29 NOVEMBER 2012

Responses to Comments Document (RCOM) on ECHA's Draft 4th Recommendation for

- **Strontium chromate (EC number: 232-142-6)**
- **Potassium hydroxyoctaoxodizincatedichromate (EC number: 234-329-8)**
- **Pentazinc chromate octahydroxide (EC number: 256-418-0)**
- **Dichromium tris(chromate) (EC number: 246-356-2)**

NOTE: For the above 4 chromium (VI) substances on the draft 4th recommendation of substances to be included in Annex XIV nearly the same comments have been received. Therefore the responses to comments provided for strontium chromate in this RCOM apply for all chromium(VI) substances.

This document provides ECHA's responses to the comments received during the public consultation on the draft 4th recommendation for inclusion of substances in Annex XIV of REACH. In addition to this Response to Comments table, on ECHA's website there is available a zip-file including all attachments to the individual comments (as far as not confidential): http://echa.europa.eu/documents/10162/13640/axiv_rcom_chromiumvi_substances_attachments_en.7z

PUBLIC VERSION

CONTENT

I - General comments on the recommendation to include the substance in Annex XIV, including the prioritisation of the substance:

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
28	2012/09/19 21:46	European Environmental Bureau (EEB) International NGO Belgium	The EEB supports the inclusion of this substance in Annex XIV due to its hazardous properties, high production volumes and wide spread uses. It is also a substance that is included in both the SIN List and the Trade Union Priority List and cause occupational diseases. The use of this substance in the market is having adverse consequences for public health and environment and should be banned or severely restricted at European level.	Thank you for providing your opinion.
27	2012/09/19 21:26	ChemSec International NGO Sweden	We support the recommendation to include this substance in Annex XIV.	Thank you for providing your opinion.
26	2012/09/19 20:11	TAP - Air Portugal Company Portugal	In the Aerospace and Defence industry, chromates are the basis for corrosion protection throughout the aircraft in safety critical applications. Strontium chromate's use for corrosion protection in these applications is due to the substance's ability to prevent corrosion on products that experience a wide range of atmospheric and usage conditions through normal and required use. Aerospace products must perform throughout a range of conditions including temperature, humidity, elevations or pressure. Aluminum alloys and other metal alloys used in aerospace construction are susceptible to corrosion which is a potential for condensation of moisture on metal surfaces. Therefore elimination of chrome containing materials, that are an important part of the corrosion control system used to meet the European Aviation Safety Agency (EASA) and U.S. Federal Aviation Administration (FAA) requirements, could increase instances of failure due to stress corrosion cracking when there is no substitute with equivalent performance identified and qualified. Given the complex geometry of aerospace construction, such cracking may not be apparent through routine inspection and maintenance before reaching failure point.	Thank you for your comment. Topics such as the technical feasibility of alternatives, socio-economic considerations regarding the benefits of a use or the (adverse) impacts of ceasing a use are important. Information regarding these topics should be provided as part of the application for authorisation (e.g. in the analysis of alternatives, the chemical safety report or the socio-economic analysis). This information will be taken into account by the Risk Assessment and Socio-Economic Analysis Committees when forming their opinions and by the Commission when taking the final decision. It may impact the decision on granting the applied for authorisation and the conditions applicable to the authorisation, such as e.g. the length of the time limited review period of the authorisation. The prioritisation of Substances of Very High Concern on the Candidate List for inclusion in Annex XIV is based on the criteria set out in Art 58(3) and follows the agreed approach described in the general approach document (http://echa.europa.eu/documents/10162/17232/axiv_priority_setting_gen_approach_20100701_en.pdf).

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			Based on their ability for corrosion protection the industry uses a wide variety of chromates in various products and applications. Any alternatives must be compatible with systems on existing and in-production fleets. The listing of chromates under REACH means a business critical concern for all companies out of the aviation industry. This is why the overall industry concern is also stated e.g. by the ASD and comments are handed in for all these substances (looking at the 4th consultation e.g. also for pentazinc chromate octahydroxide).	Information on topics such as the technical feasibility of alternatives, socio-economic considerations regarding the benefits of a use or the (adverse) impacts of ceasing a use are not considered in the prioritisation stage as an in depth assessment and consideration of these issues is only possible (and foreseen) on the basis of the information brought forward by the applicant in support of his application.
25	2012/09/19 19:04 Confidential attachment not provided	Brussels Airlines Company Belgium	see document attached AEA statement_brusselsairlines strontiumchromate.pdf	Thank you for your comment and the information provided. This will be taken into account, where relevant, for finalisation of ECHA's recommendation of substances to be included in Annex XIV and the corresponding background documentation. For topics such as the availability and technical feasibility of alternatives, socio-economic considerations regarding the benefits of a use or the (adverse) impacts of ceasing a use, please refer to response to comment # 26 (see above). According to Article 60(4) and due to chromates inherent properties, an authorisation may normally be granted if it is shown that socio-economic benefits outweigh the risk to human health arising from the use of the substance and if there are no suitable alternatives substances or technologies available. This decision shall only be taken after consideration of all of the elements listed in Article 60(4) (a) to (d). As a consequence, the final decision as to whether an authorisation will be granted or not will largely depend on the content of the application and the strength of the arguments brought forward. Once the draft opinions of the Committees for Risk Assessment (RAC) and Socio-Economic Analysis (~SEAC) on the application are available there will be an opportunity for the applicant to comment on the opinions before the opinions are finalised and sent to the Commission. If the draft opinion is to reject the application, then the applicant will have to consider whether further information or argumentation can be provided to give further support to the

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				application and to argue against the reasons given for rejection. Please note that if the final decision of the Commission is not to grant an authorisation for the substance, then nothing in the REACH text prevents the applicant to submit a new application for the same substance. ECHA has created a dedicated webpage "applying for authorisation" the aim of which is to guide applicants in the preparation of their applications (http://echa.europa.eu/web/guest/applying-for-authorisation). A guidance document on how to apply for an authorisation for the use of substances included in Annex XIV is available and can be directly downloaded from ECHA's website (http://echa.europa.eu/documents/10162/13637/authorisation_application_en.pdf). This guidance is primarily intended for use by manufacturers, importers and downstream users placing on the market or using a substance included in Annex XIV of REACH. The document intends to help and guide potential applicants through the authorisation process. Further guidance to potential applicants is provided *via* pre-submission information sessions with ECHA, in which future applicants for authorisation will have the opportunity to ask case-specific questions regarding the regulatory and procedural aspects of the authorisation application process. The availability of all this information and guidance shows that even if the authorisation process is perceived as "new" it is nevertheless already a process that has been carefully thought through and for which in-depth documentation and guidance is available. **Request for longest possible timescale to identify, test and qualify alternatives** Please note that the use of the substance can continue after the sunset date where an authorisation is granted. Therefore, the sunset date does not need to consider the timeframe in which it may be possible to substitute the substance in question in a particular use or in all of its uses. Authorisation, *inter alia*, is a means to promote the development of alternatives. Article 55 explicitly stipulates that applicants for authorisation shall analyse the availability of alternatives and consider their risks, and the technical and economic feasibility of substitution (this has to be included in the analysis of

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				alternatives to be submitted as part of the authorisation application in accordance with Art. 62 (4e)). Therefore, the present lack of alternatives to (some of) the uses of a substance, the need to complete R&D programmes to get qualified alternatives to it and the need to get approval under other legislation on the change of substances used are no viable reasons for adjourning the subjection of a substance or some of its uses to authorisation. Information regarding lack of alternatives and efforts made so far in identifying and testing alternatives is however important information for inclusion in an authorisation application. This information will be taken into account by the Risk Assessment and Socio-Economic Analysis Committees when forming their opinions and by the Commission when taking the final decision. It may impact the decision on granting the applied for authorisation and the conditions applicable to the authorisation, such as e.g. the length of the time limited review period of the authorisation. **Exemption request** Please refer to response to comment #20 (see below) for information on the requirements of exempting a use from authorisation. From ECHA's assessment of the available information, there seems to be no basis for proposing an exemption from authorisation for uses of strontium chromate. **Review periods** Please note that setting 'upfront' review periods[1] for any uses requires that the Agency has access to adequate information on different aspects relevant for a decision on the review period. ECHA currently assessed that the information available is not sufficient to conclude on specific upfront review periods. ECHA did not propose such review periods. It is to be stressed that all authorisation decisions will include specific review periods which will be based on concrete case specific information provided in the applications for authorisation.

[1] i.e. review periods already included as entry in Annex XIV and not decided upon, case by case, on the basis of information becoming available in the authorisation application phase of the process.

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24	2012/09/19 18:40 See attachment *24_Tata Steel colours Strontium Chromate.pdf*	Industry or trade association United Kingdom	Tata Steel is fully aware of the aims of REACH and supports the principle of increasing the standards of work for employees and the environment. We also believe that innovation is the root of our industry and we are always seeking to innovate our products so that we give our customers the best products they require in the most sustainable way. Strontium chromate is indeed a substance that does present a hazard and we acknowledge that in some cases the risk of use may be high enough to cause harm. However we believe that as industry that applies the strictest requirements on our process and technology that we have reduced the risk of harm to an extent that this is not comparative to the hazard and the benefits that the use of strontium chromate gives to our products as a constituent of our anti-corrosive paint primers.	Thank you for your comment and the information provided. This will be taken into account, where relevant, for finalisation of ECHA's recommendation of substances to be included in Annex XIV and the corresponding background documentation. For topics such as the availability and technical feasibility of alternatives, socio-economic considerations regarding the benefits of a use or the (adverse) impacts of ceasing a use, please refer to response to comment # 26 (see above).
23	2012/09/19 18:28	European Trade Union Confederation Trade union Belgium	ETUC supports the recommendation to include this substance in the authorisation List. This substance is alsa included in the Trade Union Priority List for REACH authorisation. See http://www.etuc.org/a/6023	Thank you for providing your opinion.
22	2012/09/19 17:53 Confidential attachment not provided	Individual France	General Comments In the Aerospace and Defence industry, chromates are the basis for corrosion protection throughout the aircraft in safety critical applications. Strontium chromate's use for corrosion protection in these applications is due to the substance's ability to prevent corrosion on products that experience a wide range of atmospheric and usage conditions through normal and required use. Aerospace products must perform throughout a range of conditions including temperature, humidity, elevations or pressure. Aluminum alloys and other metal alloys used in aerospace construction are susceptible to corrosion which is a potential for condensation of moisture on metal surfaces. Therefore elimination of chrome containing materials, that are an important part of the corrosion control system used to meet the European Aviation Safety Agency (EASA) and U.S. Federal Aviation Administration (FAA) requirements, could increase instances of failure due to stress corrosion cracking when there is no substitute with equivalent performance identified and qualified. Given the complex geometry	Thank you for your comment. Please refer to responses to comments #26 and #25 (see above).

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			of aerospace construction, such cracking may not be apparent through routine inspection and maintenance before reaching failure point. Based on their ability for corrosion protection the industry uses a wide variety of chromates in various products and applications. Any alternatives must be compatible with systems on existing and in-production fleets. The listing of chromates under REACH means a business critical concern for all companies out of the aviation industry. This is why the overall industry concern is also stated e.g. by the ASD and comments are handed in for all these substances (looking at the 4th consultation e.g. also for pentazinc chromate octahydroxide).	
21	2012/09/19 16:59	Lufthansa Technik Company Germany	Lufthansa Technik appreciates the possibility to comment this draft recommendation. Lufthansa Technik is the leading provider of maintenance, repair, overhaul and modification services for civil aircraft. With tailored maintenance programs and state-of-the-art repair methods, Lufthansa Technik ensures the unbroken reliability and availability of its customers' fleets. Lufthansa Technik is an internationally licensed maintenance, production and development organization. The six business units of Lufthansa Technik (Maintenance, Overhaul, Component Services, Engine Services, VIP Services and Landing Gear Services) serve about 750 customers worldwide. The following comment is also stated for the Lufthansa Technik Group subsidiaries Lufthansa Technik Airmotive Ireland, Lufthansa Technik Aero Alzey, Lufthansa Technik Budapest, Lufthansa Technik Brussels, Lufthansa Technik Landing Gear Services UK, Lufthansa Technik Maintenance International, Lufthansa Technik Malta, Lufthansa Technik Milan, Lufthansa Technik Sofia and Lufthansa Technik Turbine Shannon. Via the Lufthansa Group we are part of the Association of European Airlines (AEA) and work closely together with other AEA members on relevant technical issues, if necessary. The comments in this document are made in close cooperation	Thank you for your comment. Please refer to responses to comments #26 and #25 (see above).

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			with several other AEA members and with the ASD (Aerospace and Defence Industries Association of Europe), the national trade organizations and with the Original Equipment Manufactures (OEMs) within and outside Europe. Therefore the following statement is identical for several AEA members. General Comments In the Aerospace and Defence industry, chromates are the basis for corrosion protection throughout the aircraft in safety critical applications. Strontium chromate's use for corrosion protection in these applications is due to the substance's ability to prevent corrosion on products that experience a wide range of atmospheric and usage conditions through normal and required use. Aerospace products must perform throughout a range of conditions including temperature, humidity, elevations or pressure. Aluminum alloys and other metal alloys used in aerospace construction are susceptible to corrosion which is a potential for condensation of moisture on metal surfaces. Therefore elimination of chrome containing materials, that are an important part of the corrosion control system used to meet the European Aviation Safety Agency (EASA) and U.S. Federal Aviation Administration (FAA) requirements, could increase instances of failure due to stress corrosion cracking when there is no substitute with equivalent performance identified and qualified. Given the complex geometry of aerospace construction, such cracking may not be apparent through routine inspection and maintenance before reaching failure point. Based on their ability for corrosion protection the industry uses a wide variety of chromates in various products and applications. Any alternatives must be compatible with systems on existing and in-production fleets. The listing of chromates under REACH means a business critical concern for all companies out of the aviation industry. This is why the overall industry concern is also stated e.g. by the ASD or AEA	

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			and comments are handed in for all these substances (looking at the 4th consultation e.g. also for pentazinc chromate octahydroxide). Use of Strontium chromates Strontium chromate is mainly used in: Primer application (as adhesive bonding primers, epoxy primers, paint primers) This process provides corrosion protection and is typically used on load bearing parts or parts subject to fatigue. It is regularly used in safety critical environments where any corrosion would be considered to have deleterious impacts and would not be easily observed. This process is used on structural components with expected life cycles in excess of 30 years e.g. military and civilian airlines and space equipment. Sealants Anti-corrosion interlay sealing compounds are applied along a joint and faired or shaped to meet the required dimensions or are applied to one or more surfaces that will be placed in intimate contact upon assembly. It is regularly used in fuel tanks, at windows and fuselage. Therefore special properties are needed (e.g. corrosion, chemical and temperature resistant). Many areas of the products needing primers and coatings are inaccessible and hard to inspect for damage following product delivery. These product areas are expected to last for the anticipated product lifespan which can range from 30 to 90 years. Detailed inspections, repairs and maintenance procedures occur only during major maintenance intervals and overhaul operations Research efforts All European and Non-European OEMs are committed and actively working towards reducing the use of all hexavalent chromium	

