



**Substance name: Potassium Dichromate**  
**EC number: 231-906-6**  
**CAS number: 7778-50-9**

**MEMBER STATE COMMITTEE**  
**SUPPORT DOCUMENT FOR IDENTIFICATION OF**

**POTASSIUM DICHROMATE**

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

**Adopted on 4 June 2010**

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**Substance Name: Potassium dichromate**

**EC Number: 231-906-6**

**CAS Number: 7778-50-9**

- *Potassium dichromate* is identified as a substance meeting the criteria of Article 57 (a), (b) and (c) of Regulation (EC) No 1907/2006 (REACH) owing to its classification as carcinogen (category 2<sup>1</sup>), mutagen (category 2<sup>1</sup>) and toxic for reproduction (category 2<sup>1</sup>).

**Summary of how the substance meets the CMR<sup>2</sup> (Cat 1 or 2), PBT<sup>3</sup> or vPvB<sup>4</sup> criteria, or is considered to be a substance of an equivalent level of concern**

According to Article 57 of Regulation (EC) No 1907/2006 (REACH), substances meeting the criteria for classification as carcinogenic (category 1 or 2), as mutagenic (category 1 or 2) or as toxic for reproduction (category 1 or 2) in accordance with Council Directive 67/548/EEC may be included in Annex XIV.

Potassium dichromate is listed 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<sup>5</sup>) of Regulation (EC) No 1272/2008<sup>6</sup> as carcinogen category 2<sup>7</sup>, R45 (May cause cancer), as mutagen category 2<sup>8</sup>, R46 (May cause heritable genetic damage) and as toxic for reproduction category 2<sup>9</sup>, R60-61 (May impair fertility. May cause harm to the unborn child).

Consequently, this classification of potassium dichromate in Regulation (EC) No 1272/2008 shows that the substance meets the criteria for classification as carcinogen, mutagen and toxic for reproduction in accordance with Article 57 (a), of Article 57 (b) and of Article 57 (c) of REACH.

**Registration number(s) of the substance or of substances containing the substance:**

Not relevant.

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<sup>1</sup> Category in accordance with Annex I to Council Directive 67/548/EEC

<sup>2</sup> CMR means carcinogenic, mutagenic or toxic for reproduction

<sup>3</sup> PBT means persistent, bioaccumulative and toxic

<sup>4</sup> vPvB means very persistent and very bioaccumulative

<sup>5</sup> This classification of potassium dichromate is according to Commission Directive 2004/73/EC of 29 April 2004 adapting to technical progress for the twenty-ninth time Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances.

<sup>6</sup> Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

<sup>7</sup> This corresponds to a classification Carc. 1B; H350 (May cause cancer) in Annex VI, part 3, Table 3.1 of Regulation (EC) No 1272/2008 (list of harmonised classification and labelling of hazardous substances).

<sup>8</sup> This corresponds to a classification Muta. 1B; H340 (May cause genetic defects) in Annex VI, part 3, Table 3.1 of Regulation (EC) No 1272/2008 (list of harmonised classification and labelling of hazardous substances).

<sup>9</sup> This corresponds to a classification Repr. 1B; H360-FD (May damage fertility. May damage the unborn child) in Annex VI, part 3, Table 3.1 of Regulation (EC) No 1272/2008 (list of harmonised classification and labelling of hazardous substances).

## JUSTIFICATION

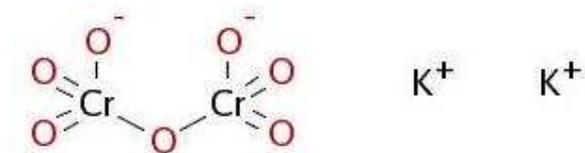
### 1 IDENTITY OF THE SUBSTANCE AND PHYSICAL AND CHEMICAL PROPERTIES

#### 1.1 Name and other identifiers of the substance

Chemical Name:	Potassium dichromate
EC Number:	231-906-6
CAS Number:	7778-50-9
IUPAC Name:	Dipotassium dichromate
Synonyms:	Chromic acid [H <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> ] dipotassium salt, dichromic acid dipotassium salt, dipotassium bichromate, dipotassium dichromate, Lopezite, potassium bichromate, potassium dichromate[VI], dipotassium dichromium hepta-oxide

#### 1.2 Composition of the substance

Chemical Name:	Potassium dichromate
EC Number:	231-906-6
CAS Number:	7778-50-9
IUPAC Name:	Dipotassium dichromate
Molecular Formula (Hill):	K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>
Molecular Formula (CAS)	Cr <sub>2</sub> H <sub>2</sub> O <sub>7</sub> .2K
Structural Formula:	



Molecular Weight:	294.185 g/mol
Typical concentration (% w/w):	99,7% (reagent, technical)

Typical impurities: water (~0.03%) and sodium dichromate (~0.28%) (E.C., 2005).

### 1.3 Physico-chemical properties

Physico-chemical parameters such as boiling point, octanol-water partition coefficient and vapour pressure have little meaning for solid ionic inorganic compounds.

