

**29 November 2012**

## **Background document for potassium hydroxyoctaoxodizincatedichromate**

### **Document developed in the context of ECHA's fourth Recommendation for the inclusion of substances in Annex XIV**

*Information comprising confidential comments submitted during public consultation, or relating to content of Registration dossiers which is of such nature that it may potentially harm the commercial interest of companies if it was disclosed, is provided in a confidential annex to this document.*

## **1. Identity of the substance**

Chemical name:	Potassium hydroxyoctaoxodizincatedichromate
EC Number:	234-329-8
CAS Number:	11103-86-9

## **2. Background information**

### **2.1. Intrinsic properties**

Potassium hydroxyoctaoxodizincatedichromate was identified as a Substance of Very High Concern (SVHC) in accordance with Article 57(a) as it is classified in Annex VI, part 3, Table 3.1 (the list of harmonised classification and labelling of hazardous substances) of Regulation (EC) No 1272/2008 as carcinogen 1A<sup>1</sup> (H350: "May cause cancer") and was therefore included in the candidate list for authorisation on 19 December 2011, following ECHA's decision ED/77/2011.

### **2.2. Imports, exports, manufacture and uses**

#### *2.2.1. Volume(s), imports/exports*

The volume manufactured in the EU in 2009 is in the range of 100 – 1,000 t/y. No information on import/export is available. The entire amount is allocated to uses in the scope of authorisation (Registration).

---

<sup>1</sup> This corresponds to a classification as carcinogen cat. 1, (R45 : "May cause cancer") in Annex VI, part 3, Table 3.2 (the list of harmonised classification and labelling of hazardous substances from Annex I to Directive 67/548/EEC) of Regulation (EC) No 1272/2008.

### 2.2.2. Manufacture and uses

#### 2.2.2.1. Manufacture and releases from manufacture

Potassium hydroxyoctaoxodizincatedichromate is manufactured within the EU by at least two companies that are located in Austria and in France (Annex XV dossier, 2011).

The Annex XV dossier (2011) reports that potassium hydroxyoctaoxodizincatedichromate is precipitated from a solution of zinc salts, potassium (di)chromate and sulfuric acid. The product is then dehydrated, dried and grinded.

Manufacture of potassium hydroxyoctaoxodizincatedichromate takes place in closed systems. However, occupational exposure cannot be excluded and potential for exposure can arise, as reported in the Annex XV dossier (2011) and based on the registration dossier, from raw material handling during the manufacture of potassium hydroxyoctaoxodizincatedichromate (wet process) and from handling the substance (as powder) during packaging (manually controlled packaging) and other activities.

#### 2.2.2.2. Uses and releases from uses

According to information provided in the Annex XV dossier, the substance is used as an anti-corrosion agent for the formulation of primers and it is further used in jointing compounds (sealants).

Applications of the substance in the scope of authorisation are (Registration, Annex XV dossier):

- formulation of coatings and sealants,
- industrial use of sealants and
- industrial use of coatings in:
  - aerospace sector and
  - vehicle sector.

Applications in the vehicle sector include: fleet and commercial vehicles, heavy duty vehicles and trucks, military vehicles and agricultural equipment (excluding personal vehicles).

Information provided in the registration and the Annex XV dossier (2011) indicates that potential for exposure is given in uses or process steps such as:

- raw material handling (during charging/mixing/dispersing of potassium hydroxyoctaoxodizincatedichromate (as powder) in liquids),
- application of coatings or sealants to the support (by dipping, brushing, roller application and manual spraying, which can generate aerosols) and
- manual stripping of coatings/sealants with abrasive techniques (e.g. sanding during maintenance activities of aircrafts and vehicles).

In the Annex XV dossier (2011) recent monitoring results regarding exposure to chromium (VI) via air at the workplace in different metal working sectors in France, among them the "metal treatment and surface finishing" sector, are reported. The data indicate that French workers in the metal treatment and surface finishing sector are exposed via the respiratory route to non-negligible

concentrations of chromium (VI) compounds (25<sup>th</sup>, 75<sup>th</sup> and 90<sup>th</sup> percentile of 8 h average monitoring values, respectively: 0.5, 1.0 and 3.0 µg CrVI/m<sup>3</sup>).

Furthermore, recent exposure information reported in the Annex XV dossier for chromium trioxide (2010) prepared by Germany shows that also German workers are exposed to significant concentrations of chromium (VI) in workplace air<sup>2</sup> in sectors such as "formulation of metal treatment products" and "surface treatment".

Based on this recent information on exposure of French and German workers to Cr(VI) resulting from uses and processes in which also potassium hydroxyoctaoxidizincatedichromate is used, it can be assumed that other European workers are also likely to be exposed to non-negligible concentrations of Cr(VI) compounds, among them potassium hydroxyoctaoxidizincatedichromate.

