PROPOSAL FOR IDENTIFICATION OF A SUBSTANCE AS A CATEGORY 1A OR 1B CMR, PBT, vPvB OR A SUBSTANCE OF AN EQUIVALENT LEVEL OF CONCERN

Substance Name(s): Cobalt dichloride
EC Number(s): 231-589-4
CAS Number(s): 7646-79-9

Submitted by: European Chemicals Agency at the request of the European Commission
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PROPOSAL FOR IDENTIFICATION OF A SUBSTANCE AS A CATEGORY 1A OR 1B CMR, PBT, VPVB OR A SUBSTANCE OF AN EQUIVALENT LEVEL OF CONCERN

Substance Name(s): Cobalt dichloride

EC Number(s): 231-589-4

CAS number(s): 7646-79-9

In addition, the proposal covers also the hydrated forms of Cobalt dichloride.

- The substance is proposed to be identified as substance meeting the criteria of Article 57 (c) of Regulation (EC) 1907/2006 (REACH) owing to its classification in the hazard class reproductive toxicity category 1B under Annex VI, part 3, Table 3.1 of Regulation (EC) No 1272/2008 as well as its corresponding classification under Annex VI, part 3, Table 3.2 of Regulation (EC) No 1272/2008 as toxic for reproduction category 2.

- Note: The substance has already been identified as substance meeting the criteria of Article 57 (a) of Regulation (EC) 1907/2006 (REACH).

Summary of how the substance meets the CMR (1A or 1B) criteria

Cobalt dichloride was included in the Candidate List for eventual inclusion in Annex XIV on 1 October 2008 because the substance meets the criteria for identification as SVHC as set out in Article 57 (a) of Regulation (EC) 1907/2006 (REACH). Pursuant to Commission Regulation (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures, cobalt dichloride (listed as anhydrous form) is considered to be identified as SVHC. The hydrated forms of cobalt dichloride are also considered to be identified as SVHC.


A non-comprehensive list of CAS numbers for hydrates is: Cobalt dichloride hydrate – CAS number: 69098-14-2; Cobalt dichloride monohydrate – CAS number: 18201-52-0; Cobalt dichloride dihydrate – CAS number: 16544-92-6; Cobalt dichloride trihydrate – CAS number: 65374-82-5; Cobalt dichloride tetrahydrate – CAS number: 16890-89-4; Cobalt dichloride pentahydrate – CAS number: 20579-56-0; Cobalt dichloride hexahydrate – CAS number: 7791-13-1; Cobalt dichloride hydrate (3:22) – CAS number: 146998-10-9; Cobalt dichloride decahydrate – CAS number: 72861-19-9.


4 The identification was adopted by the Member State Committee of ECHA on 1 October 2008 (Support document: http://echa.europa.eu/doc/candidate_list/svhc_supdoc_cobalt%20dichloride_publication.pdf)
entry 027-004-00-5) is as of 1 December 2010 also classified in Annex VI, part 3, Table 3.1 (the list of harmonised classification and labelling of hazardous substances) as toxic for reproduction, Repr. 1B (H360F**: May damage fertility). The corresponding classification in Annex VI, part 3, Table 3.2 (the list of harmonised and classification and labelling of hazardous substances from Annex I to Directive 67/548/EEC) of Regulation (EC) No 1272/2008 is toxic for reproduction, Repr. Cat. 2; R60 (May impair fertility).

Therefore, cobalt dichloride meets the criteria for identification as a substance of very high concern set out in Article 57(c). It is therefore proposed that cobalt dichloride, in addition to its identification as a substance meeting the criteria set out in Article 57 (a), should also be identified as a substance meeting the criteria of Article 57(c).

The hydrous forms of cobalt dichloride are also considered as toxic for reproduction, category 1B, and carcinogenic, category 1B, according to Annex VI, part 1.1.1.5, of Regulation (EC) No 1272/2008. According to part 1.1.15 (Entries of groups of substance) entries in part 3 for salts (under any denomination) cover both anhydrous and hydrous forms, unless specified otherwise.