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			compounds throughout the aircraft. Several airlines and Maintenance, Repair and Overhaul (MRO) companies have been active in close cooperation with the OEMs and chemical suppliers to test new alternatives and to monitor results over many years of testing under various circumstances. Manufacturers, aerospace industry working groups and industry partnerships with governments and other organizations have been working on alternatives for strontium chromate for more than twenty years, investing a lot of money to develop, qualify and implement equivalent alternatives to meet stringent safety requirements. Although significant research efforts are still ongoing, suitable replacements could be found just for few applications. Many alternatives have been tested, but have not passed the performance requirements identified in the applicable specifications. For those applications where an alternative is successfully tested, validated and meets the safety requirements, the aviation industry has implemented these already. But more often no drop-in alternatives exist today or should be expected for a majority of aerospace uses in the near future. As chromates are unique looking at their corrosion protection characteristics it will likely take several substances to fulfill all of the requirements for the numerous materials and processes that currently rely on chromated materials for critical aerospace applications. Due to the absence of drop in replacements in most applications, it's not possible today to set a sunset date for strontium chromate. Alternatives must be a suitable replacement not just for new aircraft developments but for our industry must also be compatible with maintenance and overhaul processes for existing fleets (which will be in-production and in operation for the next decades). From the point at which a viable alternative becomes available, extensive empirical data will be required to establish airworthiness.This means extended tests during flight circumstances for many years (maintenance cycles usually over 5 years) before results are visible and certification requirements might be met. Challenges The inclusion of strontium chromate in Annex XIV for authorization would put the European Aviation industry under significant safety	

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			and business risk fostering supply disruptions and obsolescence and competitive disadvantage. The aviation industry, which conducts maintenance repair and overhaul, depends on the processes prescribed by OEMs (original equipment manufacturers). Therefore our industry is forced to carry out these prescribed processes and meet the safety requirements set by EASA and FAA to gain airworthiness. As the authorization procedure is unknown and inexperienced it does not mean a guarantee for ongoing product availability and safe production and operation conditions. This is why Lufthansa Technik strongly believes that it would be very problematic to test the yet unknown and immature authorization process on such a complex industry vitally relying on the use of the currently only available substance to meet its safety requirements. The related risks are impossible to be assessed completely, to discard, nor to manage safely. If authorization is not granted, there are no chances foreseen to repeat an authorization application which means a complete stop for aviation business in Europe.	
20	2012/09/19 16:51	The Boeing Company Company United States	Background Boeing appreciates the opportunity to provide comments to the draft recommendation to include strontium chromate in Annex XIV. Boeing is one of the world's leading aerospace companies and the largest manufacturer of commercial jetliners and military aircraft combined, employing more than 160,000 people in 70 countries. Additionally, Boeing designs and manufactures rotorcraft, electronic and defense systems, missiles, satellites, launch vehicles and advanced information and communication systems. Boeing has customers and suppliers in more than 90 countries around the world and is one of the largest U.S. exporters in terms of sales. With a 43 percent share of the in-service commercial fleet in Europe, and many partners and suppliers in the region we are an integral part of the European aerospace community. Boeing's extensive, European supply chain includes approximately 200 first-tier manufacturing suppliers and 50 sub-tier metal	Thank you for your comment and the information provided. This will be taken into account, where relevant, for finalisation of ECHA's recommendation of substances to be included in Annex XIV and the corresponding background documentation. For topics such as the availability and technical feasibility of alternatives, socio-economic considerations regarding the benefits of a use or the (adverse) impacts of ceasing a use, please refer to response to comment # 26 (see above). **Art 58(2) exemption request** As regards your request for exemption please note that uses (or categories of uses) can only be exempted from the authorisation requirement on the basis of Article 58(2) of REACH, unless they are already explicitly exempted in REACH Art. 2(5 or 8) or in Art. 56(3 – 6).

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			finishing processors located in 16 EU member states. As ECHA is aware, strontium chromate is used in the aerospace industry for corrosion protection throughout the aircraft in safety critical applications. Strontium chromate's use for corrosion protection in these applications is due to the substance's ability to prevent corrosion on products that experience a wide range of atmospheric and usage conditions through normal and required use. Aerospace products must perform throughout a range of conditions including; temperature, humidity, elevations, pressure, distance and varying usage rates. This substance is an important part of the corrosion control system used to meet European Aviation Safety Agency (EASA) and U.S. Federal Aviation Administration (FAA) requirements. Many areas of the products are inaccessible and hard to inspect for wear or damage incurred in-service. Some inaccessible areas are expected to last for the duration of the product lifespan without repair which can range from 30 to 90 years. Detailed inspections, repairs and maintenance procedures occur only during major maintenance intervals and overhaul operations. These service intervals are based upon extensive in-service experience with the current hexavalent chromium containing corrosion system. Changes to components of this system may require extensive testing, in-service evaluation, and increased frequency of inspection to monitor and adjust service requirements. In addition, all alternatives must be compatible with systems on existing and in-production fleets. Boeing is committed and actively working towards reducing the use of all hexavalent chromium compounds throughout the aircraft. Boeing, aerospace industry working groups and industry partnerships with government, academia and other organizations	Please note that according to Article 58(2) of REACH it is possible to exempt from the authorisation requirement uses or categories of uses 'provided that, on the basis of the existing specific Community legislation imposing minimum requirements relating to the protection of human health or the environment for the use of the substance, the risk is properly controlled'. ECHA considers the following elements when deciding whether to include an exemption of a use of a substance in its recommendation: - There is existing EU legislation addressing the use (or categories of use) that is proposed to be exempted. Special attention has to be paid to the definition of use in the legislation in question, compared to the REACH definitions in accordance with Art. 3(24). Furthermore, the reasons for and effect of any exemptions from the requirements set out in the legislation have to be assessed; - This EU legislation properly controls the risks to human health and/or the environment from the use of the substance arising from the intrinsic properties of the substance that are specified in Annex XIV; generally, the legislation in question should specifically refer to the substance to be included in Annex XIV either by naming the substance or by referring to the group the substance belongs to, e.g. by referring to the classification criteria or the Annex XIII criteria; - This EU legislation imposes minimum requirements[2] for the control of risks of the use. Legislation setting only the aim of imposing measures or not clearly specifying the actual type and effectiveness of measures to be implemented is not regarded as sufficient to meet the requirements under

[2] Legislation imposing minimum requirements means that:
- The Member States may establish more stringent but not less stringent requirements when implementing the specific EU legislation in question.
- The piece of legislation has to define the measures to be implemented by the actors and to be enforced by authorities in a way that ensures the same minimum level of control of risks throughout the EU and that this level can be regarded as appropriate.

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			have been working on alternatives for strontium chromate for more than twenty years, investing millions of dollars to develop, qualify, certify and implement equivalent alternatives to meet our stringent engineering performance and safety requirements. Although significant research efforts continue, no universally applicable drop-in alternatives exist today or should be expected for a majority of aerospace uses in the near future. It will likely take several substances to fulfill all of the requirements for the numerous materials and processes that currently rely on chromated materials for critical aerospace applications. Exemptions All existing and in-production fleets of civil and military aerospace products will require strontium chromate to maintain operability for several decades. The inclusion of this substance in Annex XIV for authorisation will put European suppliers and operators under significant safety and business risks fostering supply disruptions, obsolescence and competitive disadvantage. The low volume used by the aerospace industry and uncertainty whether authorisation will be granted would threaten substance availability. Unavailability or even a significant risk of unavailability, of strontium chromate in the EU would be disruptive to the complex aerospace supply chain working with long lead times and with a multiplicity of users and applications. This, in turn, would create uncertainty whether suppliers, maintenance facilities, airlines and military operators in the EU will be able to comply with the maintenance operations required for ongoing, safe operation of their existing fleet for their life cycle. Furthermore, aerospace manufacturing, maintenance and repair are conducted in a strictly controlled environment by a highly trained and specialized workforce. Sophisticated engineering controls and personal protective equipment are utilized in all aerospace operations to ensure the highest level of protection for our employees. Risk of exposure and the potential for harm in this environment is minimal. Boeing feels that the existing regulations for controlling worker exposure to hexavalent chromium keep actual exposures to a minimum. Within the last ten years many countries have lowered occupational exposure limits and implemented required work practice controls to protect workers.	Article 58(2). Furthermore, it can be implied from the REACH Regulation that attention should be paid as to whether and how the risks related to the life-cycle stages resulting from the uses in question (i.e. service-life of articles and waste stage(s) as relevant) are covered by the legislation. On the basis of the criteria above, we made the following observations on the argumentation brought forward by the commenting party: (i) Only existing EU legislation is relevant in the context to be assessed (no national legislation). (ii) Minimum requirements for controlling risks to human health or (and) the environment need to be imposed in a way that they cover the life cycle stages that are exerting the risks resulting from the uses in question. (iii) There need to be binding and enforceable minimum requirements in place for the substance(s) used. The relevant EU legislation referred to by the commenting party is assessed below. Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work (CAD) sets out a framework based on the determination and assessment of risk and general principles for the prevention of risk, associated with hazardous chemical agents. The Carcinogens or mutagens at work Directive 2004/37/EC (CMD) introduces a framework of general principles to protect workers against risks to their health (which includes prevention of risk) from exposure. The overriding principle is that the employer shall reduce the use of a carcinogen or mutagen (CM) at the place of work, in particular by replacing it, in so far as is technically possible, by a substance, preparation or process which, under its condition of use, is not dangerous or is less dangerous to workers' health and safety.

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			Thus, given the critical nature of strontium chromate to the aerospace industry, the challenges involved with identifying and certifying safe and effective alternatives, and the high level of protection used in aerospace operations, Boeing strongly recommends an exemption for all aerospace uses of strontium chromate from the authorization process.	Where substitution is not possible, CMs should be used in closed systems, where technically possible. Furthermore, a hierarchy of measures shall be applied when a CM is used. Both Directives outline a hierarchy of control and risk reduction measures (with substitution at the top), however, they leave the determination of the measures to be imposed to the employer and do not provide sufficient indicators to be used to assess whether a measure higher up in the hierarchy would have been technically possible. On this basis it is not considered that CAD or CMD impose binding minimum requirements for controlling risks to human health. Therefore, these Directives may not be regarded as a sufficient basis for exempting uses of strontium chromate from authorisation in accordance with Article 58(2) REACH Regulation.
19	2012/09/19 16:46	Scandinavian Airline System Company Norway	Scandinavian Airline System is part of the Association of European Airlines (AEA) and works closely together on relevant technical issues if necessary. The comments in this document are made in close cooperation with several other AEA members and with ASD (Aerospace and Defence Industries Association of Europe), the national trade organizations and with the Original Equipment Manufactures (OEMs) within and outside Europe. Therefore the following statement is identical for several AEA members. General Comments In the Aerospace and Defence industry, chromates are the basis for corrosion protection throughout the aircraft in safety critical applications. Strontium chromate's use for corrosion protection in these applications is due to the substance's ability to prevent corrosion on products that experience a wide range of atmospheric and usage conditions through normal and required use. Aerospace products must perform throughout a range of conditions including temperature, humidity, elevations or pressure. Aluminum alloys and other metal alloys used in aerospace construction are susceptible to corrosion which is a potential for condensation of moisture on metal surfaces. Therefore elimination of chrome	Thank you for your comment. Please refer to response to comment #26 (see above).

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			containing materials, that are an important part of the corrosion control system used to meet the European Aviation Safety Agency (EASA) and U.S. Federal Aviation Administration (FAA) requirements, could increase instances of failure due to stress corrosion cracking when there is no substitute with equivalent performance identified and qualified. Given the complex geometry of aerospace construction, such cracking may not be apparent through routine inspection and maintenance before reaching failure point. Based on their ability for corrosion protection the industry uses a wide variety of chromates in various products and applications. Any alternatives must be compatible with systems on existing and in-production fleets. The listing of chromates under REACH means a business critical concern for all companies out of the aviation industry. This is why the overall industry concern is also stated e.g. by the ASD and comments are handed in for all these substances (looking at the 4th consultation e.g. also for pentazinc chromate octahydroxide).	
18	2012/09/19 16:31	KLM Company Netherlands	KLM Engineering & Maintenance (KLM E&M) is a part of the AirFrance KLM group and works closely together with Air France Industries. At AFI KLM E&M we provide MRO (maintenance, repair and organisation) services at the same time as we guarantee a whole raft of your requirements ranging from safeguarding air safety, properly managing aircraft operation, and minimizing costs. We are supported in this by our 75-year-plus track record during which we have achieved a level of undisputed excellence in managing large aircraft fleets. Next to the Airfrance and KLM fleet we have over 150 customers world wide. KLM Engineering & Maintenenance is part of the Association of European Airlines (AEA) and works closely together on relevant technical issues if necessary. The comments in this document are made in close cooperation with several other AEA members and with ASD (Aerospace and Defence Industries Association of Europe), the national trade organizations and with the Original Equipment Manufactures	Thank you for your comment. Please refer to responses to comments #26 and #25 (see above).

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			(OEMs) within and outside Europe. Therefore the following statement is identical for several AEA members. In the Aerospace and Defence industry, chromates are the basis for corrosion protection throughout the aircraft in safety critical applications. Strontium chromate's use for corrosion protection in these applications is due to the substance's ability to prevent corrosion on products that experience a wide range of atmospheric and usage conditions through normal and required use. Aerospace products must perform throughout a range of conditions including temperature, humidity, elevations or pressure. Aluminum alloys and other metal alloys used in aerospace construction are susceptible to corrosion which is a potential for condensation of moisture on metal surfaces. Therefore elimination of chrome containing materials, that are an important part of the corrosion control system used to meet the European Aviation Safety Agency (EASA) and U.S. Federal Aviation Administration (FAA) requirements, could increase instances of failure due to stress corrosion cracking when there is no substitute with equivalent performance identified and qualified. Given the complex geometry of aerospace construction, such cracking may not be apparent through routine inspection and maintenance before reaching failure point. Based on their ability for corrosion protection the industry uses a wide variety of chromates in various products and applications. Any alternatives must be compatible with systems on existing and in-production fleets. The listing of chromates under REACH means a business critical concern for all companies out of the aviation industry. This is why the overall industry concern is also stated e.g. by the ASD and comments are handed in for all these substances (looking at the 4th consultation e.g. also for pentazinc chromate octahydroxide). Use of strontium chromates Strontium chromate is mainly used in: Primer application (as adhesive bonding primers, epoxy primers, paint primers)	

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			This process provides corrosion protection and is typically used on load bearing parts or parts subject to fatigue. It is regularly used in safety critical environments where any corrosion would be considered to have deleterious impacts and would not be easily observed. This process is used on structural components with expected life cycles in excess of 30 years e.g. military and civilian airlines and space equipment. Sealants Anti-corrosion interlay sealing compounds are applied along a joint and faired or shaped to meet the required dimensions or are applied to one or more surfaces that will be placed in intimate contact upon assembly. It is regularly used in fuel tanks, at windows and fuselage. Therefore special properties are needed (e.g. corrosion, chemical and temperature resistant). Many areas of the products needing primers and coatings are inaccessible and hard to inspect for damage following product delivery. These product areas are expected to last for the anticipated product lifespan which can range from 30 to 90 years. Detailed inspections, repairs and maintenance procedures occur only during major maintenance intervals and overhaul operations Research efforts All European and Non-European OEMs are committed and actively working towards reducing the use of all hexavalent chromium compounds throughout the aircraft. Several airlines and Maintenance, Repair and Overhaul (MRO) companies have been active in close cooperation with the OEMs and chemical suppliers to test new alternatives and to monitor results over many years of testing under various circumstances. Manufacturers, aerospace industry working groups and industry partnerships with governments and other organizations have been working on alternatives for strontium chromate for more than twenty years, investing a lot of money to develop, qualify and implement equivalent alternatives to meet stringent safety requirements.	

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			Although significant research efforts are still ongoing, suitable replacements could be found just for few applications. Many alternatives have been tested, but have not passed the performance requirements identified in the applicable specifications. For those applications where an alternative is successfully tested, validated and meets the safety requirements, the aviation industry has implemented these already. But more often no drop-in alternatives exist today or should be expected for a majority of aerospace uses in the near future. As chromates are unique looking at their corrosion protection characteristics it will likely take several substances to fulfill all of the requirements for the numerous materials and processes that currently rely on chromated materials for critical aerospace applications. Due to the absence of drop in replacements in most applications, it's not possible today to set a sunset date for strontium chromate. Alternatives must be a suitable replacement not just for new aircraft developments but for our industry must also be compatible with maintenance and overhaul processes for existing fleets (which will be in-production and in operation for the next decades). From the point at which a viable alternative becomes available, extensive empirical data will be required to establish airworthiness.This means extended tests during flight circumstances for many years (maintenance cycles usually over 5 years) before results are visible and certification requirements might be met. Challenges The inclusion of strontium chromate in Annex XIV for authorization - along with the other chromate containing material - would put the European Aviation industry under significant safety and business risk fostering supply disruptions and obsolescence and competitive disadvantage. The aviation industry, which conducts maintenance repair and overhaul, depends on the processes prescribed by OEMs (original equipment manufacturers). Therefore our industry is forced to carry out these prescribed processes and meet the safety requirements set by EASA and FAA to gain airworthiness.	

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			As the authorization procedure is unknown and inexperienced it does not mean a guarantee for ongoing product availability and safe production and operation conditions. This is why AEA strongly believes that it would be very problematic to test the yet unknown and immature authorization process on such a complex industry vitally relying on the use of the currently only available substance to meet its safety requirements. The related risks are impossible to be assessed completely, to discard, nor to manage safely. If authorization is not granted, there are no chances foreseen to repeat an authorization application which means a complete stop for aviation business in Europe.	
17	2012/09/19 15:22	Association of European Airlines Industry or trade association Belgium	In the Aerospace and Defence industry, chromates are the basis for corrosion protection throughout the aircraft in safety critical applications. Strontium chromate's use for corrosion protection in these applications is due to the substance's ability to prevent corrosion on products that experience a wide range of atmospheric and usage conditions through normal and required use. Aerospace products must perform throughout a range of conditions including temperature, humidity, elevations or pressure. Aluminum alloys and other metal alloys used in aerospace construction are susceptible to corrosion which is a potential for condensation of moisture on metal surfaces. Therefore elimination of chrome containing materials, that are an important part of the corrosion control system used to meet the European Aviation Safety Agency (EASA) and U.S. Federal Aviation Administration (FAA) requirements, could increase instances of failure due to stress corrosion cracking when there is no substitute with equivalent performance identified and qualified. Given the complex geometry of aerospace construction, such cracking may not be apparent through routine inspection and maintenance before reaching failure point. Based on their ability for corrosion protection the industry uses a wide variety of chromates in various products and applications. Any alternatives must be compatible with systems on existing and in-production fleets. The listing of chromates under REACH means a business critical	Thank you for your comment. Please refer to responses to comments #26 and #25 (see above).

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16	2012/09/19 15:19 Confidential attachment not provided	International organisation France		Thank you for your comment. Please refer to response to comment #25 (see above).
15	2012/09/19 15:12	Finnair Technical Services Ltd Company Finland	Finnair Technical Services is a maintenance organization consisting of two companies, Finnair Technical Services Ltd. and Finnair Engine Services Ltd. Both companies are owned by Finnair Plc. The principal shareholder of Finnair Plc. is the State of Finland. Finnair is part of the Association of European Airlines (AEA) and works closely together on relevant technical issues if necessary. The comments in this document are made in close cooperation with several other AEA members and with ASD (Aerospace and Defence Industries Association of Europe), the national trade	Thank you for your comment. Please refer to responses to comments #26 and #25 (see above). According to Article 55, the aim of the authorisation process is to ensure the good functioning of the internal market while assuring that the risks from substances of very high concern are properly controlled and that these substances are progressively replaced by suitable alternative substances or technologies where these are economically and technically viable. The authorisation is not comparable to a ban or restriction of a

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			organizations and with the Original Equipment Manufactures (OEMs) within and outside Europe. Therefore the following statement is identical for several AEA members. General Comments In the Aerospace and Defence industry, chromates are the basis for corrosion protection throughout the aircraft in safety critical applications. Strontium chromate's use for corrosion protection in these applications is due to the substance's ability to prevent corrosion on products that experience a wide range of atmospheric and usage conditions through normal and required use. Aerospace products must perform throughout a range of conditions including temperature, humidity, elevations or pressure. Aluminum alloys and other metal alloys used in aerospace construction are susceptible to corrosion which is a potential for condensation of moisture on metal surfaces. Therefore elimination of chrome containing materials, that are an important part of the corrosion control system used to meet the European Aviation Safety Agency (EASA) and U.S. Federal Aviation Administration (FAA) requirements, could increase instances of failure due to stress corrosion cracking when there is no substitute with equivalent performance identified and qualified. Given the complex geometry of aerospace construction, such cracking may not be apparent through routine inspection and maintenance before reaching failure point. Based on their ability for corrosion protection the industry uses a wide variety of chromates in various products and applications. Any alternatives must be compatible with systems on existing and in-production fleets. The listing of chromates under REACH means a business critical concern for all companies out of the aviation industry. This is why the overall industry concern is also stated e.g. by the ASD and AEA and comments are handed in for all these substances (looking at the 4th consultation e.g. also for pentazinc chromate octahydroxide).	substance but rather to a requirement to request authorisation for carrying out particular uses with the substance. Recognised substances of very high concern may normally be granted an authorisation if the applicant can show adequate control of risks arising from the applied for uses or if there is no suitable alternative to the substance available and the socio-economic benefits of a use outweigh the associated risks for health and environment. Requirements under other legislation affecting the transfer to alternatives, such as air worthiness legislation, should be reflected in the application for authorisation and will be taken into account when RAC and SEAC form their opinions and the Commission takes its decision on the application. As a consequence, ECHA does not consider that there is a conflict with safety and airworthiness requirements imposed by EASA and the REACH Regulation.

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			Finnair Technical Services is in favour of REACH philosophy preventing any harmful effects of chemicals in humans, nature and animals. The fact still is that airplane maintenance is using and will use many dangerous chemicals and a single MRO company cannot change the products it is using independently (e.g. chrome trioxide, strontium chromate, Potassium hydroxyoctaoxodizinkacetedichromate, N,N-Dimethylacetamide, etc.). In other words, the EASA and REACH legislation collide in the Safety Critical Applications which strontium chromate based products usually are. This leads to a situation where maintenance and repair organisation (MRO) has no option but to use the products specified AND they have to apply for a permit to use the products. Furthermore, this possibly could mean costs of hundreds of thousands euros for applying a permit to use for such chemicals. The maintenance work is very labour intensive and European MRO industry already is very well taking care of occupational and environmental safety issues. We would like to note our concern that today the same level of occupational and environmental safety may not be achieved outside the Western countries where the MRO work might be subcontracted. Doing business as an airplane MRO company is very challenging job and has low margins. If European industry wants to be competitive against non-EU ones there should not be any 'penalties' pushing down the already low margins (if not negative) in the industry. Use of strontium chromates Strontium chromate is mainly used in: Primer application (as adhesive bonding primers, epoxy primers, paint primers) This process provides corrosion protection and is typically used on load bearing parts or parts subject to fatigue. It is regularly used in safety critical environments where any corrosion would be considered to have deleterious impacts and would not be easily	

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			This is why AEA strongly believes that it would be very problematic to test the yet unknown and immature authorization process on such a complex industry vitally relying on the use of the currently only available substance to meet its safety requirements. The related risks are impossible to be assessed completely, to discard, nor to manage safely. If authorization is not granted, there are no chances foreseen to repeat an authorization application which means a complete stop for aviation business in Europe.	
14	2012/09/19 13:46	Individual Italy	As well known, strontium chromates are used for corrosion protection of aluminum structures in aeronautical field. Such products are specified and prescribed by aircraft and components Manufacturers (European and not), Maintenance Manual. Many primers, sealants, and other products containg chromium compound are required during maintenance or repair of aircraft and its components like landing gear, throught their service life. We are aware that Aviation Industry have been working to replace chromium containing product, often for user's pushing/request. We have been successful for some applications (e.g. exterior decorative paint/primer), but not for all applications. Main reasons for which strontium chromate is mandatory is due to engineering safety requirements and for such reason, cannot be replaced yet. Due to Aviation Rules, airline and maintenance organization are not in the position to change any maintenance task without Airworthiness Autority authorization. For this reason, I believe that restriction on strontium Chromates in aeronautical usage should cause restrictions for European maintenance organization. I believe that it is necessary to obtain a special derogation for usage of chromate compounds in aviation field, and ban such products carefully and progressively, until alternatives will be officially validated.	Thank you for your comment. For topics such as the availability and technical feasibility of alternatives, socio-economic considerations regarding the benefits of a use or the (adverse) impacts of ceasing a use, please refer to response to comment # 26 (see above). Note that authorisation is not comparable to a ban or restriction of a substance but rather to a requirement to request authorisation for carrying out particular uses with the substance. Recognised substances of very high concern may normally be granted an authorisation if the applicant can show proper control of risks arising from the applied for uses or if there is no suitable alternative available to the substance available and the socio-economic benefits of a use outweigh the associated risks for health and environment. Regarding the request for a special derogation (or exemption) for the use of chromate compounds in the aeronautic sector, please refer to responses to comments #20 and #25 (see above).
13	2012/09/19 11:54 See attachment *13_AEA_Austrian_comment_strontium_chromat*	AUSTRIAN AIRLINES AG Company Austria	See document"AEA_Austrian_comment_strontium_chromate"	Thank you for your comment. Please refer to response to comment #25 (see above).

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	e.pdf			
12	2012/09/19 10:59 See attachment *12_20016_2012_ECHA_Gifas_4th Annex XIV.pdf*	GIFAS Industry or trade association France	see attached document	Thank you for your comment. We understand that you request an extension of the latest application date for strontium chromate (to a minimum of 60 months after inclusion in Annex XIV) in order to ensure a smooth transition to alternative substances or techniques, having enough time to test and validate the potential alternatives and to avoid disruptions of the supply chain of the currently required chromium VI containing mixtures before alternatives are established and certified. Further, time is required to get organised in a complex supply chain and due to the (perceived) complexity of the authorisation process. For response please refer to comment #25 (see above), in particular section 'Request for longest possible timescale to identify, test and qualify alternatives' and to comment # 8 (below).
11	2012/09/19 10:44	MSCA Sweden	We support the prioritisation of strontium chromate for inclusion in Annex XIV. The substance has high priority due to high volume and wide dispersive use. In addition, strontium chromate may be a substitute for other chromium (VI) compounds also prioritised for inclusion in Annex XIV.	Thank you for providing your opinion.
10	2012/09/19 01:03 See attachment *10_19 September 2012_FN.pdf*	Hawker Beechcraft Corporation Company United States	Please see attachment	Thank you for your comment. For topics such as the availability and technical feasibility of alternatives, socio-economic considerations regarding the benefits of a use or the (adverse) impacts of ceasing a use, please refer to response to comment #26 (see above). Please refer to responses to comments #20 and #25 (see above), for a response and further information on your exemption request.
9	2012/09/18 17:03	Cessna Aircraft Company Company United States	Strontium Chromate is an essential substance used by aerospace suppliers in fabrication of chemical products such as sealants, anti-corrosion compounds, paints and the like for aerospace industry use. While our suppliers of these chemicals are conducting tests and research to find alternative substitutes, we have not been informed of availability or existence of suitable alternatives at this time. Aerospace specific use authorization should be given to aerospace suppliers until suitable alternative products with	Thank you for your comment. For topics such as the availability and technical feasibility of alternatives, socio-economic considerations regarding the benefits of a use or the (adverse) impacts of ceasing a use, please refer to response to comment #26 (see above). Please refer to responses to comments #20 and #25 (see above),

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			supporting test data become available.	for a response and further information on your exemption request.
8	2012/09/18 16:44 See attachment *8_ASD Letter on Chromate Prioritisation.pdf*	ASD, Aerospace and Defence Industries of Europe Industry or trade association Belgium	Strontium Chromate is used in the aerospace and defence sectors in adhesive bonding primers, anti-corrosion interlay sealing compounds, epoxy primers and paint primers These processes allow the industry to make use of the self healing corrosion protection properties in safety critical applications. Despite more than 20 years of testing alternatives, there are currently no known chrome VI free alternatives for these types of applications. The industry continues to research alternatives. However from the point at which a viable alternative becomes available, extensive empirical data will be required to establish product safety and function.	Thank you for your comment and the information provided. This will be taken into account, where relevant, for finalisation of ECHA's recommendation of substances to be included in Annex XIV and the corresponding background documentation. We understand that you request an extension of the latest application date for chromium (VI) substances to a minimum of 60 months (resulting in a sunset date in 2020) in order to ensure sufficient time for getting organised in a complex supply chain and getting applications prepared that will be successful. Further, you would like to get time to find and implement alternatives in order to reduce the need to apply for authorisation. For response please refer to comment #25, in particular section 'Request for longest possible timescale to identify, test and qualify alternatives' and comment #26 (see above). In any case we would encourage you to apply for authorisation as early as possible. Regarding the arguments that actors in the complex supply chain need to get organised and potential applicants may wish to form consortia etc. or may need to organise support and therefore need longer deadlines for the latest application dates, it is noted that the standard period of 18 months considered by ECHA as the earliest application date already considers an additional time of 6 months for getting organised and contracting external expertise. The time required to prepare an authorisation application was discussed by the stakeholder expert group that was following the development of the guidance for including substances in Annex XIV. It was estimated that the time needed for preparation of an authorisation application of sufficient quality might require roughly 12 months worktime for drafting the application plus an additional buffer of 6 months for consulting. Moreover, note that from Art. 62 it is evident that not each actor on