#### 2.2.2.3. Geographical distribution and conclusions in terms of (organisation and communication in) supply chain

There is no specific information available regarding the geographical distribution of sites at which potassium hydroxyoctaoxidizincatedichromate is used. Also, the number of sites is not known, except for the formulation stage for which an estimation of less than 10 formulators in the EU is provided in the Annex XV dossier (2011) and confirmed by registration information. For the other uses, there is no clear picture.

However, it seems that many industrial sites are involved in surface treatment activities (coating) supplying the aerospace sector. Indeed, the Annex XV dossier (2011) suggests a supply chain which horizontally involves a high number of small and medium size enterprises. Comments received during public consultation on the SVHC identification of the substance appear to confirm the information available on the supply chain structure in the aerospace industry (RCOM, 2011). In the commercial vehicle and agricultural equipment sector it is expected that repair and refurbishment of coatings of vehicles and agricultural equipment is carried out in very many workshops / sites.

Based on this information, the uses of the substance in the scope of authorisation are considered to be widespread.

### 2.3. Availability of information on alternatives<sup>3</sup>

Some information is available on alternatives for metal surface treatment in the Annex XV dossier on potassium hydroxyoctaoxidizincatedichromate (2011). The conclusions from the Annex XV dossier (2011), as confirmed by comments received during the public consultation (RCOM, 2011), are that in the aeronautic and military sectors, research for alternatives has been ongoing for several years already. However further research is still needed as none of the presently known possible alternatives appear to fulfil the technical and airworthiness safety requirements for aircrafts. For the automotive sector, based on information

---

<sup>2</sup> The exposure values provided in tables 7 – 19 of the Annex XV dossier for chromium trioxide are expressed in µg CrO<sub>3</sub>/m<sup>3</sup> air (and not as µg CrVI/m<sup>3</sup> as erroneously stated in the dossier; by division of the given values by 2 an approximate transformation of CrO<sub>3</sub>/m<sup>3</sup> to CrVI/m<sup>3</sup> can be achieved).

<sup>3</sup> Please note that this information was not used for prioritisation.

provided in the Annex XV dossier (2011), there seem to be efficient substitutes already on the market.

## 2.4. Existing specific Community legislation relevant for possible exemption

There seems to be no specific Community legislation in force that would allow to consider exemption of (categories of) uses from the authorisation requirement on the basis of Article 58(2) of the REACH Regulation.

## 2.5. Any other relevant information (e.g. for priority setting)

Not available.

# 3. Conclusions and justification

## Prioritisation

The volume of the substance supplied to uses in the scope of authorisation is relatively high. Uses of the substance take place at a high number of industrial sites but also in workshops during vehicle and equipment repair and refurbishing activities. Although exposure of workers might be controlled in most industrial applications, there is potential for significant exposure, in particular during repair and refurbishing activities.

### *Verbal-argumentative approach*

The volume of the substance supplied to uses in the scope of authorisation is relatively high. The uses of the substance are considered to be widespread with a potential for significant worker exposure. On the basis of the criteria, potassium hydroxyoctaoxidizincatedichromate has relatively high priority.

### *Scoring approach*

Inherent properties (IP)	Score		Total Score (= IP + V + WDU)
	Volume (V)	Uses - wide dispersiveness (WDU)	
Score: 1 Art. 57 (a); Carc 1A	Score: 5 Relatively high volume allocated to uses in the scope of authorisation (100 – 1,000 t/y).	Overall score: 3 * 3 = 9  Site-#: 3 Used at a high number of sites (> 100). Release: 3 Although exposure of workers might be controlled in most industrial applications, there is potential for significant exposure, in particular during repair and refurbishing activities.	15

*Conclusion, taking regulatory effectiveness considerations into account*

On the basis of the prioritisation criteria potassium hydroxyoctaoxodizincatedichromate gets relatively high priority for inclusion in Annex XIV. Furthermore, there are other chromium (VI) compounds on the Candidate List, such as pentazinc chromate octahydroxide and strontium chromate, which could be replaced by potassium hydroxyoctaoxodizincatedichromate in (some of) their uses (and vice versa).

**Therefore, it is proposed to recommend potassium hydroxyoctaoxodizincatedichromate for inclusion in Annex XIV.**

## 4. References

Annex XV (2010) – Chromium trioxide. Proposal for identification of a substance as a Category 1A or 1B CMR, PBT, vPvB or a substance of an equivalent level of concern. Submitted by Germany, August 2010.

<http://echa.europa.eu/documents/10162/20ee121d-0db9-4c97-ae32-d18d1f4b3ff4>

Annex XV (2011) – Potassium hydroxyoctaoxodizincatedichromate. Proposal for identification of a substance as a Category 1A or 1B CMR, PBT, vPvB or a substance of an equivalent level of concern. Submitted by France, August 2011.

<http://echa.europa.eu/documents/10162/305d37a4-9708-4b7a-aaf5-9a04c6860709>

RCOM (2011) – “Responses to comments” documents. Document compiled by the French CA from the commenting period 29/08/2011 – 13/10/2011 on the identification of Potassium hydroxyoctaoxodizincatedichromate as SVHC.

<http://echa.europa.eu/web/guest/identification-of-svhc>