

15 June 2011

Draft Background document for Sodium 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:	Sodium chromate
EC Numbers:	231-889-5
CAS Number:	7775-11-3
IUPAC Name:	Disodium chromate

2. Background information

2.1. Intrinsic properties

Sodium chromate was identified as a Substance of Very High Concern (SVHC) according to Article 57(a), (b) and (c) 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 1B¹ (H350: "May cause cancer"), as mutagen category 1B² (H340: "May cause genetic defects") and toxic for reproduction category 1B³ (H360-FD: "May damage fertility. May damage the unborn child") and was therefore included in the candidate list for authorisation on 18 June 2010, following ECHA's decision ED/30/2010.

¹ This corresponds to a classification as carcinogen category 2, (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) 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

³ This corresponds to a classification as toxic for reproduction category 2, (R60-61 : May impair fertility. May cause harm to the unborn child) 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. Imports, exports, manufacture and uses

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

Uses of sodium chromate in the EU are registered within the 1 - 10 t/y tonnage band.

2.2.2. *Manufacture and use*

2.2.2.1. Manufacture and releases from manufacture

Sodium chromate is manufactured in the EU. Manufacturing of the different chromate compounds seems largely to take place in enclosed systems with breaching for bagging of the product and for some maintenance activities (Annex XV SVHC dossier – Sodium chromate, 2010). The measured exposure data indicate that inhalation exposures to chromium VI compounds 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 data for 1994-1997 (Annex XV SVHC dossier – Sodium Chromate, 2010; EC, 2005). There is no specific information available on sodium chromate.

2.2.2.2. Uses and releases from uses

The registration information indicates that the only use in the scope of authorisation is for metal surface treatment. Sodium chromate is also used as intermediate in the synthesis of other substances and as a laboratory agent. This information is confirmed by comments provided during the public consultation on the SVHC identification of the substance (RCOM, 2010). In these comments it is specified that the substance is used as a corrosion inhibitor in cooling systems and particularly in cooling systems such as carbon steel cooling system in absorption refrigerators. No information is available on non-intermediate uses other than as metal surface treatment agent.

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 it seems that most of the tonnage of sodium chromate is used for carbon steel cooling systems in absorption refrigerators. As the downstream user who uses the substance as corrosion inhibitor in absorption refrigerators appears to use an amount that is close to the entire registered volume, it can be assumed that the number of sites where the substance is used is low.

2.3. Availability of information on alternatives

The only information available concerns the use of sodium chromate for carbon steel cooling systems in absorption refrigerators. It seems that despite extensive research

there are still a number of scientific and technical challenges to overcome regarding alternatives to hexavalent chromium (RCOM, 2010).

2.4. Existing specific Community legislation relevant for possible exemption

The use of hexavalent chromium compounds (sodium chromate) as anti-corrosion agent in the carbon steel cooling system of absorption refrigerators is exempted from the requirement of Article 4(1) of Directive 2002/95/EC (restriction of the use of substances in electrical and electronic equipments) and from Article 4(2)(a) of the end of life directive.

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

No data available

3. Conclusions and justification

3.1. Prioritisation

Sodium chromate is used in low volumes at a presumably low number of sites. 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. Potential for significant worker exposure at least in some processes cannot be excluded.

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 very low.

Scoring approach

Score			Total Score (= IP + V + WDU)
Inherent properties (IP)	Volume (V)	Uses - wide dispersiveness (WDU)	
1 Art. 57 (a), (b) & (c); Carc 1B, Muta 1B, Repro 1B	1 (Low volumes allocated to uses in the scope of authorisation)	Overall score: 1 * (1) = 1 Site-#: 1 (Substance used at a small number of sites) Release: 1 (Non diffuse releases and worker exposure controlled)	3

Conclusion, taking regulatory effectiveness considerations into account

The priority for recommending this substance for inclusion in Annex XIV is very low. However this SVHC substance could be used to replace other hexavalent chromium compounds with similar uses.

Therefore, it is proposed to recommend sodium chromate for inclusion in Annex XIV.

4. References

- Annex XV SVHC dossier (2010) – Sodium 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_sodium_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_sodium_chromate/rcom_sodium_chromate.pdf.