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				the market has to apply for authorisation of his use(s). A supplier (manufacture, importer or downstream user) may cover in his application use(s) of his downstream users. Furthermore, it is possible to submit joint applications by a group of actors. To get the required application(s) ready in time is therefore rather a matter of communication, organisation and agreement between the relevant actors in the supply chain and efficient allocation of work than dependent on the complexity of the supply chain and the expertise of individual enterprises in the supply chain. In addition, high numbers of actors in a supply may in some case indicate high complexity of the supply chain whereas in other cases this may not necessarily be the case, in particular when these high number are the result of extensive parallel structures at the different (vertical) layers. For the reasons explained above, the need for prolonging application dates because some actors in the supply chain may be enterprises with limited capacities and expertise (e.g. SMEs) or because transition to alternative substances or processes may need to continue beyond the latest application date or the sunset date seems questionable.
7	2012/09/13 14:15 See attachment *7_Letter to ECHA on Chemicals.doc*	Ryanair Airline Ireland	ECHA should reconsider its recommendation to prioritize strontium chromate. It is still early in the overall development and implementation of the authorization process, and the actual functioning of that process is not well understood by any stakeholder. We are therefore concerned that applying the authorization process to strontium chromate now, a material that is critical to aerospace airworthiness and passengers or goods safety, will have unintended consequences on the ability of the aerospace sector to design, build, and maintain aerospace products. The sector has been trying to substitute these safety applications for decades long before REACH unfortunately with little success. Today, only few sectors rely on the vital safety application of strontium chromate such as the aviation industry does for its airworthiness. ECHA should therefore withdraw its recommendation to prioritize strontium chromate for our industry and reconsider that recommendation at a later date, once there is better understanding of how authorization would work for a sector	Thank you for your comment. For topics such as the availability and technical feasibility of alternatives, socio-economic considerations regarding the benefits of a use or the (adverse) impacts of ceasing a use, please refer to response to comment # 26 (see above). Note that in accordance with Art. 62 paragraphs 2 and 3 of REACH, applications for authorisation may be made by the manufacturer(s), importer(s) and/or downstream users of a substance (or any combination thereof) and that they may be made for one or several substances that meet the definition of a group of substances in Section 1.5 of Annex XI, and for one or several uses. Applications may be made for the applicant's own uses and/or for uses for which he intends to place the substance on the market. From these specifications of Art. 62 it is evident that not each actor on the market has to apply for authorisation of his use(s). A supplier

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			like aerospace. As ECHA is well aware, strontium chromate is a critical material for maintaining the safe operation of aerospace products. Aerospace products are subject to harsh operation conditions and therefore even more stringent regulatory certification requirements (imposed by EASA and other agencies) that require careful research and planning to certify materials used in the design, manufacture, and maintenance of these products. Routine materials can take 10 to 15 years to develop and certify, and. research on strontium chromate alternatives has proven particularly difficult, having been under development for 20 to 30 years with limited success. It becomes clear that in these specific cases authorization time lines do not meet the aviation safety requirements. The necessary continued use of strontium chromate within the aviation sector is not a cost issue, it is a critical safety concern. The aerospace sector is not just a European industry. It operates on a global scale, with suppliers and customers operating world-wide and parts and products routinely crossing borders. Designing, building, and maintaining aerospace products requires a very complex supply chain with actors of all sizes and at different levels, but who must all maintain compliance with these certification requirements. We are aware of statements by ECHA that authorization will be available to the aerospace sector to allow continued use of strontium chromate. However, those statements are untested, and in point of fact, there is real concern that one or more actors in this complex supply chain will not be able to obtain authorization due to lack of awareness of many SME's, formality failures, excessive costs, the overall complexity and length of the global supply chain, and simple unwillingness to grant authorization. ECHA is also aware of the difficulties or impossibility a downstream user may face in trying to ensure that its authorization flows upstream through the whole supply chain. Moreover, even if authorization is available, these uncertainties will have a significant impact on the aerospace sector given that aerospace products are designed for use over multiple decades, whereas authorization is intended to be a time limited mechanism.	(manufacturer, importer or downstream user) may cover in his application use(s) of his downstream users. Furthermore, it is possible to submit joint applications by a group of actors. To get the required application(s) ready in time is therefore rather a matter of communication, organisation and agreement between the relevant actors in the supply chain and efficient allocation of work than dependent on the size and expertise of individual enterprises in the supply chain. According to Article 55, the aim of the authorisation process is to ensure the good functioning of the internal market while assuring that the risks from substances of very high concern are properly controlled and that these substances are progressively replaced by suitable alternative substances or technologies where these are economically and technically viable. The authorisation is not comparable to a ban or restriction of a substance but rather to a requirement to request authorisation for carrying out particular uses with the substance. Recognised substances of very high concern may be granted an authorisation if the applicant can show proper control of risks arising from the applied for uses or if there is no suitable alternative available to the substance available and the socio economic benefits of a use outweigh the associated risks for health and environment. As a consequence, ECHA does not consider that there is a conflict with safety and airworthiness requirements imposed by EASA and the REACH Regulation. Regarding the request for an exemption for the use of chromates in corrosion inhibitors such as primers for metallic substrates, adhesive bonding primers and adhesives, specialty coatings and sealants, please refer to responses to comments #25 and #20 (see above).

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			This means that an authorization granted today may allow a manufacturer to build an aircraft, but the. operator airline may not be able to maintain that aircraft 5 or 10 years later. Given the large investment required to design, build, and operate an aerospace product, such uncertainty is simply unacceptable. Furthermore, any supply disruption, market obsolescence or non-equivalency of other maintenance materials could lead to major safety risks for passengers. Subjecting strontium chromate to authorization therefore has the potential to drive aerospace production and maintenance out of the European Union with European aviation safety agencies losing their oversight. The consequences to the overall aviation sector is unpredictable, but of great concern. Because we will never compromise passengers, goods, crew safety, we do not believe that inclusion of strontium chromate in Annex 14 is the most appropriated risk management option. It is clear that industry has a strong socio-economic case to obtain authorizations in case it should be required, but nevertheless Authorization still remains an unknown process with low maturity level and no experience both for industry and decision makers. Any decision posing an uncertainty or a risk on aviation safety would be irresponsible and unacceptable. Aviation safety should never depend on the granting of an authorization, even less if this authorization concerns the use of the only available substance meeting international aviation safety requirements. As it appears that currently no other appropriate risk management option is available within the REACH regulation, this could be an area of improvement for future reviews of the legal text in order to take into account specific safety requirements that need to be accommodated within REACH to avoid any conflicts with safety and airworthiness requirements imposed by EASA and other competent authorities. In any case, the aerospace industry will need flexibility to implement any inclusion of Strontium Chromate into A14 safely.	

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			Therefore, it is very important that any inclusion takes into account the industry's safety requirements by enabling much longer sunset dates for these aerospace specific uses to enable a sector specific REACH implementation. The Authorization process should not be tested on the aviation sector and its maturity is a key requirement to implement REACH without compromising aviation fleet safety.	
6	2012/09/18 11:48	Company United Kingdom	Strontium Chromate is categorised as a Cat 2 Carcinogen and as such meets the criteria of an SVHC. We fully support the aims and objectives of the REACh Legislation but would request that the transition timing of this substance to Annex XIV aligns with the realities and requirements of our industry. Without this alignment we face significant risk from: a reduced reliability in our finished products b unneccessary compatibility problems in the Maintenance, Repair and Overhaul sections of our industry c commercial disadvantage against our non European competitors One of the most important characteristics of Strontium Chromate is in its self healing property in that when incorporated into an epoxy primer it has the ability to migrate into areas where the coating has been damaged. This characteriestic is proving challenging to replicate in alternative products and while some alternatives exist, none yet have been found to meet the performance criteria of longevity, reliability and compatibility exhibited by Strontium Chromate. There are significant safety and reliability concerns for parts which are difficult to inspect in service (aircraft we all fly in today!)	Thank you for your comment. Please refer to response to comment #26 (see above).
5	2012/09/17 17:37	ADS Industry or trade association United Kingdom	Introduction ADS is the trade organisation advancing the UK AeroSpace, Defence, Space and Security industries with Farnborough International Limited as a wholly-owned subsidiary, and also encompasses the British Aviation Group (BAG). ADS comprises around 900 member companies within the industries it represents. Together with its regional partners, it represents over 2,600 companies across the UK supply chain. The lifespan of aerospace and defence products is significantly longer than that of most other products, ranging from 30 to 90 years. In order to maintain and repair the products, the industry	Thank you for your comment. We understand that you request the transition timing of any Candidate list substance onto Annex XIV to be aligned with the realities and requirements of your industry. For response please refer to comments #25, in particular section 'Request for longest possible timescale to identify, test and qualify alternatives' and comment #26 (see above). We note that the use of strontium chromate in coil coated galvanised steel appears to be the main use of this substance in the scope of authorisation. There are however further identified uses of this

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			needs to have qualified materials and processes that have a high degree of compatibility with previously used materials and meet regulatory or customer approvals. Aerospace and defence materials are highly engineered, low-volume products (when compared to other industries). The significant consumption of Strontium Chromate occurs outside the aerospace and defence sector, within the steel coating sector. The quantities used within the aerospace and defence sector are relatively low but in critical applications. We would also highlight that Strontium Chromate, although a hexavalent chromium compound, cannot be used in the applications that other similar substances are also employed within the sector. Namely, Potassium Dichromate, Sodium Dichromate and Chromium Trioxide which are used as part of the overall metal treatment process in aqueous solutions. Strontium Chromate is, in the main, used in primers and sealants which are applied as part of a mixture due to its much lower solubility. These points suggest that a mechanism other than Authorisation may provide a more proportional control of the risks. Authorisation of processes involving Strontium Chromate will have significant business impacts in the sector. ADS recognises that progression of Strontium Chromate to Annex XIV is a likely scenario and so provides this input. Currently Strontium Chromate is categorised as a Category 2 carcinogen and as such meets the criteria as an SVHC. Whilst ADS fully supports the aims and objectives of the REACh legislation, it is essential that the transition timing of any Candidate list substance onto Annex XIV aligns with the realities and requirements of our industry. Without that alignment we face significant risks from reduced reliability in our finished products, create unnecessary compatibility problems in the Maintenance, Repair and Overhaul (MRO) side of the sector and suffer a commercial disadvantage against our non-European competitors. Replacement The essential issue lies in the limitations in the current selection of alternatives and the timescale available for seeking further, more	substance in the scope of authorisation for which a potential for widespread use and significant worker exposure (≈ wide dispersive use as defined in the prioritisation approach) has been identified on the basis of the available information (e.g. registration dossiers, Annex XV report but also information received during the commenting period (21.02.-07.04.2011) on the identification of strontium chromate as SVHC). Note that inclusion in Annex XIV is per substance and not per use. Therefore, a precautionary approach needs to be taken and in particular uses/situations be considered in which risks may potentially not be controlled. Therefore, ECHA's conclusion that some of the uses of strontium chromate, including surface treatment activities (coating) supplying the aerospace and the vehicle sectors, appear to have a potential for widespread and significant worker exposure is in line with the agreed prioritisation approach. This conclusion is strengthened by the fact that worker exposure to Cr(VI) may not only arise from the use of strontium chromate but from a range of different chromium(VI) compounds that are used in the different agents/components (e.g. primers, coatings, sealants) of which the anti-corrosion systems applied in the aerospace industry consist of.

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			comparable alternatives for testing, regulatory or customer approval and implementation once identified. Substitution of Strontium Chromate in the sector will not be a short term activity. Background Strontium Chromate has been an extremely important substance used within the aerospace and defence industry with approximately 60 years of service history, and its air safety record is second to none. The airframe, engines, undercarriages and anything that is attached to an aircraft, satellite, space vehicle, land vehicle or missile have some of the most challenging technical requirements that we know, and all require different anti-corrosive, protective properties. Strontium Chromate has successfully been used to fulfil all of these applications and finding a drop in replacement has been extremely challenging. Over the last 20 years, however, some limited success has been achieved in areas as diverse as paints, sealants and jointing compounds. Today Strontium Chromate is primarily used within the aerospace and defence industry in both basic and bonding primers and some remaining specific sealants. As noted earlier Strontium Chromate is part of a corrosion protection system that extends to chemical conversion coatings, their active ingredients currently recommended by ECHA for inclusion in Annex XIV. Functionality of the chemical One of the most important characteristics of Strontium Chromate is its self-healing property in that when incorporated into an epoxy primer it has the ability to migrate into areas where the coating has been damaged. Hence, if the component is scratched down to the bare metal, mobile chromate ions will tend to travel to the damaged area and provide continued corrosion protection. This characteristic is proving challenging to replicate in alternative products and while some alternatives exist, none have yet been found to meet the performance criteria of longevity, reliability and compatibility exhibited by Strontium Chromate. Additionally these replacement materials need to exhibit a high degree of compatibility with the existing Strontium Chromate painted fleet of	

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			assets. This is another critical area where viable alternatives are currently lacking.	
4	2012/09/14 16:40	MSCA United Kingdom	We have concerns over the priority given to this substance as it appears to be based on analogy to the uses and exposure levels of chromium trioxide, which we do not think has been sufficiently demonstrated. The exposure data which are used in the justification for all of these chromates to be included in Annex XIV are not substance specific. The reliability of the assumption that the data given in the Annex XV dossier for chromium trioxide would be the same as other Cr (VI) compounds has not been adequately addressed. This should be clarified with reference to the use of each substance relative to other Cr (VI) compounds. The arguments need to be strengthened with particular reference to how and where each of these chromium VI compounds are used and to show that there is a substance-specific risk that requires control. Metal treatment and surface finishing is a relatively broad sector and confirmation should be sought that these substances are actually used and for which processes and what exposure they really give rise to. We had concerns about the representativeness of these data when the chromium trioxide Annex XV dossier was produced, as there is no indication that the conditions under which these data were measured are applicable in all Member States. Now these same exposure data are being used to prioritise different chromium compounds without sufficient justification.	Thank you for your comment. Please note that the priority given to this substance is not based on analogy to the uses and exposure levels of chromium trioxide. Indeed, the primary information used in the final prioritisation of the individual substances is from the registration dossiers. Substance specific data are available in the registration dossiers and these data demonstrate that exposure of workers cannot be excluded, on the contrary the data indicates potential for exposure is resulting from the uses of strontium chromate in the process steps highlighted in the prioritisation results of the substance (http://echa.europa.eu/documents/10162/13640/prioritisation_results_4th_rec_en.pdf). The cited French and German monitoring studies do not reflect exposure to a particular chromium(VI) substance but exposure to chromium (VI) arising from different surface treatment processes. These processes may be carried out concomitantly or consecutively in the surface treatment service providing industry with different agents/mixtures containing the most suitable chromium(VI) substances for the given application. The same applies for uses in the aerospace industry were different chromium(VI) substances are concomitantly used in corrosion protection systems consisting of e.g. conversion primers, coating primers, sealants and coats. With regard to worker health exposure to chromium (VI) is the decisive issue and not what the exact shares of the individual chromium(VI) substances to the overall worker exposure are. Potential for exposure exists in all uses of the substances for surface treatment. However, please note that the prioritisation approach which was agreed and applied here to prioritise and recommend substances from the Candidate List for inclusion in Annex XIV is not intended to assess the risks exerted by the particular applications of a substance

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
				at particular sites (in particular countries) but to provide a very basic and general assessment of the use pattern and whether there is evidence based on which it could be concluded that relevant exposure does not occur. By doing so a conservative approach needs to be taken considering in particular uses or situations in which relevant exposure may occur. Therefore, ECHA's conclusion that some of the uses appear to have a potential for significant worker exposure and therefore – in combination with other criteria – qualify for prioritisation and inclusion in Annex XIV was drawn although risks might be controlled in other instances. Note that it is the obligation of the applicant for authorisation to demonstrate that the risks arising from the applied for uses are properly controlled or that there are no alternatives available and the socio-economic benefits of the use outweigh its risks. Based on information provided during this public consultation and information provided in the registration dossiers, strontium chromate, pentazinc chromate octahydroxide and potassium hydroxyoctaoxodizincatedichromate appear to be used in anticorrosive paint primers, sealants and adhesives while chromium trioxide and dichromium tris(chromate) seem to be used in pre-treatment processes (aqueous solutions) prior to painting. Both processes may compliment each other. Information from the public consultation indicates that chromium trioxide and dichromium tris(chromate) are both used in conversion coatings. The coating can be applied either by immersion (or passivating) or electrolytically (or anodising). While chromium trioxide is used in both processes (anodising and passivating), dichromium tris(chromate) seems to be only used in passivating.
3	2012/09/14 13:15	Thomas Cook UK Company United Kingdom	Thomas Cook UK wish to make comment regarding the "4th Draft Recommendation of Priority Substances to be Included in Annex XIV of the REACH Regulation". As a European aircraft operator the consequence of implementation could lead to operators and aircraft Maintenance Repair Organisations no longer being able to procure locally, import, or use these materials. This would have a huge affect on	Thank you for your comment. Regarding the request for exemption for socio-economic reasons and lack of alternatives, please refer to responses to comments #20, #25 and #26 (see above).

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			the operation and maintenance of all European aircraft fleets. Although the aerospace industry continues to develop chromium-free alternatives to these materials, qualified alternative materials that offer the same level of corrosion protection and airworthiness are limited or none existant. Therefore Thomas Cook UK request that exemption within our industry is considered, until such time that suitable chromium-free alternatives become available. In no way does this request ignore that there remains the potential for significant worker exposure, but perhaps the exposure can be controlled in a manner and timescale that would suit our predicament.	
2	2012/09/12 15:14	MSCA Norway	The Norwegian CA supports the prioritization of Strontium chromate for inclusion in Annex XIV.	Thank you for providing your opinion.
1	2012/08/31 12:29 Confidential attachment not provided	Company Spain	The commercial aviation uses many primer, sealant, and adhesive materials that contain chromium compounds because these formulations provide corrosion protection that contributes to the safety of our airplanes. Many of these materials are also required when maintaining or repairing airplanes throughout their service life. Over the last 20 years, aircraft manufactures, Boeing for instance, have been working to find and develop materials that can replace chromium-containing products. While the research has been successful for some applications (e.g., exterior decorative paint/primer), there are some applications where the industry efforts have not yet found suitable materials that meet our engineering safety requirements. Attached is a representative list of products for which the industry has not found acceptable alternatives. Air Europa is extremely concerned about inclusion in Annex XIV of such products. If the proposed regulation goes into effect, this will adversely affect the industry's ability to maintain aircraft in Europe, so Air Europa will be presumably forced to accomplish such activity in non-EU countries in order to be able to maintain the airworthiness of the fleet, provided alternative materials will not be available in the type certification of the airplanes.	Thank you for your comment. Please refer to responses to comments #26, #25 and #14 (see above).

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			The safety of aircraft operations relies on thoroughly tested and qualified products for maintenance. Forcing a ban or increasing administrative burdens for products without available alternative will diminish the safety.	

Ia - General comment exclusively on the recommendation to include Dichromium tris(chromate) (EC No. 246-356-2) in Annex XIV:

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
8a	2012/09/19 14:51 See attachment *8a_Dichromium trischromate_Priorisation.pdf*	Company United Kingdom	Please see attachment for general comments relating to proposed priorisation.	Thank you for your comment and the information provided. This will be taken into account, where relevant, for finalisation of ECHA's recommendation of substances to be included in Annex XIV and the corresponding background documentation. **For comments on the availability and suitability of alternatives, socio-economic considerations regarding the benefits of a use or the (adverse) impacts of ceasing a use, please refer to responses to comments #26 and #25 in section I above.** **<u>Comment on the outcome of the prioritisation</u>** Please note that ECHA has already taken into account the relatively low volume of the substance in its prioritisation. In addition, the priority given to the substance takes into account information received during the public consultation on identification of the substance as SVHC (RCOM, 2011), which indicates use at a small number of industrial sites (passivation-coil coating) whereas in the registrations it is reported that "several" sites are involved and in the Annex XV dossier it is stated that a high number of enterprises is involved in surface treatment activities (mainly small or medium size

				enterprises). Uncertainties regarding the number of industrial sites have been considered for the prioritisation of dichromium tris(chromate) by assuming that uses of the substance may take place at a medium to high number of sites. Information from registration dossiers has been taken into account when assessing potential occupational exposure. Note that the agreed prioritisation approach is not intended to assess the risks exerted by particular applications of a substance at particular sites but to provide a very basic and general assessment of the use pattern and exposure potential a substance may have for humans (workers, consumers) or/and the environment. By doing so in particular uses/situations need to be considered in which risks may potentially not be controlled. Therefore, our conclusion that some of the uses appear to have a potential for significant worker exposure is correct although exposure to workers may be controlled in many other instances. **Comment on grouping / interchangeability** Grouping of chemically and in terms of their hazard potential similar substances is an important strategy to prevent evasion of the authorisation requirement (by replacing a chromium(VI) compound on Annex XIV by another one not on this Annex). Therefore, it is necessary to prevent loopholes. If it is technically possible that a particular substance can replace any of the other substances of the group in any of their uses grouping is used. It is in practice impossible and not necessary to provide positive evidence for the compatibility of the substances in all their particular uses as this would require knowledge about all the concrete processes and possible alternative processes, which appears impossible to achieve and not necessary to have at this stage of the authorisation process. In order to challenge the suggested grouping of dichromium tris(chromate) with other chromium (VI) compounds already recommended for inclusion in Annex XIV it would seem more appropriate that IND provides evidence that it is technically not possible to replace a particular substance in any of its uses by another substance of the group. For request for longest possible timescale to identify, test and qualify alternatives, please refer to response to comment #25 in section I above. **Exemption request**

				Please refer to response to comment #20 in section I above. The relevant EU legislation referred to in your comments is assessed below. Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work (CAD) sets out a framework based on the determination and assessment of risk and general principles for the prevention of risk, associated with hazardous chemical agents. The Carcinogens or mutagens at work Directive 2004/37/EC (CMD) introduces a framework of general principles to protect workers against risks to their health (which includes prevention of risk) from exposure. The overriding principle is that the employer shall reduce the use of a carcinogen or mutagen (CM) at the place of work, in particular by replacing it, in so far as is technically possible, by a substance, preparation or process which, under its condition of use, is not dangerous or is less dangerous to workers' health and safety. Where substitution is not possible, CMs should be used in closed systems, where technically possible. Furthermore, a hierarchy of measures shall be applied when a CM is used. Both Directives outline a hierarchy of control and risk reduction measures (with substitution at the top), however, they leave the determination of the measures to be imposed to the employer and do not provide sufficient indicators to be used to assess whether a measure higher up in the hierarchy would have been technically possible. On this basis it is not considered that CAD or CMD impose binding minimum requirements for controlling risks to human health. Therefore, these Directives may not be regarded as a sufficient basis for exempting uses of dichromium tris(chromate) from authorisation in accordance with Article 58(2) REACH Regulation. In relation to Directive 2010/75/EU (IED), (which will replace a number of existing Directives including the IPPC Directive (2008/1/EC) from 7 January 2014), Annex II is an indicative list of the main polluting substances and includes large groups of substances. The directive does not specify how to identify polluting substances for which a permit for an installation needs to include an emission limit value. (The only specific references to chromium and its compounds are in Annex I where facilities engaged in production

				of chromic acids on an industrial scale are listed as requiring a permit; and in Annex VI which sets air and wastewater emission limit values for chromium and its compounds in waste incineration plants). For these reasons the substances for which the minimum requirements set out in the directive apply are not specified in a way that would allow the use of the IED Directive as a reason for exemption under Article 58(2) REACH. It is further noted that pursuant to Article 62(5)(b)(i) REACH an applicant may justify in the authorisation application that emissions from an installation for which an IPPC-permit has been granted do not need to be considered when deciding on an authorisation. This implies that a case specific consideration is needed to judge whether risks arising from IPPC installations are properly controlled.

II - Transitional arrangements. Comments on the proposed dates:

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
28	2012/09/19 21:46	European Environmental Bureau (EEB) International NGO Belgium	As soon as possible	Thank you for your comment. ECHA made its proposals for the latest application dates on the basis of discussions by the stakeholder expert group that was following the development of the Guidance for including substances in Annex XIV. This expert group estimated that the time needed for preparation of an authorisation application of sufficient quality might in standard cases require 18 months (roughly 12 months worktime for drafting the application plus an additional buffer of 6 months for consulting required external expertise). As there is yet no reliable information available that would suggest shortening or prolonging this time interval, we consider that a period of 18 months should normally be given to allow for the preparation of a well documented application for authorisation. The anticipated workload of the Agency with regard to processing of authorisation applications was accounted for by grouping the proposed substances in 3 groups and spreading the application and sunset dates over a period of six months, originally resulting in a combination of application/sunset dates for strontium dichromate of 21/39 months. However, the REACH Committee agreed in its meeting of November 2012 that the application dates for the chromium(VI) substances included in the 3rd Recommendation should be set to 35 months after entry into force (EiF) of the inclusion of these substances into Annex XIV (March 2013 anticipated). In order to allow consistency amongst all chromium(VI) substances recommended for inclusion in the Authorisation List, the latest application dates for the chromium(VI) substances of the 4th Recommendation are therefore set to 24 months after EiF of their inclusion in Annex XIV (February 2014 anticipated). The latest application date for all chromium(VI) substances of the 3rd and 4th Recommendation will then consistently be February 2016 and the sunset dates August 2017.

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
26	2012/09/19 20:11	TAP - Air Portugal Company Portugal	Currently, no alternatives have been identified for most aerospace uses of strontium chromate such as in primers and anti-corrosion interlay sealing compounds. Even if an alternative is identified in the laboratory in the very near future, the subsequent testing, qualification, certification and implementation would require a minimum of 15 - 20 years, with airworthiness certification dependent on demonstration of equivalent level of safety to the strontium chromate materials. This is why AEA strongly support the Aerospace and Defence industry's view with regard to the delay of the entry of Chromates into Annex XIV at this time until suitable exemptions are in place which recognizes the need to sustain the supply chain. Thus, if an exemption (see our next comment under "Comments on uses that should be exempted, including reasons for that" within this form) is not possible for aerospace uses, AEA urgently recommends an extended sunset dates of 2030 for the addressed safety critical and aerospace specific uses for all process types. This is necessary for the industry to continue research development and testing for alternatives instead of putting all efforts into the authorization process.	Thank you for your comment. Please note that the sunset date does not need to consider the timeframe in which it may be possible to substitute the substance in question in a particular use or in all of its uses. Authorisation, *inter alia*, is a means to promote the development of alternatives. Therefore, the present lack of alternatives as well as established safety requirements or performance standards are no viable reasons for adjourning the subjection of a substance or of some of its uses to authorisation. Such (perceived) lack of alternatives as well as established safety requirements or performance standards should be addressed in the authorisation application. Respective information will be taken into account by the Risk Assessment and Socio-Economic Analysis Committees when forming their opinions and by the Commission when taking the final decision. It may impact the decision on granting the applied for authorisation and the conditions applicable to the authorisation. Please further consider the responses to comments #26, #25 and #20 in section I.
24	2012/09/19 18:40	Industry or trade association United Kingdom	Tata Steel uses the highest technology available to use in order to innovate our products to the high standards set by our customers. We are strong believers in good science and a realistic approach to validation of alternatives. In our supporting document attached (pages 5-6) highlights the measures we are currently taking and have been for some years now to develop alternatives for our anticorrosion primer paints. In light of this we believe that a sector relevant transitional period should be applied when looking at our use. We request that consideration should be taken to not include sectors who are clearly on-going with the validation of alternatives in the transitional periods thus allowing us to complete our good science approach to alternatives. If the focus is on our validation of alternatives instead of authorisation we will be able to dedicate more resource to such activities.	Thank you for your comment. For your request that a sector relevant transitional period should be applied until progress has been made with the development and validation of alternatives please refer to response to comment #25 in section I, in particular heading 'Request for longest possible timescale to identify, test and qualify alternatives'.
22	2012/09/19 17:53	Individual France	Transitional arrangements Currently, no alternatives have been identified for most aerospace uses of strontium chromate such as in primers and anti-corrosion	Thank you for your comment. Regarding the comment on transitional arrangements, please refer

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			interlay sealing compounds. Even if an alternative is identified in the laboratory in the very near future, the subsequent testing, qualification, certification and implementation would require a minimum of 15 - 20 years, with airworthiness certification dependent on demonstration of equivalent level of safety to the strontium chromate materials. This is why AEA strongly support the Aerospace and Defence industry's view with regard to the delay of the entry of Chromates into Annex XIV at this time until suitable exemptions are in place which recognizes the need to sustain the supply chain. Thus, if an exemption (see our next comment under "Comments on uses that should be exempted, including reasons for that" within this form) is not possible for aerospace uses, AEA urgently recommends an extended sunset dates of 2030 for the addressed safety critical and aerospace specific uses for all process types. This is necessary for the industry to continue research development and testing for alternatives instead of putting all efforts into the authorization process. Exemptions Due to its substance's properties strontium chromate will be necessary in products for several decades to maintain operability of all existing and in-production fleets of civil and military aerospace. Even though chromate based processes and products are also used in other industries, the process of authorization especially threatened the Aerospace and Defence sector. The aviation industry as an 'downstream user' is a minority user of these chemicals, where in parallel the technical requirements out of airworthiness requirements are usually much more demanding than in other industry applications. So the low volume used by the aerospace industry (even if chromates are authorized) and uncertainty whether authorization will be granted would threaten the availability of aerospace specific products. The uncertainty to be able to use or even buy strontium chromate and other chromate containing materials and its products in the EU would be disruptive to the complex aerospace supply chain. An uncertain	to response to comment #26 (see above in this section II). Please refer to response to comments #25 and #20 in section I for further information on your exemption request.

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			supply of products containing strontium chromate or other chromate containing materials would mean that all actors out of the European Aerospace sector would face a high business risk as it won't be assured anymore that they could work in compliance with international given airworthiness requirements which in turn are the basis for ongoing and safe operation of existing fleet throughout their whole life cycle. So the inclusion of strontium chromate in Annex XIV for authorization will put the European aviation industry (suppliers and operators) under significant safety and business risk fostering supply disruptions, obsolescence and competitive disadvantage. Furthermore as anti-corrosion protection of aircraft (parts) is a system with different corresponding layers and treatments, several substances – now proposed for Annex XIV inclusion – are necessary in parallel. So the addition of more and more substances in Annex XIV, which are relevant for aviation applications, increases substantially the needed effort to research for alternatives. The decision if an alternative is suitable depends on the results out of another extremely difficult alternative research program. This creates substantial uncertainty, since development of alternatives for these substances are dependent upon already uncertain outcomes. Taking into account the aspects described above as well as the fact that strict control measures of the aerospace manufacturing, maintenance and repair processes guarantee a safe working environment for workers and the absence of a release to the environment of hexavalent chromium, it makes no sense to prematurely place a substance that has no replacement into Annex XIV and then spending large resources making and approving applications for its continued use. Especially as research and development measures have been in place since decades and are strengthened simply by addition of a substance to the Candidate list. Thus, considering all the aspects mentioned above AEA highly recommends an exemption for all uses of strontium chromate from the authorization process.	
21	2012/09/19	Lufthansa	Currently, no alternatives have been identified for most aerospace	Thank you for your comment.

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
	16:59	Technik Company Germany	uses of strontium chromate such as in adhesive bonding primers, epoxy primers, paint primers and anti-corrosion interlay sealing compounds. Even if an alternative is identified in the laboratory in the very near future, the subsequent testing, qualification, certification and implementation would require a minimum of 15 - 20 years, with airworthiness certification dependent on demonstration of equivalent level of safety to the strontium chromate materials. This is why Lufthansa Technik strongly supports the Aerospace and Defence industry's view with regard to the delay of the entry of Chromates into Annex XIV at this time until suitable exemptions are in place which recognizes the need to sustain the supply chain. Thus, if an exemption (see our next comment under "Comments on uses that should be exempted, including reasons for that" within this form) is not possible for aerospace uses, Lufthansa Technik urgently recommends an extended sunset date of 2030 for the addressed safety critical and aerospace specific uses for all process types. This is necessary for the industry to continue research development and testing for alternatives instead of putting all efforts into the authorization process.	Regarding the comment on transitional arrangements, please refer to response to comment #26 (see above in this section II).
20	2012/09/19 16:51	The Boeing Company Company United States	Transitional arrangements Currently, no comparable alternatives have been identified for materials critical for the corrosion protection of metallic substrates such as interior and exteriors primers applied at the detail and assembly level, sealants used to protect wing surfaces and cockpit windshields to name a few.. Development of alternatives would require scientific breakthroughs, the timing of which are difficult, if not impossible, to predict. Even if an alternative is developed in the laboratory of one of our coating formulators tomorrow, the subsequent testing would take at least 18-24 months (assuming no additional formulation iterations were required). Laboratory accelerated corrosion testing would need to be validated by actual in-service performance trials on the order of 10-12 years with periodic inspections. Qualification would be dependent upon the results of the in-service evaluation followed by certification and implementation which may take 3-5 additional years. It total, replacement efforts would require a minimum of 15 – 20 years,	Thank you for your comment. Regarding the comment on transitional arrangements, please refer to response to comment #26 (see above in this section II).

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			with certification by regulatory authorities dependent on demonstration of equivalent level of safety to the strontium chromate materials Thus, if an exemption is not possible for aerospace uses, Boeing urgently requests an extended sunset dates of 2030 for the following specific uses for all process types. Adhesives, sealants Sealants Coatings and paints, thinners, paint removers Coatings Primers	
19	2012/09/19 16:46	Scandinavian Airline System Company Norway	Transitional arrangements Currently, no alternatives have been identified for most aerospace uses of strontium chromate such as in primers and anti-corrosion interlay sealing compounds. Even if an alternative is identified in the laboratory in the very near future, the subsequent testing, qualification, certification and implementation would require a minimum of 15 - 20 years, with airworthiness certification dependent on demonstration of equivalent level of safety to the strontium chromate materials. This is why AEA strongly support the Aerospace and Defence industry's view with regard to the delay of the entry of Chromates into Annex XIV at this time until suitable exemptions are in place which recognizes the need to sustain the supply chain. Thus, if an exemption (see our next comment under "Comments on uses that should be exempted, including reasons for that" within this form) is not possible for aerospace uses, AEA urgently recommends an extended sunset dates of 2030 for the addressed safety critical and aerospace specific uses for all process types. This is necessary for the industry to continue research development and testing for alternatives instead of putting all efforts into the authorization process.	Thank you for your comment. Regarding the comment on transitional arrangements, please refer to response to comment #26 (see above in this section II).
18	2012/09/19 16:31	KLM Company Netherlands	Currently, no alternatives have been identified for most aerospace uses of strontium chromate such as in primers and anti-corrosion interlay sealing compounds. Even if an alternative is identified in the laboratory in the very near future, the subsequent testing, qualification, certification and	Thank you for your comment. Regarding the comment on transitional arrangements, please refer to response to comment #26 (see above in this section II).

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			implementation would require a minimum of 15 - 20 years, with airworthiness certification dependent on demonstration of equivalent level of safety to the strontium chromate materials. This is why AEA strongly support the Aerospace and Defence industry's view with regard to the delay of the entry of Chromates into Annex XIV at this time until suitable exemptions are in place which recognizes the need to sustain the supply chain. Thus, if an exemption (see our next comment under "Comments on uses that should be exempted, including reasons for that" within this form) is not possible for aerospace uses, AEA urgently recommends an extended sunset dates of 2030 for the addressed safety critical and aerospace specific uses for all process types. This is necessary for the industry to continue research development and testing for alternatives instead of putting all efforts into the authorization process.	
17	2012/09/19 15:22	Association of European Airlines Industry or trade association Belgium	Currently, no alternatives have been identified for most aerospace uses of strontium chromate such as in primers and anti-corrosion interlay sealing compounds. Even if an alternative is identified in the laboratory in the very near future, the subsequent testing, qualification, certification and implementation would require a minimum of 15 - 20 years, with airworthiness certification dependent on demonstration of equivalent level of safety to the strontium chromate materials. This is why AEA strongly support the Aerospace and Defence industry's view with regard to the delay of the entry of Chromates into Annex XIV at this time until suitable exemptions are in place which recognizes the need to sustain the supply chain. Thus, if an exemption (see our next comment under "Comments on uses that should be exempted, including reasons for that" within this form) is not possible for aerospace uses, AEA urgently recommends an extended sunset dates of 2030 for the addressed safety critical and aerospace specific uses for all process types. This is necessary for the industry to continue research development and testing for alternatives instead of putting all efforts into the authorization process.	Thank you for your comment. Regarding the comment on transitional arrangements, please refer to response to comment #26 (see above in this section II).

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
15	2012/09/19 15:12	Finnair Technical Services Ltd Company Finland	Currently, no alternatives have been identified for most aerospace uses of strontium chromate such as in primers and anti-corrosion interlay sealing compounds. Even if an alternative is identified in the laboratory in the very near future, the subsequent testing, qualification, certification and implementation would require a minimum of 15 - 20 years, with airworthiness certification dependent on demonstration of equivalent level of safety to the strontium chromate materials. This is why AEA strongly support the Aerospace and Defence industry's view with regard to the delay of the entry of Chromates into Annex XIV at this time until suitable exemptions are in place which recognizes the need to sustain the supply chain. Thus, if an exemption (see our next comment under "Comments on uses that should be exempted, including reasons for that" within this form) is not possible for aerospace uses, AEA urgently recommends an extended sunset dates of 2030 for the addressed safety critical and aerospace specific uses for all process types. This is necessary for the industry to continue research development and testing for alternatives instead of putting all efforts into the authorization process.	Thank you for your comment. Regarding the comment on transitional arrangements, please refer to response to comment #26 (see above in this section II).
14	2012/09/19 13:46	Individual Italy	Delay the inclusion of chromates in the Annex XIV; Postpone the "application and sunset dates"	As already explained in the report on the results of the prioritisation (http://echa.europa.eu/documents/10162/13640/prioritisation_results_4th_rec_en.pdf) there appear to be no reasons that in technical terms (i.e. regulatory effectiveness) would suggest to refrain from recommending this substance group for inclusion in Annex XIV. Indeed, the present lack of alternatives as well as established safety requirements or performance standards is no viable reason for adjourning the subjection of a substance or of some of its uses to authorisation. Such information, if addressed in the authorisation application, will be taken into account by the Risk Assessment and Socio-Economic Analysis Committees when forming their opinions and by the Commission when taking the final decision. Those factors may impact the decision on granting the authorisation and the conditions applicable to the authorisation, such as e.g. the length of the review period of the authorisation.

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
11	2012/09/19 10:44	MSCA Sweden	We agree with the proposed dates.	Thank you for providing your opinion.
8	2012/09/18 16:44	ASD, Aerospace and Defence Industries of Europe Industry or trade association Belgium	The extensive supply chain requires a "top-down" Authorisation approach, requiring extensive supply chain engagement in a consortium. Experience has shown that such consortia take years to form and deliver. There are many aspects of the process which are still unclear, particularly where large supply chains and multiple industry sector applicability are involved. We are in a situation where a new, complex and untried process is critical for our industry, and which will be implemented without industry having yet found a solution to this issue, despite substantial efforts applied. Industry needs time to develop its approach, to ensure that successful applications can be assured. A minimum 60 month delay from Annex XIV to publication is recommended, resulting in a sunset date in 2020 or later. This has the following benefits: 1. To ensure a route can be found through the Authorisation application process in the difficult and unclear context described above; 2. To increase the potential for alternatives to be found and substituted, thereby reducing the need for such Authorisation; 3. To avoid unnecessary diversion of resources from the development and substitution of alternatives onto Authorisation activities. 4. To allow for learning from Authorisation and substitute development relating to the 3rd Annex XIV recommendations. For products already in use that were manufactured using processes reliant on chromic acid, the continued maintenance and repair processes also rely on chromic acid being available for use both within and outside the European Economic Area. Please Refer to Attachment	Thank you for your comment. Please refer to response to comment #8 in section I.
6	2012/09/18 11:48	Company United Kingdom	We suggest that a sunset period of ten years minimum be incorprated in Annex XIV should Strontium Chromate be included	Thank you for your comment.

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			in this Annex. We have spect the last 15 - 20 years seeking alternatives and whilst some are proving promise we are still concerned about their corrosion performance as it is significantly lower. Our Aerospace prgrma of testing require approvals from EASA and FAA jointly. The timescales to satisfy these requirements are long and do not support a sunset date ranging from 3 - 5 years.	Regarding the request for later sunset date, please refer to response to comment #26 (see above in this section II).
5	2012/09/17 17:37	ADS Industry or trade association United Kingdom	Most recently some non-chromated primers have shown promise however their corrosion performance is still significantly lower than the chromated versions and there is not the level of operational experience and evidence that supports the use of chromated products. There are safety and reliability concerns for parts which are difficult to inspect in service and within satellite systems. There are economic concerns over the use of chromate free treatments on parts which have to last aircraft life and would require more frequent removal and re-application to maintain current levels of safety. When these alternatives are fully developed they must go through a rigorous program of testing including approvals from European Aviation Safety Agency (EASA) and Federal Aviation Administration (FAA), European Space Agency or military equivalents. The timescales required in order to be able to satisfy these requirements are long and do not fit into the "typical authorisation sunset dates" of 3-5 years that have been previously applied. This potentially puts European aircraft manufacturing and Maintenance, Repair and Overhaul at a disadvantage to their non-European counterparts who could continue to manufacture with proven processes and products. With new products there remains an unknown "flight safety risk" associated with the accelerated testing and introduction of alternative materials. In addition the aerospace and defence sector operates with complex global supply chains and reasonable time must be allowed to ensure that robust plans can be implemented to manage change where achievable or ensure that authorisations and supply of the affected products are available throughout the EU elements of the supply chain. The transition period for this chemical should be based around the research and development past record. The areas that remain in	Thank you for your comment. Regarding the request for later sunset date, please refer to responses to comment #26 (in this section II) and #8 (in section I above).

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			need of alternatives have proven extremely challenging over the past 15-20 years and while some progress has been made, no sudden leap forward has been achieved. For legacy parts we must develop processes where compatibility of old and new is expected to be a major additional issue. The most recent research and development work is focussing upon the combination of chemical conversion coatings in parallel with the paint primer. Accordingly we suggest that a sunset period of ten years be incorporated in Annex XIV, should Strontium Chromate be included in Annex XIV. If you would like any further information about the points raised in this submission please contact Kevin Morris Aviation and Environment Manager ADS, Salamanca Square, 9 Albert Embankment, London, SE1 7SP Tel: +44 (0)20 7091 4530 Mob: +44 (0)7827309729 Switchboard: +44 (0)20 7091 4500 Fax: +44 (0)20 7091 4545 Email: Kevin.Morris@adsgroup.org.uk Web: www.adsgroup.org.uk	

III - Comments on uses that should be exempted from authorisation, including reasons for that:

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
27	2012/09/19 21:26	ChemSec International NGO Sweden	Being such a hazardous substance, no use should be granted a generic exemption from authorisation.	Thank you for providing your opinion.
26	2012/09/19 20:11	TAP - Air Portugal Company Portugal	Strontium chromate is mainly used in: Primer application (as adhesive bonding primers, epoxy primers, paint primers) This process provides corrosion protection and is typically used on load bearing parts or parts subject to fatigue. It is regularly used in safety critical environments where any corrosion would be considered to have deleterious impacts and would not be easily observed. This process is used on structural components with expected life cycles in excess of 30 years e.g. military and civilian airlines and space equipment. Sealants Anti-corrosion interlay sealing compounds are applied along a joint and faired or shaped to meet the required dimensions or are applied to one or more surfaces that will be placed in intimate contact upon assembly. It is regularly used in fuel tanks, at windows and fuselage. Therefore special properties are needed (e.g. corrosion, chemical and temperature resistant). Many areas of the products needing primers and coatings are inaccessible and hard to inspect for damage following product delivery. These product areas are expected to last for the anticipated product lifespan which can range from 30 to 90 years. Detailed inspections, repairs and maintenance procedures occur only during major maintenance intervals and overhaul operations Research efforts All European and Non-European OEMs are committed and actively working towards reducing the use of all hexavalent chromium	Thank you for your comment. Regarding the request for an exemption, please refer to responses to comments #20 and #25 in section I.

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			compounds throughout the aircraft. Several airlines and Maintenance, Repair and Overhaul (MRO) companies have been active in close cooperation with the OEMs and chemical suppliers to test new alternatives and to monitor results over many years of testing under various circumstances. Manufacturers, aerospace industry working groups and industry partnerships with governments and other organizations have been working on alternatives for strontium chromate for more than twenty years, investing a lot of money to develop, qualify and implement equivalent alternatives to meet stringent safety requirements. Although significant research efforts are still ongoing, suitable replacements could be found just for few applications. Many alternatives have been tested, but have not passed the performance requirements identified in the applicable specifications. For those applications where an alternative is successfully tested, validated and meets the safety requirements, the aviation industry has implemented these already. But more often no drop-in alternatives exist today or should be expected for a majority of aerospace uses in the near future. As chromates are unique looking at their corrosion protection characteristics it will likely take several substances to fulfill all of the requirements for the numerous materials and processes that currently rely on chromated materials for critical aerospace applications. Due to the absence of drop in replacements in most applications, it's not possible today to set a sunset date for strontium chromate. Alternatives must be a suitable replacement not just for new aircraft developments but for our industry must also be compatible with maintenance and overhaul processes for existing fleets (which will be in-production and in operation for the next decades). From the point at which a viable alternative becomes available, extensive empirical data will be required to establish airworthiness.This means extended tests during flight circumstances for many years (maintenance cycles usually over 5 years) before results are visible and certification requirements might be met. Challenges The inclusion of strontium chromate in Annex XIV for authorization - along with the other chromate containing material - would put the European Aviation industry under significant safety and	

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			business risk fostering supply disruptions and obsolescence and competitive disadvantage. The aviation industry, which conducts maintenance repair and overhaul, depends on the processes prescribed by OEMs (original equipment manufacturers). Therefore our industry is forced to carry out these prescribed processes and meet the safety requirements set by EASA and FAA to gain airworthiness. As the authorization procedure is unknown and inexperienced it does not mean a guarantee for ongoing product availability and safe production and operation conditions. This is why AEA strongly believes that it would be very problematic to test the yet unknown and immature authorization process on such a complex industry vitally relying on the use of the currently only available substance to meet its safety requirements. The related risks are impossible to be assessed completely, to discard, nor to manage safely. If authorization is not granted, there are no chances foreseen to repeat an authorization application which means a complete stop for aviation business in Europe. Due to its substance's properties strontium chromate will be necessary in products for several decades to maintain operability of all existing and in-production fleets of civil and military aerospace. Even though chromate based processes and products are also used in other industries, the process of authorization especially threatened the Aerospace and Defence sector. The aviation industry as an 'downstream user' is a minority user of these chemicals, where in parallel the technical requirements out of airworthiness requirements are usually much more demanding than in other industry applications. So the low volume used by the aerospace industry (even if chromates are authorized) and uncertainty whether authorization will be granted would threaten the availability of aerospace specific products. The uncertainty to be able to use or even buy strontium chromate and other chromate containing materials and its products in the EU would be disruptive to the complex aerospace supply chain. An uncertain supply of products containing strontium chromate or other chromate containing materials would mean that all actors out of the European Aerospace sector would face a high business risk as	

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			it won't be assured anymore that they could work in compliance with international given airworthiness requirements which in turn are the basis for ongoing and safe operation of existing fleet throughout their whole life cycle. So the inclusion of strontium chromate in Annex XIV for authorization will put the European aviation industry (suppliers and operators) under significant safety and business risk fostering supply disruptions, obsolescence and competitive disadvantage. Furthermore as anti-corrosion protection of aircraft (parts) is a system with different corresponding layers and treatments, several substances – now proposed for Annex XIV inclusion – are necessary in parallel. So the addition of more and more substances in Annex XIV, which are relevant for aviation applications, increases substantially the needed effort to research for alternatives. The decision if an alternative is suitable depends on the results out of another extremely difficult alternative research program. This creates substantial uncertainty, since development of alternatives for these substances are dependent upon already uncertain outcomes. Taking into account the aspects described above as well as the fact that strict control measures of the aerospace manufacturing, maintenance and repair processes guarantee a safe working environment for workers and the absence of a release to the environment of hexavalent chromium, it makes no sense to prematurely place a substance that has no replacement into Annex XIV and then spending large resources making and approving applications for its continued use. Especially as research and development measures have been in place since decades and are strengthened simply by addition of a substance to the Candidate list. Thus, considering all the aspects mentioned above AEA highly recommends an exemption for all uses of strontium chromate from the authorization process.	
22	2012/09/19 17:53	Individual France	Use of strontium chromates Strontium chromate is mainly used in: Primer application (as adhesive bonding primers, epoxy primers,	Thank you for your comment. Please refer to responses to comments #20 and #25 in section I.

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			paint primers) This process provides corrosion protection and is typically used on load bearing parts or parts subject to fatigue. It is regularly used in safety critical environments where any corrosion would be considered to have deleterious impacts and would not be easily observed. This process is used on structural components with expected life cycles in excess of 30 years e.g. military and civilian airlines and space equipment. Sealants Anti-corrosion interlay sealing compounds are applied along a joint and faired or shaped to meet the required dimensions or are applied to one or more surfaces that will be placed in intimate contact upon assembly. It is regularly used in fuel tanks, at windows and fuselage. Therefore special properties are needed (e.g. corrosion, chemical and temperature resistant). Many areas of the products needing primers and coatings are inaccessible and hard to inspect for damage following product delivery. These product areas are expected to last for the anticipated product lifespan which can range from 30 to 90 years. Detailed inspections, repairs and maintenance procedures occur only during major maintenance intervals and overhaul operations Research efforts All European and Non-European OEMs are committed and actively working towards reducing the use of all hexavalent chromium compounds throughout the aircraft. Several airlines and Maintenance, Repair and Overhaul (MRO) companies have been active in close cooperation with the OEMs and chemical suppliers to test new alternatives and to monitor results over many years of testing under various circumstances. Manufacturers, aerospace industry working groups and industry partnerships with governments and other organizations have been working on alternatives for strontium chromate for more than twenty years, investing a lot of money to develop, qualify and implement	

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			equivalent alternatives to meet stringent safety requirements. Although significant research efforts are still ongoing, suitable replacements could be found just for few applications. Many alternatives have been tested, but have not passed the performance requirements identified in the applicable specifications. For those applications where an alternative is successfully tested, validated and meets the safety requirements, the aviation industry has implemented these already. But more often no drop-in alternatives exist today or should be expected for a majority of aerospace uses in the near future. As chromates are unique looking at their corrosion protection characteristics it will likely take several substances to fulfill all of the requirements for the numerous materials and processes that currently rely on chromated materials for critical aerospace applications. Due to the absence of drop in replacements in most applications, it's not possible today to set a sunset date for strontium chromate. Alternatives must be a suitable replacement not just for new aircraft developments but for our industry must also be compatible with maintenance and overhaul processes for existing fleets (which will be in-production and in operation for the next decades). From the point at which a viable alternative becomes available, extensive empirical data will be required to establish airworthiness.This means extended tests during flight circumstances for many years (maintenance cycles usually over 5 years) before results are visible and certification requirements might be met. Challenges The inclusion of strontium chromate in Annex XIV for authorization - along with the other chromate containing material - would put the European Aviation industry under significant safety and business risk fostering supply disruptions and obsolescence and competitive disadvantage. The aviation industry, which conducts maintenance repair and overhaul, depends on the processes prescribed by OEMs (original equipment manufacturers). Therefore our industry is forced to carry out these prescribed processes and meet the safety requirements set by EASA and FAA to gain airworthiness.	

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			As the authorization procedure is unknown and inexperienced it does not mean a guarantee for ongoing product availability and safe production and operation conditions. This is why AEA strongly believes that it would be very problematic to test the yet unknown and immature authorization process on such a complex industry vitally relying on the use of the currently only available substance to meet its safety requirements. The related risks are impossible to be assessed completely, to discard, nor to manage safely. If authorization is not granted, there are no chances foreseen to repeat an authorization application which means a complete stop for aviation business in Europe.	
21	2012/09/19 16:59	Lufthansa Technik Company Germany	Due to its substance's properties strontium chromate will be necessary in products for several decades to maintain operability of all existing and in-production fleets of civil and military aerospace. Even though chromate based processes and products are also used in other industries, the process of authorization especially threatened the Aerospace and Defence sector. The aviation industry as an 'downstream user' is a minority user of these chemicals, where in parallel the technical requirements out of airworthiness requirements are usually much more demanding than in other industry applications. So the low volume used by the aerospace industry (even if chromates are authorized) and uncertainty whether authorization will be granted would threaten the availability of aerospace specific products. The uncertainty to be able to use or even buy strontium chromate and its products in the EU would be disruptive to the complex aerospace supply chain. An uncertain supply of strontium chromate containing products would mean that all actors out of the European Aerospace sector would face a high business risk as it won't be assured anymore that they could work in compliance with international given airworthiness requirements which in turn are the basis for ongoing and safe operation of existing fleet throughout their whole life cycle. So the inclusion of strontium chromate in Annex XIV for authorization will put the European aviation industry (suppliers and operators) under significant safety and business risk fostering supply disruptions, obsolescence and competitive disadvantage.	Thank you for your comment. Regarding the request for an exemption, please refer to responses to comments #20 and #25 in section I.

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			Furthermore as anti-corrosion protection of aircraft (parts) is a system with different corresponding layers and treatments several substances – now proposed for Annex XIV inclusion – are necessary in parallel. So the addition of more and more substances in Annex XIV which are relevant for aviation applications increase substantially the needed effort to research for alternatives as the decision if an alternative is suitable depends on the results out of another extremely difficult alternative research program. This creates substantial uncertainty, since development of alternatives for these substances are dependent upon already uncertain outcomes. Taking into account the aspects described above as well as the fact that strict control measures of the aerospace manufacturing, maintenance and repair processes guarantee a safe working environment for workers and the absence of a release to the environment of hexavalent chromium it makes no sense to prematurely place a substance that has no replacement into Annex XIV and then spending large resources making and approving applications for its continued use. Especially as research and development measures have been in place since decades and are strengthened simply by addition of a substance to the candidate list. Thus, considering all the aspects mentioned above Lufthansa Technik highly recommends an exemption for all uses of strontium chromate from the authorization process.	
20	2012/09/19 16:51	The Boeing Company Company United States	Exemptions All existing and in-production fleets of civil and military aerospace products will require strontium chromate to maintain operability for several decades. The inclusion of this substance in Annex XIV for authorisation will put European suppliers and operators under significant safety and business risks fostering supply disruptions, obsolescence and competitive disadvantage. The low volume used by the aerospace industry and uncertainty whether authorisation will be granted would threaten substance availability. Unavailability or even a significant risk of unavailability, of strontium chromate in the EU would be disruptive to the complex aerospace supply chain working with long lead times and with a multiplicity of users and applications. This, in turn, would create	Thank you for your comment. Regarding the request for an exemption, please refer to responses to comments #20 and #25 in section I.

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			uncertainty whether suppliers, maintenance facilities, airlines and military operators in the EU will be able to comply with the maintenance operations required for ongoing, safe operation of their existing fleet for their life cycle. Furthermore, aerospace manufacturing, maintenance and repair are conducted in a strictly controlled environment by a highly trained and specialized workforce. Sophisticated engineering controls and personal protective equipment are utilized in all aerospace operations to ensure the highest level of protection for our employees. Risk of exposure and the potential for harm in this environment is minimal. Boeing feels that the existing regulations for controlling worker exposure to hexavalent chromium keep actual exposures to a minimum. Within the last ten years many countries have lowered occupational exposure limits and implemented required work practice controls to protect workers. Thus, given the critical nature of strontium chromate to the aerospace industry, the challenges involved with identifying and certifying safe and effective alternatives, and the high level of protection used in aerospace operations, Boeing strongly recommends an exemption for all aerospace uses of strontium chromate from the authorization process. Adhesives, sealants Sealants Coatings and paints, thinners, paint removers Coatings Primers	
19	2012/09/19 16:46	Scandinavian Airline System Company Norway	Use of strontium chromates Strontium chromate is mainly used in: Primer application (as adhesive bonding primers, epoxy primers, paint primers) This process provides corrosion protection and is typically used on load bearing parts or parts subject to fatigue. It is regularly used in safety critical environments where any corrosion would be considered to have deleterious impacts and would not be easily observed. This process is used on structural components with expected life cycles in excess of 30 years e.g. military and civilian airlines and space equipment.	Thank you for your comment. Regarding the request for an exemption, please refer to responses to comments #20 and #25 in section I.

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			Sealants Anti-corrosion interlay sealing compounds are applied along a joint and faired or shaped to meet the required dimensions or are applied to one or more surfaces that will be placed in intimate contact upon assembly. It is regularly used in fuel tanks, at windows and fuselage. Therefore special properties are needed (e.g. corrosion, chemical and temperature resistant). Many areas of the products needing primers and coatings are inaccessible and hard to inspect for damage following product delivery. These product areas are expected to last for the anticipated product lifespan which can range from 30 to 90 years. Detailed inspections, repairs and maintenance procedures occur only during major maintenance intervals and overhaul operations Research efforts All European and Non-European OEMs are committed and actively working towards reducing the use of all hexavalent chromium compounds throughout the aircraft. Several airlines and Maintenance, Repair and Overhaul (MRO) companies have been active in close cooperation with the OEMs and chemical suppliers to test new alternatives and to monitor results over many years of testing under various circumstances. Manufacturers, aerospace industry working groups and industry partnerships with governments and other organizations have been working on alternatives for strontium chromate for more than twenty years, investing a lot of money to develop, qualify and implement equivalent alternatives to meet stringent safety requirements. Although significant research efforts are still ongoing, suitable replacements could be found just for few applications. Many alternatives have been tested, but have not passed the performance requirements identified in the applicable specifications. For those applications where an alternative is successfully tested, validated and meets the safety requirements, the aviation industry has implemented these already. But more often no drop-in alternatives exist today or should be expected for	

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			a majority of aerospace uses in the near future. As chromates are unique looking at their corrosion protection characteristics it will likely take several substances to fulfill all of the requirements for the numerous materials and processes that currently rely on chromated materials for critical aerospace applications. Due to the absence of drop in replacements in most applications, it's not possible today to set a sunset date for strontium chromate. Alternatives must be a suitable replacement not just for new aircraft developments but for our industry must also be compatible with maintenance and overhaul processes for existing fleets (which will be in-production and in operation for the next decades). From the point at which a viable alternative becomes available, extensive empirical data will be required to establish airworthiness.This means extended tests during flight circumstances for many years (maintenance cycles usually over 5 years) before results are visible and certification requirements might be met. Challenges The inclusion of strontium chromate in Annex XIV for authorization - along with the other chromate containing material - would put the European Aviation industry under significant safety and business risk fostering supply disruptions and obsolescence and competitive disadvantage. The aviation industry, which conducts maintenance repair and overhaul, depends on the processes prescribed by OEMs (original equipment manufacturers). Therefore our industry is forced to carry out these prescribed processes and meet the safety requirements set by EASA and FAA to gain airworthiness. As the authorization procedure is unknown and inexperienced it does not mean a guarantee for ongoing product availability and safe production and operation conditions. This is why AEA strongly believes that it would be very problematic to test the yet unknown and immature authorization process on such a complex industry vitally relying on the use of the currently only available substance to meet its safety requirements. The	

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			related risks are impossible to be assessed completely, to discard, nor to manage safely. If authorization is not granted, there are no chances foreseen to repeat an authorization application which means a complete stop for aviation business in Europe. Exemptions Due to its substance's properties strontium chromate will be necessary in products for several decades to maintain operability of all existing and in-production fleets of civil and military aerospace. Even though chromate based processes and products are also used in other industries, the process of authorization especially threatened the Aerospace and Defence sector. The aviation industry as an 'downstream user' is a minority user of these chemicals, where in parallel the technical requirements out of airworthiness requirements are usually much more demanding than in other industry applications. So the low volume used by the aerospace industry (even if chromates are authorized) and uncertainty whether authorization will be granted would threaten the availability of aerospace specific products. The uncertainty to be able to use or even buy strontium chromate and other chromate containing materials and its products in the EU would be disruptive to the complex aerospace supply chain. An uncertain supply of products containing strontium chromate or other chromate containing materials would mean that all actors out of the European Aerospace sector would face a high business risk as it won't be assured anymore that they could work in compliance with international given airworthiness requirements which in turn are the basis for ongoing and safe operation of existing fleet throughout their whole life cycle. So the inclusion of strontium chromate in Annex XIV for authorization will put the European aviation industry (suppliers and operators) under significant safety and business risk fostering supply disruptions, obsolescence and competitive disadvantage. Furthermore as anti-corrosion protection of aircraft (parts) is a system with different corresponding layers and treatments, several substances – now proposed for Annex XIV inclusion – are necessary in parallel. So the addition of more and more substances in Annex XIV, which are relevant for aviation applications,	

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18	2012/09/19 16:31	KLM Company Netherlands	Exemptions Due to its substance's properties strontium chromate will be necessary in products for several decades to maintain operability of all existing and in-production fleets of civil and military aerospace. Even though chromate based processes and products are also used in other industries, the process of authorization especially threatened the Aerospace and Defence sector. The aviation industry as an 'downstream user' is a minority user of these chemicals, where in parallel the technical requirements out of airworthiness requirements are usually much more demanding than in other industry applications. So the low volume used by the aerospace industry (even if chromates are authorized) and uncertainty whether authorization will be granted would threaten the availability of aerospace specific products. The uncertainty to be able to use or even buy strontium chromate and other chromate containing materials and its products in the EU would be disruptive to the complex aerospace supply chain. An uncertain	Thank you for your comment. Regarding the request for an exemption, please refer to responses to comments #20 and #25 in section I.

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			supply of products containing strontium chromate or other chromate containing materials would mean that all actors out of the European Aerospace sector would face a high business risk as it won't be assured anymore that they could work in compliance with international given airworthiness requirements which in turn are the basis for ongoing and safe operation of existing fleet throughout their whole life cycle. So the inclusion of strontium chromate in Annex XIV for authorization will put the European aviation industry (suppliers and operators) under significant safety and business risk fostering supply disruptions, obsolescence and competitive disadvantage. Furthermore as anti-corrosion protection of aircraft (parts) is a system with different corresponding layers and treatments, several substances – now proposed for Annex XIV inclusion – are necessary in parallel. So the addition of more and more substances in Annex XIV, which are relevant for aviation applications, increases substantially the needed effort to research for alternatives. The decision if an alternative is suitable depends on the results out of another extremely difficult alternative research program. This creates substantial uncertainty, since development of alternatives for these substances are dependent upon already uncertain outcomes. Taking into account the aspects described above as well as the fact that strict control measures of the aerospace manufacturing, maintenance and repair processes guarantee a safe working environment for workers and the absence of a release to the environment of hexavalent chromium, it makes no sense to prematurely place a substance that has no replacement into Annex XIV and then spending large resources making and approving applications for its continued use. Especially as research and development measures have been in place since decades and are strengthened simply by addition of a substance to the Candidate list. Thus, considering all the aspects mentioned above AEA highly recommends an exemption for all uses of strontium chromate from the authorization process.	
17	2012/09/19	Association of	Due to its substance's properties strontium chromate will be	Thank you for your comment.

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
	15:22	European Airlines Industry or trade association Belgium	necessary in products for several decades to maintain operability of all existing and in-production fleets of civil and military aerospace. Even though chromate based processes and products are also used in other industries, the process of authorization especially threatened the Aerospace and Defence sector. The aviation industry as an 'downstream user' is a minority user of these chemicals, where in parallel the technical requirements out of airworthiness requirements are usually much more demanding than in other industry applications. So the low volume used by the aerospace industry (even if chromates are authorized) and uncertainty whether authorization will be granted would threaten the availability of aerospace specific products. The uncertainty to be able to use or even buy strontium chromate and other chromate containing materials and its products in the EU would be disruptive to the complex aerospace supply chain. An uncertain supply of products containing strontium chromate or other chromate containing materials would mean that all actors out of the European Aerospace sector would face a high business risk as it won't be assured anymore that they could work in compliance with international given airworthiness requirements which in turn are the basis for ongoing and safe operation of existing fleet throughout their whole life cycle. So the inclusion of strontium chromate in Annex XIV for authorization will put the European aviation industry (suppliers and operators) under significant safety and business risk fostering supply disruptions, obsolescence and competitive disadvantage. Furthermore as anti-corrosion protection of aircraft (parts) is a system with different corresponding layers and treatments, several substances – now proposed for Annex XIV inclusion – are necessary in parallel. So the addition of more and more substances in Annex XIV, which are relevant for aviation applications, increases substantially the needed effort to research for alternatives. The decision if an alternative is suitable depends on the results out of another extremely difficult alternative research program. This creates substantial uncertainty, since development of alternatives for these substances are dependent upon already uncertain outcomes. Taking into account the aspects described above as well as the fact	Regarding the request for an exemption, please refer to responses to comments #20 and #25 in section I.

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			that strict control measures of the aerospace manufacturing, maintenance and repair processes guarantee a safe working environment for workers and the absence of a release to the environment of hexavalent chromium, it makes no sense to prematurely place a substance that has no replacement into Annex XIV and then spending large resources making and approving applications for its continued use. Especially as research and development measures have been in place since decades and are strengthened simply by addition of a substance to the Candidate list. Thus, considering all the aspects mentioned above AEA highly recommends an exemption for all uses of strontium chromate from the authorization process.	
15	2012/09/19 15:12	Finnair Technical Services Ltd Company Finland	Due to its substance's properties strontium chromate will be necessary in products for several decades to maintain operability of all existing and in-production fleets of civil and military aerospace. Even though chromate based processes and products are also used in other industries, the process of authorization especially threatened the Aerospace and Defence sector. The aviation industry as an 'downstream user' is a minority user of these chemicals, where in parallel the technical requirements out of airworthiness requirements are usually much more demanding than in other industry applications. So the low volume used by the aerospace industry (even if chromates are authorized) and uncertainty whether authorization will be granted would threaten the availability of aerospace specific products. The uncertainty to be able to use or even buy strontium chromate and other chromate containing materials and its products in the EU would be disruptive to the complex aerospace supply chain. An uncertain supply of products containing strontium chromate or other chromate containing materials would mean that all actors out of the European Aerospace sector would face a high business risk as it won't be assured anymore that they could work in compliance with international given airworthiness requirements which in turn are the basis for ongoing and safe operation of existing fleet throughout their whole life cycle. So the inclusion of strontium chromate in Annex XIV for authorization will put the European aviation industry (suppliers and operators) under significant safety	Thank you for your comment. Regarding the request for an exemption, please refer to responses to comments #20 and #25 in section I.

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
			and business risk fostering supply disruptions, obsolescence and competitive disadvantage. Furthermore as anti-corrosion protection of aircraft (parts) is a system with different corresponding layers and treatments, several substances – now proposed for Annex XIV inclusion – are necessary in parallel. So the addition of more and more substances in Annex XIV, which are relevant for aviation applications, increases substantially the needed effort to research for alternatives. The decision if an alternative is suitable depends on the results out of another extremely difficult alternative research program. This creates substantial uncertainty, since development of alternatives for these substances are dependent upon already uncertain outcomes. Taking into account the aspects described above as well as the fact that strict control measures of the aerospace manufacturing, maintenance and repair processes guarantee a safe working environment for workers and the absence of a release to the environment of hexavalent chromium, it makes no sense to prematurely place a substance that has no replacement into Annex XIV and then spending large resources making and approving applications for its continued use. Especially as research and development measures have been in place since decades and are strengthened simply by addition of a substance to the Candidate list. Thus, considering all the aspects mentioned above AEA highly recommends an exemption for all uses of strontium chromate from the authorization process.	
14	2012/09/19 13:46	Individual Italy	Aviation field, for corrosion protection of alluminum structrures, landing gears plating process as Hard Chromium Plate,	Thank you for your comment. Please refer to responses to comments #20 and #25 in section I for further information on exemption request.
9	2012/09/18 17:03	Cessna Aircraft Company Company United States	Aerospace use of Strontium chromate should be exempted from the REACH regulation until suitable alternatives have been identified. Strontium chromate is used in primers, sealants, jointing compounds and top coat paints for aerospace applications.	Thank you for your comment. For the request for an exemption until progress has been made with the development and validation of alternatives please refer to response to comment #25 in section I, in particular heading 'Request for longest possible timescale to identify, test and qualify alternatives'.

#	Date	Submitted by (name, Organisation/ MSCA)	Comment	Response
8	2012/09/18 16:44	ASD, Aerospace and Defence Industries of Europe Industry or trade association Belgium	Any consideration of product sector exemption is only viable with continued and sustainable supply.	Thank you for your comment. We understand that you request an exemption for all of your uses, for this please refer to responses to comments #25 and #20 in section I. How to best ensure supply depends on the specific case. Therefore the legal text leaves it to the actors in the supply chain to decide who is best suited to apply for authorisation.
6	2012/09/18 11:48	Company United Kingdom	We are not seeking exemption - we are asking for a longer sunset date - 10 years +	Thank you for providing your opinion. Regarding the request for later sunset date, please refer to response to comment #26 (see in section II above).
5	2012/09/17 17:37	ADS Industry or trade association United Kingdom	As noted earlier ADS does not consider Authorisation to be a proportionate response to the risks but based on the current level of understanding does not wish to make a case for any exemption.	Thank you for providing your opinion. Regarding your comment on the authorisation process, please refer to response to comment #5 in section I above.

IV - Comments on uses for which review periods should be included in Annex XIV, including reasons for that:

#	Date	Submitted by (name, Organisation/MSCA)	Comment	Response
26	2012/09/19 20:11	TAP - Air Portugal Company Portugal	For the reasons outlined above, if extended application and sunset dates are not possible, AEA suggest a review period of 15 years for any authorizations granted for aerospace uses. If the extended application and sunset dates are possible, AEA believes a review period of 5 - 10 years would be appropriate	Thank you for your comment. Please note that setting 'upfront' review periods[3] for any uses requires that the Agency has access to adequate information on different aspects relevant for a decision on the review period. ECHA currently assessed that the information available is not sufficient to conclude on specific upfront review periods. Therefore, we have not proposed such review periods. It is to be stressed that all authorisation decisions will include specific review periods which will be based on concrete case specific information provided in the applications for authorisation.
24	2012/09/19 18:40	Industry or trade association United Kingdom	Our use of strontium chromate is in paint primers. These are used to coat sheet steel with an anticorrosive primer prior to the topcoat, which is usually colour based. We control our exposures to a minimum as required by the Carcinogens and Mutagens Dir and also the Chemical Agents Directive. Our controls are managed well and exposure levels of operators are close to the limit of detection, which is significantly less than the current OEL. As we are working actively to validate alternatives to strontium chromate we believe that we should remain outside of the process in order for us to direct our attention to a full validation instead of diverting resources away from this to focus on an authorisation of a use that presents minimal risk to operators or the environment and zero to the consumer.	Thank you for your comment. Please refer to the response to your comment #24 in section II above.

[3] i.e. review periods already included as entry in Annex XIV and not decided upon, case by case, on the basis of information becoming available in the authorisation application phase of the process.

#	Date	Submitted by (name, Organisation/MSCA)	Comment	Response
22	2012/09/19 17:53	Individual France	Review periods For the reasons outlined above, if extended application and sunset dates are not possible, AEA suggest a review period of 15 years for any authorizations granted for aerospace uses. If the extended application and sunset dates are possible, AEA believes a review period of 5 - 10 years would be appropriate.	Thank you for your comment. Please refer to response to comment #26 (above in this section IV).
21	2012/09/19 16:59	Lufthansa Technik Company Germany	For the reasons outlined above, if extended application and sunset dates are not possible, Lufthansa Technik suggest a review period of 15 years for any authorizations granted for aerospace uses. If the extended application and sunset dates are possible, Lufthansa Technik believes a review period of 5 - 10 years would be appropriate.	Thank you for your comment. Please refer to response to comment #26 (above in this section IV).
20	2012/09/19 16:51	The Boeing Company Company United States	Review periods For the reasons outlined above, if extended application and sunset dates are not possible, Boeing suggests a review period of 15 years for any authorisations granted for aerospace uses. If the extended application and sunset dates are possible, Boeing believes a review period of 5 – 10 years would be appropriate. Boeing believes that it would be very problematic to test the yet unknown and immature authorization process on such a complex industry vitally relying on the use of strontium chromate to meet safety requirements. The related risks are difficult to assess and manage Boeing is committed to environmental stewardship that is protective of human health and the environment while maintaining our product integrity. We appreciate your consideration of these comments. If you have any further questions or concerns, please feel free to contact Cristian Samoilovich at 32 (0)2 777 07 19 or cristian.a.samoilovich@boeing.com.	Thank you for your comment. Regarding the request for a review period, please refer to response to comment #26 (above in this section IV). Regarding the allegedly immature authorisation process and the lack of alternatives to strontium chromate please refer to the responses to comments #25 and #26 in section I above.
19	2012/09/19 16:46	Scandinavian Airline System Company Norway	Review periods For the reasons outlined above, if extended application and sunset dates are not possible, AEA suggest a review period of 15 years for any authorizations granted for aerospace uses. If the extended application and sunset dates are possible, AEA believes a review period of 5 - 10 years would be appropriate.	Thank you for your comment. Please refer to response to comment #26 (above in this section IV).

#	Date	Submitted by (name, Organisation/MSCA)	Comment	Response
18	2012/09/19 16:31	KLM Company Netherlands	Review periods For the reasons outlined above, if extended application and sunset dates are not possible, AEA suggest a review period of 15 years for any authorizations granted for aerospace uses. If the extended application and sunset dates are possible, AEA believes a review period of 5 - 10 years would be appropriate.	Thank you for your comment. Please refer to response to comment #26 (above in this section IV).
17	2012/09/19 15:22	Association of European Airlines Industry or trade association Belgium	For the reasons outlined above, if extended application and sunset dates are not possible, AEA suggest a review period of 15 years for any authorizations granted for aerospace uses. If the extended application and sunset dates are possible, AEA believes a review period of 5 - 10 years would be appropriate.	Thank you for your comment. Please refer to response to comment #26 (above in this section IV).
15	2012/09/19 15:12	Finnair Technical Services Ltd Company Finland	For the reasons outlined above, if extended application and sunset dates are not possible, AEA suggest a review period of 15 years for any authorizations granted for aerospace uses. If the extended application and sunset dates are possible, AEA believes a review period of 5 - 10 years would be appropriate.	Thank you for your comment. Please refer to response to comment #26 (above in this section IV).
8	2012/09/18 16:44	ASD, Aerospace and Defence Industries of Europe Industry or trade association Belgium	The Aerospace and Defence industry operates very long life cycle products, many in excess of 40 years in service. The industry is heavily regulated and the introduction of new processes and design changes (even when approved) still takes a considerable amount of time. In addition these new processes are unlikely to be backwards compatible - they cannot be used to repair or maintain products which are already in service (the original process will still be required). In this context, the recommendation is for review periods of 10 years or more in order to reflect the complex nature of developing and obtaining approval for safe and functionally effective alternatives.	Thank you for your comment. Please refer to response to comment #26 (above in this section IV).
6	2012/09/18 11:48	Company United Kingdom	A Review period of 10 years would be reasonable with interim checks perhaps at 5 years.	Thank you for your comment. Please refer to response to comment #26 (above in this section IV).
5	2012/09/17 17:37	ADS Industry or trade association United Kingdom	In the event that Strontium Chromate is added to Annex XIV then ADS advocates that review periods are not included in the text of the Annex but that review periods should be determined on the basis of applicant's substitution plans.	Thank you for providing your opinion. We agree that the review periods should normally be determined case by case based on the relevant information brought forward in the application for authorisation and gathered in the application evaluation and granting process.

#	Date	Submitted by (name, Organisation/MSCA)	Comment	Response
1	2012/08/31 12:29	Company Spain	Airplane maintenance accomplished by Maintenance Organizations approved in accordance with EASA Part 145. Airplane maintenance is done under a very controlled environment. Continuous audits in accordance with existing regulation are performed to ensure workers strictly adhere to the approved procedures. Already approved procedures in aviation maintenance require providing protective instructions for use of healthy-risk products. Thus adding further Authorization requirements in the aviation maintenance activity does not provide added value.	Thank you for providing your opinion.