**Registration dossiers submitted for the substance:** yes
PART I

JUSTIFICATION

1 IDENTIFYING THE SUBSTANCE AND PHYSICAL AND CHEMICAL PROPERTIES

1.1 Name and other identifiers of the substance

Table 1: Substance identity

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EC number:</td>
<td>231-589-4</td>
</tr>
<tr>
<td>EC name:</td>
<td>cobalt dichloride</td>
</tr>
<tr>
<td>CAS number (in the EC inventory):</td>
<td>7646-79-9</td>
</tr>
<tr>
<td>CAS number:</td>
<td>7646-79-9</td>
</tr>
<tr>
<td>CAS name:</td>
<td>Cobalt chloride (CoCl2)</td>
</tr>
<tr>
<td>IUPAC name:</td>
<td>Cobalt(2+) dichloride</td>
</tr>
<tr>
<td>Index number in Annex VI of the CLP Regulation</td>
<td>027-004-00-5</td>
</tr>
<tr>
<td>Molecular formula:</td>
<td>Cl₂ Co</td>
</tr>
<tr>
<td>Molecular weight range:</td>
<td>129.84 g/mol</td>
</tr>
</tbody>
</table>
| Synonyms:        | Cobalt chloride  
                  | Cobalt dichloride  
                  | Cobalt dichloride (CoCl2)  
                  | Cobalt(2+) chloride  
                  | Cobalt(II) chloride  
                  | Cobaltous chloride  
                  | Cobaltous dichloride  
                  | Dichlorocobalt  
                  | NSC 51149  
                  | Albrittonite |

Structural formula: Cl⁻ Co²⁺ Cl⁻
1.2 Composition of the substance

Table 2: Constituents

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Typical concentration</th>
<th>Concentration range</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt dichloride</td>
<td></td>
<td>&gt; 80 % - &lt; 100 %</td>
<td></td>
</tr>
<tr>
<td>(EC number 231-589-4)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.3 Physico-chemical properties

Table 3: Overview of physicochemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state at 20°C and 101.3 kPa</td>
<td>Solid (crystals)</td>
<td>Data from Annex XV dossier (France, 2008)</td>
</tr>
<tr>
<td>Melting/freezing point</td>
<td>724°C</td>
<td></td>
</tr>
<tr>
<td>Boiling point</td>
<td>1049°C</td>
<td></td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>40 mmHg at 770°C</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>VII, 7.7 Water solubility 4.8 76.7g/100ml at 0°C</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient n-octanol/water (log value)</td>
<td>Not appropriate, inorganic substance</td>
<td></td>
</tr>
<tr>
<td>Dissociation constant</td>
<td>Not available</td>
<td></td>
</tr>
</tbody>
</table>
2 HARMONISED CLASSIFICATION AND LABELLING

As of 1 December 2010, Cobalt dichloride is listed under Index number 027-004-00-5 in Annex VI, part 3 of Regulation (EC) No 1272/2008, as amended and adapted to technical and scientific progress by Regulation (EC) No 790/2009, as follows:

Table 4: Classification according to part 3 of Annex VI, Table 3.1 (list of harmonised classification and labelling of hazardous substances) of Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Index No</th>
<th>Internatio nal Chemical Identification</th>
<th>EC No</th>
<th>CAS No</th>
<th>Classification</th>
<th>Hazard Category Code(s)</th>
<th>Hazard state- ment code(s)</th>
<th>Pictogram, Signal Word Code(s)</th>
<th>Hazard state- ment code(s)</th>
<th>Suppl. Hazard statement code(s)</th>
<th>Spec. Conc. Limits, M- factors</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>027-004-00-5</td>
<td>cobalt dichloride</td>
<td>231-589-4</td>
<td>7646-79-9</td>
<td>Carc. 1B</td>
<td>H350i</td>
<td>H341</td>
<td>H360F**</td>
<td>H302</td>
<td>H334</td>
<td>H317</td>
<td>H400</td>
</tr>
</tbody>
</table>

Carc. 1B, H350i: May cause cancer by inhalation
Repr. 1B, H360F**: May damage fertility
Muta. 2, H341: Suspected of causing genetic defects
Acute Tox. 4*, H302: Harmful if swallowed
Resp. Sens. 1, H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled
Skin Sens. 1, H317: May cause an allergic skin reaction
Aquatic Acute 1, H400: Very toxic to aquatic life
Aquatic Chronic 1, H410: Very toxic to aquatic life with long lasting effects

Specific concentration limits:
<table>
<thead>
<tr>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carc. 1B H350i</td>
<td>C ≥ 0.01%</td>
</tr>
</tbody>
</table>

M-factor: 10

Notes:
Note 1: The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2) are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture.

5 According to Annex VI (Part 1, entry 1.2.3): H360 and H361 indicate a general concern for effects on both fertility and development: ‘May damage/Suspected fertility or the unborn child’. According to the criteria, the general hazard statement can be replaced by the hazard statement indicating only the property of concern, where either fertility or developmental effects are proven to be not relevant. In order not to lose information from the harmonised classifications for fertility and developmental effects under Directive 67/548/EEC, the classifications have been translated only for those effects classified under that Directive. These hazards statements are indicated by reference *** in Table 3.1.

