15 June 2011

Draft Background document for Potassium chromate

Document developed in the context of ECHA's third 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 chromate
EC Numbers:	232-140-5
CAS Number:	7789-00-6
IUPAC Name:	Dipotassium chromate

2. Background information

2.1. Intrinsic properties

Potassium chromate was identified as a Substance of Very High Concern (SVHC) according to Article 57(a) and (b) as it is classified according to 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 category 1B[1](H350i: "May cause cancer by inhalation") and mutagen category 1B[2] (H340: "May cause genetic defects") and was therefore included in the candidate list for authorisation on 18 June 2010, following ECHA's decision ED/30/2010.

2.2. Imports, exports, manufacture and uses

2.2.1. Volume(s), imports/exports

Registrations in the tonnage band 1 – 10 t/y have been submitted. No information is provided on the amounts being allocated to uses in the scope of authorisation.

[1] This corresponds to a classification as carcinogen category 2, (R49 : may cause cancer by inhalation) 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) N° 1272/2008

[2] This corresponds to a classification as mutagen category 2, (R46 : May cause heritable genetic damage) 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) N° 1272/2008

2.2.2. Manufacture and uses

2.2.2.1. Manufacture and releases from manufacture

Potassium chromate is manufactured and imported in the EU. The manufacturing process for the different chromates compounds seems to be largely enclosed with breaching for bagging of product and some maintenance activities (Annex XV SVHC dossier – Potassium chromate, 2010). The measured exposure data indicate that inhalation exposures for operators are usually very low, with those for maintenance staff and packers slightly higher. A reasonable worst case exposure is 0.02 mg/m3 based on the 90th percentile of industry monitoring data for 1994-1997 (Annex XV SVHC dossier – Potassium chromate, 2010; EC, 2005). There is no specific information available on potassium chromate.

2.2.2.2. Uses and releases from uses

According to registration information the only use in the scope of authorisation is for metal surface treatment. Potassium chromate is also used as intermediate in the synthesis of other substances and as a laboratory agent.

Further potential uses (not identified in the registrations) have been reported during public consultation on the SVHC identification of the substance (RCOM, 2010): use of potassium chromate as a pyrotechnic delay in ammunition and as a corrosion inhibitor in cooling systems of some nuclear power plants (closed systems, strictly controlled).

As regards potential worker exposure, monitoring information that workers could be exposed to significant concentrations of chromium VI compounds in metal treatment applications needs to be considered (Annex XV SVHC dossier – Chromium trioxide, 2010).

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

From the information available it is difficult to conclude on the supply chain structure. However as the tonnage used is low, it can be expected that the number of sites where the uses relevant for authorisation are performed may not be high.

2.3. Availability of information on alternatives

Some information is available on alternatives for metal surface treatment in the Annex XV report for potassium chromate (Potassium chromate Annex XV SVHC dossier, 2010). The conclusions from the Annex XV dossier are that alternatives exist but most of them are more expensive and are protected by patents. Those alternatives provide anti-corrosive properties which do not seem to be sufficient in all applications. However, for applications in less corrosive environments certain alternative substances certainly appear to be suitable replacements. Research in the aeronautic and military sectors on alternatives is on going for several years already. However some more research is still needed.

2.4. Existing specific Community legislation relevant for possible exemption

No data available

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

No data available

3. Conclusions and justification

3.1. Prioritisation

Potassium chromate is used in low volumes. In addition, the information on volumes available covers as well uses not in the scope of authorisation (as intermediate or as laboratory agent). There is no detailed information on the uses but it seems that they mostly are carried in closed processes but with potential for significant worker exposure at least in some processes.

Verbal-argumentative approach

Due to the low volume and its apparently limited uses in the EU, the priority for recommending this substance for inclusion in Annex XIV is low.

Scoring approach

Score			Total Score
Inherent properties (IP)	Volume (V)	Uses – wide dispersiveness (WDU)	(= IP + V + WDU)
1 Art. 57 (a) & (b); Carc 1B, Muta 1B	1 Low volumes allocated to uses in the scope of authorisation:	Overall score: 2 * 3 = 6 Site-#: 2 (Substance used at a medium number of sites) Release: 3 (potentially significant worker exposure)	8

Conclusion, taking regulatory effectiveness considerations into account

Due to the low volume and its apparently limited uses in the EU, the priority for recommending this substance for inclusion in Annex XIV is low.
However this SVHC substance could be used to replace other hexavalent chromium compounds with similar uses.
Therefore, it is proposed to recommend potassium chromate for inclusion in Annex XIV.

4. References

Annex XV SVHC dossier (2010) – Potassium chromate. Proposal for identification of a substance as a CMR Cat 1 or 2, PBT, vPvB or a substance of an equivalent level of concern. Submitted by France, February 2010. http://echa.europa.eu/doc/consultations/svhc/svhc_axvrep_france_cmr_potassium_chromate.pdf

Annex XV SVHC dossier (2010) – Chromium trioxide. Proposal for identification of a substance as a CMR Cat 1 or 2, PBT, vPvB or a substance of an equivalent level of concern. Submitted by Germany, August 2010.

http://echa.europa.eu/doc/consultations/svhc/svhc_axvrep_germany_cmr_chromium-Trioxide.pdf.

EU- RAR (2005) – European Union Risk Assessment Report - Chromium trioxide (CAS-No: 1333-82-0), sodium chromate (CAS-No:7775-11-3), sodium dichromate (CAS-No: 10588-01-9), ammonium dichromate (CAS-No: 7789-09-5) and potassium dichromate (CAS-No: 7778-50-9) Risk Assessment. 415 p. (EUR 21508 EN - Volume: 53).

RCOM (2010) Responses to comments" documents. Document compiled by the French MSCA from the commenting period 08.03.-22.04.2010. http://echa.europa.eu/doc/about/organisation/msc/msc_rcoms2010/rcom_potassium_chromate/rcom_potassium_chromate.pdf