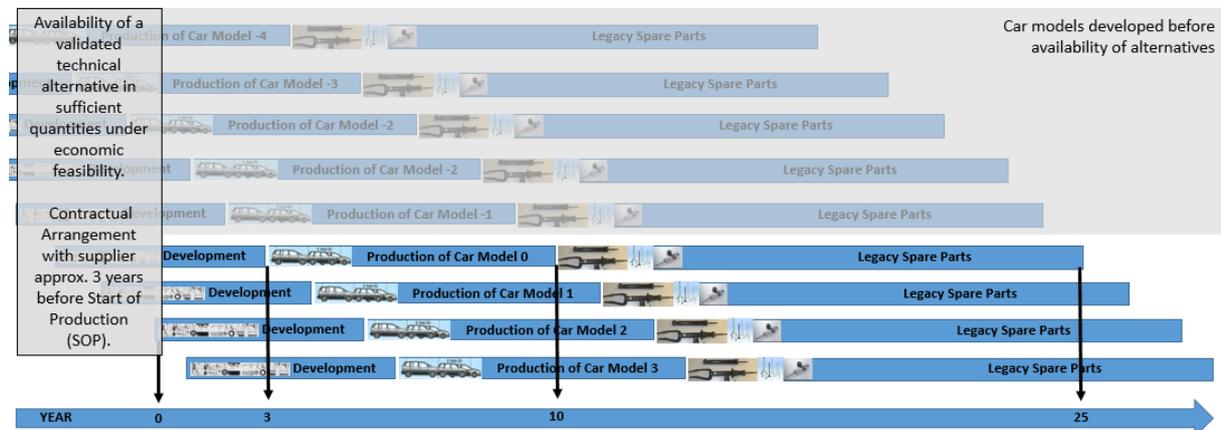
In the light of the fast approaching REACH sunset date of 21 September 2017, it is worth mentioning at first that OEMs are not allowed to apply for an authorisation of chromium trioxide and are fully dependent on the supply chain's application for authorisation (AfA).

Independent of individual AfA, with long review periods of up to 27 years for specific parts, the whole automotive industry is closely following the upstream application of CTAC² for three reasons:

- 1) It is currently the **only AfA that allows competition between different European part suppliers on an equal basis** (all EU suppliers are covered under the AfA and the same review period applies to them).
- 2) It is most probably the **only AfA that will be granted already in 2016**. The current situation generates an atmosphere of uncertainty close to the sunset date in an industry that needs to plan decades ahead.
- 3) It is the **AfA that allows suppliers to continue with production in Europe**, based on reasonable review periods of 7 and 12 years which provide **planning certainty for developing alternatives in Europe**.

A signal towards a shorter review period would distort competition between suppliers in Europe, but would have an even greater impact on competing with non-European companies - instead of promoting increased environmental compatibility of chrome-plating and the development of alternatives in Europe according to a reasonable timeline. Hence, **all eyes are now on the decision of the European Commission and the Member States on the upstream application for authorisation of CTAC, due later this year**. In addition, we support the individual AfAs which clearly demonstrate the need for even longer review periods of specific chrome-plated parts, of up to 27 years.

Figure 1: Example of the schedule needed to introduce chrome-plated plastic parts in the serial production of car models when a validated alternative is available and capacities are available.



¹ It is important to remember that **hexavalent chromium is not present** in the final chrome-plated parts that are used in today's passenger cars and light commercial vehicles. Thus, these final parts are not regulated under the REACH authorisation scheme.

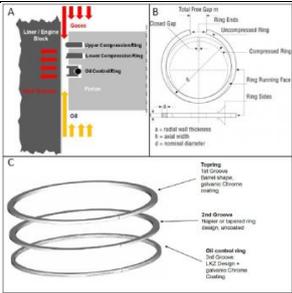
² Chromium Trioxide Authorisation Consortium

The availability of potential technical alternatives in sufficient quantities under economic feasibility is the start but not the end of a successful substitution. Figure 1 provides a schedule on how to introduce alternatives once they are available for the different car models of the OEMs. This is one example of an industry substitution strategy. However, it will require **reasonable review periods to allow for competition of alternatives within Europe**. Any general review period below a minimum of 10 years is inadequate for the current production processes in the automotive industry. 25 years are even more appropriate as long as the authorization process in REACH is lacking on a solution for spare parts.