6 The reference (*) indicates minimum classification.
Table 5: Classification according to part 3 of Annex VI, Table 3.2 (list of harmonized classification and labelling of hazardous substances from Annex I of Council Directive 67/548/EEC)

<table>
<thead>
<tr>
<th>INDEX NO</th>
<th>INTERNATIONAL CHEMICAL IDENTIFICATION</th>
<th>EC NO</th>
<th>CAS NO</th>
<th>CLASSIFICATION</th>
<th>LABELLING</th>
<th>CONCENTRATION LIMITS</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>027-004-00-5</td>
<td>cobalt dichloride</td>
<td>231-589-4</td>
<td>7646-79-9</td>
<td>Carc. Cat. 2; R49; Mut. Cat. 3; R68; Repr. Cat. 2; R60; Xn; R22; R42/43; N; R50-53</td>
<td>T; N</td>
<td>Carc. Cat. 2; R49; C ≥ 0.01%; N; R50-53: C ≥ 2.5%; N; R51-53: 0.25% ≤ C &lt; 2.5%; R52-53: 0.025% ≤ C &lt; 0.25%</td>
<td>E 1</td>
</tr>
</tbody>
</table>

Specific concentration limits:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carc. Cat. 2; R49</td>
<td>C ≥ 0.01%</td>
</tr>
<tr>
<td>N; R50-53</td>
<td>C ≥ 2.5%</td>
</tr>
<tr>
<td>N; R51-53</td>
<td>0.25% ≤ C &lt; 2.5%</td>
</tr>
<tr>
<td>R52-53</td>
<td>0.025% ≤ C &lt; 0.25%</td>
</tr>
</tbody>
</table>

Notes:

Note E: Substances with specific effects on human health (see Chapter 4 of Annex VI to Directive 67/548/EEC) that are classified as carcinogenic, mutagenic and/or toxic for reproduction in categories 1 or 2 are ascribed Note E if they are also classified as very toxic (T+), toxic (T) or harmful (Xn). For these substances, the risk phrases R20, R21, R22, R23, R24, R25, R26, R27, R28, R39, R68 (harmful), R48 and R65 and all combinations of these risk phrases shall be preceded by the word ‘Also’.

Note 1: The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2) are the percentages.

The hydrous forms of cobalt dichloride are also covered by the entries in Tables 3.1 and 3.2 of Annex VI of Regulation (EC) No 1272/2008. According to Annex VI, part 1.1.15 (Entries of groups of substance) of this Regulation entries in part 3 for salts (under any denomination) cover both anhydrous and hydrous forms, unless specified otherwise.

3 ENVIRONMENTAL FATE PROPERTIES

*Not relevant*
4 HUMAN HEALTH HAZARD ASSESSMENT

Not relevant

5 ENVIRONMENTAL HAZARD ASSESSMENT

Not relevant

6 CONCLUSIONS ON THE SVHC PROPERTIES

6.1 PBT, vPvB assessment

Not relevant

6.2 CMR assessment

Pursuant to Commission Regulation (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures, cobalt dichloride (listed as entry 027-004-00-5) is as of 1 December 2010 classified in Annex VI, part 3, Table 3.1 (the list of harmonised classification and labelling of hazardous substances) as toxic for reproduction, Repr. 1B (H360F***: May damage fertility). The corresponding classification in Annex VI, part 3, Table 3.2 (the list of harmonised and classification and labelling of hazardous substances from Annex I to Directive 67/548/EEC) of Regulation (EC) No 1272/2008 is toxic for reproduction, Repr. Cat. 2; R60 (May impair fertility).

Therefore, cobalt dichloride meets the criteria for identification as a substance of very high concern set out in Article 57(c).

It is noted that, according to the adopted decision of the Member State Committee on 1 October 2008, Cobalt dichloride has already been identified as substance meeting the criteria of Article 57 (a) of Regulation (EC) 1907/2006 (REACH).

The hydrous forms of cobalt dichloride are also considered as toxic for reproduction, category 1B, and carcinogenic, category 1B, according to Annex VI, part 1.1.1.5, of Regulation (EC) No 1272/2008. According to part 1.1.15 (Entries of groups of substance) entries in part 3 for salts (under any denomination) cover both anhydrous and hydrous forms, unless specified otherwise.

6.3 Substances of equivalent level of concern assessment.

Not relevant
PART II

INFORMATION ON USE, EXPOSURE, ALTERNATIVES AND RISKS

This Annex XV report regards the proposal for update of the existing entry for Cobalt dichloride in the Candidate List of substances of very high concern for eventual inclusion in Annex XIV. Information on use, exposure, alternatives and risk is available in documents relating to previous public consultations:


