



20 June 2011

Substance name: Cobalt dichloride
EC number: 231-589-4
CAS number: 7646-79-9

**SUPPORT DOCUMENT FOR IDENTIFICATION OF
COBALT DICHLORIDE**

**AS A SUBSTANCE OF VERY HIGH CONCERN BECAUSE OF ITS
CMR PROPERTIES**

NOTE

During the public consultation, in accordance with Article 59 (4) of the REACH Regulation, on the proposed update of the candidate list entry of cobalt dichloride on the basis of its classification as toxic for reproduction category 1B no comments were received objecting the conclusion that the substance meets criteria set out in Article 57(c). Therefore, in accordance with Article 59 (6), the Candidate List entry of cobalt dichloride has been updated by ECHA.

The present background document comprises Part I (Justification) of the Annex XV dossier for identification of cobalt dichloride as SVHC on the basis of Article 57(c) of REACH.

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Substance Name(s): Cobalt dichloride

EC Number(s): 231-589-4

CAS number(s): 7646-79-9

In addition, this support document covers also the hydrated forms of Cobalt dichloride¹.

- The substance is 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 1B² 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 2³.
- Note: The substance has already been identified as substance meeting the criteria of Article 57 (a)⁴ 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 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).

¹ According to the rules applied when establishing EINECS (Manual of Decisions, Criteria for reporting substances for EINECS, http://ecb.jrc.ec.europa.eu/documents/New-Chemicals/Manual_of_decisions.pdf): “The anhydrous form can be reported and will, by implication, represent all hydrated forms.”

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.

² Classification in accordance with Regulation (EC) No 1272/2008 Annex VI, part 3, Table 3.1 List of harmonised classification and labelling of hazardous substances as amended and adapted to technical and scientific progress by Commission Regulation (EC) No 790/2009, OJ No L 235, p. 1, 5.9.2009

³ Classification in accordance with Regulation (EC) No 1272/2008 Annex VI, part 3, Table 3.2 List of harmonised classification and labelling of hazardous substances (from Annex I to Council Directive 67/548/EEC) as amended and adapted to technical and scientific progress by Commission Regulation (EC) No 790/2009, OJ No L 235, p. 1, 5.9.2009

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)

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

JUSTIFICATION

1 IDENTITY OF THE SUBSTANCE AND PHYSICAL AND CHEMICAL PROPERTIES

1.1 Name and other identifiers of the substance

Table 1: Substance identity

EC number:	231-589-4
EC name:	cobalt dichloride
CAS number (in the EC inventory):	7646-79-9
CAS number:	7646-79-9
CAS name:	Cobalt chloride (CoCl ₂)
IUPAC name:	Cobalt(2+) dichloride
Index number in Annex VI of the CLP Regulation	027-004-00-5
Molecular formula:	Cl ₂ Co
Molecular weight range:	129.84 g/mol
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

Constituents	Typical concentration	Concentration range	Remarks
<i>Cobalt dichloride</i> (EC number 231-589-4)		> 80 % - < 100 %	

1.3 Physico-chemical properties

Table 3: Overview of physicochemical properties

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

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

Index No	International Chemical Identification	EC No	CAS No	Classification		Labelling			Spec. Conc. Limits, M-factors	Notes
				Hazard Class and Category Code(s)	Hazard statement code(s)	Pictogram, Signal Word Code(s)	Hazard statement code(s)	Suppl. Hazard statement code(s)		
027-004-00-5	cobalt dichloride	231-589-4	7646-79-9	Carc. 1B Muta. 2 Repr. 1B Acute Tox. 4* Resp. Sens. 1 Skin Sens. 1 Aquatic Acute 1 Aquatic Chronic 1	H350i H341 H360F** * H302 H334 H317 H400 H410	GHS08 GHS07 GHS09 Dgr	H350i H341 H360F** ** H302 H334 H317 H400		Carc. 1B; H350i: C ≥ 0.01% M=10	1

Carc. 1B, H350i: May cause cancer by inhalation

Repr. 1B, H360F***⁵: May damage fertility

Muta. 2, H341: Suspected of causing genetic defects

Acute Tox. 4*⁶, 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:

Classification	Concentration
Carc. 1B H350i	C ≥ 0.01%

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)

INDEX NO	INTERNATIONAL CHEMICAL IDENTIFICATION	EC NO	CAS NO	CLASSIFICATION	LABELLING	CONCENTRATION LIMITS	NOTES
027-004-00-5	cobalt dichloride	231-589-4	7646-79-9	Carc. Cat. 2; r49 Muta. Cat. 3; R68 Repr. Cat. 2; R60 Xn; R22 R42/43 N; R50-53	T; N R: 49-60-22-42/43-68-50/53 S: 53-45-60-61	Carc. Cat. 2; R49; C \geq 0.01% N; R50-53: C \geq 2.5% N; R51-53: 0.25% \leq C < 2.5% R52-53: 0.025% \leq C < 0.25%	E 1

Carc.Cat. 2; R49: May cause cancer by inhalation
 Repr.Cat. 2; R60: May impair fertility
 Muta.Cat. 3; R68: Possible risk of irreversible effects
 Xn; R22: Harmful if swallowed
 R42/43: May cause sensitization by inhalation and skin contact
 N; R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Specific concentration limits:

Classification	Concentration
Carc. Cat. 2 R49	C \geq 0.01%
N; R50-53	C \geq 2.5%
N; R51-53	0.25% \leq C < 2.5%
R52-53	0.025% \leq C < 0.25%

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