B) Planning certainty in Europe – Component examples

Approximately 17 million cars are produced each year in Europe, containing on average 100 chrome-plated components per car. Every single component is essential to the production of a safe and technically reliable car, as well as to guarantee its longevity. Chrome-plated parts have a broad range of individual functionalities reflected in the applicants' dossiers, eg corrosion resistance, hardness, layer thickness, adhesive strength, coefficient of friction, abrasion resistance. All chrome-plated parts have been continuously tested, validated and improved over many years.

The table below lists examples of components that still require chrome-plating. Without an authorisation the suppliers' only **alternative for the moment is producing these parts outside Europe**. (AfAs mentioned as known by 2/2016):

1. Parts without which a car would not start		
<p>Fuel injectors: Essential function of the chrome layer to meet the current and future CO₂ targets under EU emission standards.</p>		<p>AfA: Bosch, production <u>until 2044</u>, alternative: production outside EU (eg Turkey)</p> <p>Other producers of injectors covered under CTAC, production <u>min. until 2029</u></p>
<p>Valves: Requires chrome plating for chemical and wear resistance, substituted (eg nitrocarburizing) in cases with lower technical requirements.</p>		<p>AfA: Federal-Mogul, production <u>min. until 2029</u>, alternative: production outside EU (eg Thailand)</p> <p>Other producers of valves covered under CTAC, production <u>min. until 2029</u></p>
<p>Piston rings: Advanced particle enhanced chrome layer for compression and/or oil ring required to meet functionality and life time and to fulfill future emission legislations (eg CO₂/NO_x).</p>		<p>AfA: Federal-Mogul, production <u>min. until 2029</u>, alternative: production outside EU (.g China, India, Mexico, Turkey and USA)</p> <p>Other producers of piston rings covered under CTAC, production <u>min. until 2029</u></p>

Source Pictures: 1 Bosch, 2/3 Federal Mogul

2. Parts without which a car would not stop		
<p>Brakes: Critical parts with strict design criteria, several years of full scale testing and type approval requirements, not changeable for existing models and spare parts, some brake callipers require nitrocarborizing, other callipers require chrome plating, brake exempter shafts and angle balls require chrome plating in heavy-duty drum brakes.</p>		<p>AfA: the producers of brake components are covered under CTAC, production <u>min. until 2029</u></p>
<p>Piston rods: The shock absorber rods are also relevant for short braking distance; any failure of the highly stressed functional chrome-plated layer is unacceptable.</p>		<p>AfA: the producers of piston rods are covered under CTAC, production <u>min. until 2029</u></p>
<p>Source Pictures: 1/2 ACEA/ZF-TRW</p>		

3. Parts without which a car would not last that long		
<p>Metal parts: Such as safety belt tongue, head restraint, exhaust pipe and others with type approval requirements.</p>		<p>AfA: the producers of these parts are covered under CTAC, production <u>min. until 2024/2029</u> (use 2 and 3)</p>
<p>Chrome-plated plastic parts: that Require a metallic surface and resistance (including etching of the plastic substrate).</p>		<p>AfA: the producers of these parts are covered under CTAC, production <u>min. until 2024</u>; a few producers mainly in Germany are covered under a separate AfA with production <u>min. until 2029</u></p>
<p>Tools to produce automotive parts: Not of direct use in the car, however, some tools, press dies, machinery and production equipment require the hardness to last longer and the low adhesion and thus being more efficient in producing thousands of parts.</p>		<p>AfA: the producers of these parts are covered under CTAC, production <u>min. until 2029</u></p>
<p>Source Pictures: 1 ACEA, 2 FGK, 3 VDMA</p>		

4. Parts that are claimed to be already substituted

Promoters of Nitrocarburizing and PVD techniques claimed to have successfully substituted many chrome-plated parts in cars during public consultation. These both techniques are relevant for car production too. However, application scope and layer function may be different and need to part of substitution considerations. It has to be stated that the mentioned parts have never been chrome-plated or already been substituted and are anyhow out of scope of the AfA:

Alternative Nitrocarburizing:
Wiper axles,
one of the three piston rings,
brake disks,
simple gas springs,
ball pins,
synchroniser rings,
differential axles,
gear shafts,
clutch components,
shift shafts,
part of the brake components,
valves without requirements of chemical resistance.

Alternative PVD:
Chrome-plated plastic parts that do not require a metallic surface and resistance (less than 1%).
Alternative Chrome(III):
Chrome-plated plastic parts that require a metallic surface, some parameters not yet fulfilled, etching still with Cr(VI).

Alternative Nitrocarburizing for tools to produce automotive parts:
Automotive stamping tools, re-strike die operations, draw dies for skin panels/structural parts and plastic injection moulds, whenever hardness and low adhesion is not a requirement (most cases).

C) Longevity in the automotive industry – need for long review periods



The long life-time of vehicles, the multiple models in different stages of their life-time, the complex supply-chain, and the long lead time for substitution require reliability in Europe:

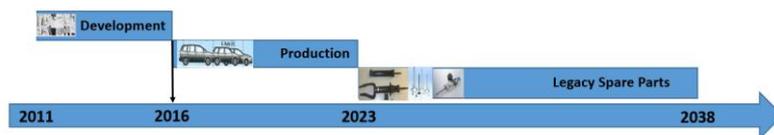
European automotive manufacturers will introduce **160 new car models in 2016**.

A typical production timespan from the start of production (SOP) to the end of **production (EOP)** is about **7 years**.

This follows an intensive **development** phase of **3 to 5 years** ...

...and is followed by a guarantee on **legacy spare parts (LSP)** of approximately **10 to 15 years**, in some cases even longer³.

Figure 2: Timeline of new models with SOP in 2016 that have been developed with chrome-plated parts. Not shown are all models that have been developed with chrome-plated parts long before and are still in production, and all new models for the next years that are currently being developed with chrome-plated parts, as suitable alternatives are missing.



³ In light of these long guarantees for LSP that are not reflected in current review periods, the Commission's proposal on extension of the transitional periods set out in Annex XIV, to avoid disruption of the supply of spare parts and the repair of articles while the simplified application proposal is being developed is very important.



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Conclusion:

We support the current AfAs for all automotive-relevant applications, notably the upstream AfAs to allow for equal competition within the European supply chain. Appropriate and validated occupational safety measures are a prerequisite at the relevant production sites.

In addition, we support the introduction of alternative technologies for new car models under the prerequisite that these technologies are tested and validated, and that enough production capacity is available to provide parts to the whole European automotive industry without disruption. Reasonably long review periods will provide enough planning reliability for suppliers to stay in Europe and to develop suitable alternatives in Europe. All eyes are now on the decision of the European Commission and the Member States, due later this year, regarding the upstream application for authorisation of CTAC - namely the automotive relevant use groups 2, 3 and 5.

About ACEA and CLEPA

The European Automobile Manufacturers' Association (ACEA) represents the 15 Europe-based car, van, truck and bus manufacturers: BMW Group, DAF Trucks, Daimler, Fiat Chrysler Automobiles, Ford of Europe, Hyundai Motor Europe, Iveco, Jaguar Land Rover, Opel Group, PSA Peugeot Citroën, Renault Group, Toyota Motor Europe, Volkswagen Group, Volvo Cars, Volvo Group. More information can be found on <http://www.acea.be> or [@ACEA_eu](https://twitter.com/ACEA_eu).

CLEPA is the **European Association of Automotive Suppliers** and has 114 of the world's most prominent suppliers for car parts, systems and modules and 23 National trade associations and European sector associations as members, representing an industry with an annual turnover of 600 billion Euro, more than 3.000 companies, employing more than 5 million people and covering all products and services within the automotive supply chain. More information can be found on www.clepa.eu