**Table 1: Summary of physico-chemical properties**

REACH ref Annex, §	Property	Value	Reference
VII, 7.1	Physical state at 20°C and 101.3 kPa	Solid. Orange-red triclinic crystals	(HSDB, 2005)
VII, 7.2	Melting (°C)	398°C	(HSDB, 2005)
VII, 7.3	Boiling point	about 500°C	(HSDB, 2005)
VII, 7.4	Relative density at 18°C	2.676	(HSDB, 2005)
VII, 7.5	Vapour pressure	n/a: inorganic ionic compound	(E.C., 2005)
VII, 7.7	Water solubility at 20°C (g/L)	45	(HSDB, 2005)
VII, 7.8	Partition coefficient n-octanol/water (log value)	n/a: inorganic ionic compound	(E.C., 2005)

## 2 CLASSIFICATION AND LABELLING

According to Article 57 of Regulation 1907/2006 (the REACH Regulation), substances meeting the criteria for classification as carcinogenic (category 1 or 2), as mutagenic (category 1 or 2) or as toxic for reproduction (category 1 or 2) in accordance with Council Directive 67/548/EEC may be included in Annex XIV.

Potassium dichromate has index number 024-002-00-6 in Annex VI, part 3, Tables 3.1 and 3.2 of Regulation (EC) No 1272/2008.

Potassium dichromate is classified in Annex VI (part 3, Tables 3.1 and 3.2) of Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Its classification according to part 3 of Annex VI, Table 3.2 (the list of harmonised classification and labelling of hazardous substances from Annex I to Council Directive 67/548/EEC) of Regulation (EC) No 1272/2008 is:

Classification	Labelling	Concentration Limits	Notes
O; R8 Carc. Cat. 2; R45 Muta. Cat. 2; R46 Repr. Cat. 2; R60-61 T+; R26 T; R25-48/23 Xn; R21 C; R34 R42/43 N; R50-53	T+; N; O R: 45-46-60-61-8-21-25-26-34- 42/43-48/23-50/53 S: 53-45-60-61	C;R34: C ≥ 10 %  Xi; R36/37/38: 5% ≤ C < 10%	E  3
<p><u>Key:</u>  O: oxidising  Carc.: Carcinogenic; Muta.: Mutagenic; Repr.: Toxic for reproduction  R8: Contact with combustible material may cause fire  R21: Harmful in contact with skin  R25: Toxic if swallowed  R26: Very toxic by inhalation  R34: Causes burns  R42/43: May cause sensitization by inhalation and skin contact  R45: May cause cancer  R46: May cause heritable genetic damage  R48/23: Toxic: danger of serious damage to health by prolonged exposure through inhalation  R50-53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment  R60: May impair fertility  R61: May cause harm to the unborn child  T+: Very toxic  T: Toxic  Xn: Harmful  C: Corrosive  N: Dangerous for the environment  S53: Avoid exposure - obtain special instructions before use  S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)  S60: This material and its container must be disposed of as hazardous waste  S61: Avoid release to the environment. Refer to special instructions/Safety data sheets  Note E : Substances with specific effects on human health 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 3 : The concentration stated is the percentage by weight of chromate ions dissolved in water calculated with reference to the total weight of the mixture</p>			

Its harmonised classification according to part 3 of Annex VI, Table 3.1 of Regulation (EC) No 1272/2008 is:

Classification		Labelling		Specific Conc. Limits, M-factors	Notes
Hazard Class and Category Code(s)	Hazard statement Code(s)	Pictogram, Signal Word Code(s)	Hazard statement Code(s)		
Ox. Sol. 2 Carc. 1B Muta. 1B Repr. 1B Acute Tox. 2 * Acute Tox. 3 * STOT RE 1 Acute Tox. 4 * Skin Corr. 1B Resp. Sens. 1 Skin Sens. 1 Aquatic Acute 1 Aquatic Chronic 1	H272 H350 H340 H360-FD H330 H301 H372** H312 H314 H334 H317 H400 H410	GHS03 GHS06 GHS08 GHS05 GHS09 Dgr	H272 H350 H340 H360FD H330 H301 H372 ** H312 H314 H334 H317 H410	STOT SE 3 ; H335 : C ≥ 5%	3
<p><b>Key:</b>            Ox. Sol. 2: Oxidising solid            Carc. 1 B: Carcinogenicity; Muta. 1B: Germ cell mutagenicity; Repr. 1B: Reproductive toxicity; Acute Tox. 2, Tox. 3, Tox. 4: Acute toxicity ; STOT SE: Specific target organ toxicity - single exposure; Resp. Sens. 1 : Respiratory/skin sensitization ; Skin Sens. 1: Respiratory/skin sensitization            Aquatic Acute 1, Aquatic Chronic 1: Hazardous to the aquatic environment            H272: May intensify fire; oxidiser            H301: Toxic if swallowed            H312: Harmful in contact with skin            H314: Causes severe skin burns and eye damage            H317: May cause an allergic skin reaction            H330: Fatal if inhaled            H335: May cause respiratory irritation            H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled            H350: May cause cancer            H340: May cause genetic defects            H360-FD: May damage fertility. May damage the unborn child            H372**: Causes damage to organs through prolonged or repeated exposure            H400: Very toxic to aquatic life            H410: Very toxic to aquatic life with long lasting effects            GHS03: Flame over circle            GHS05: Corrosion            GHS06: Skull and crossbones            GHS08: Health hazard            GHS09: Environment            Dgr: Danger            Note 3: The concentration stated is the percentage by weight of chromate ions dissolved in water calculated with reference to the total weight of the mixture            An asterisk (*) indicates: Minimum classification for a category            Asterisks (**) indicate: Route of exposure cannot be excluded</p>					

## REFERENCES

E.C. (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).

HSDB. Hazardous Substances Data Bank. (2005). <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>>