Substance name: Ammonium Dichromate
EC number: 232-143-1
CAS number: 7789-09-5

MEMBER STATE COMMITTEE SUPPORT DOCUMENT FOR IDENTIFICATION OF

AMMONIUM DICHROMATE

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

Adopted on 4 June 2010

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TABLES

Substance Name: Ammonium dichromate

EC Number: 232-143-1

CAS Number: 7789-09-5

- *Ammonium 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[1]), mutagen (category 2[1]) and toxic for reproduction (category 2[1]).

Summary of how the substance meets the CMR[2] (Cat 1 or 2), PBT[3] or vPvB[4] 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.

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

Consequently, this classification of ammonium 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), Article 57 (b) and Article 57 (c) of REACH.

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

Not relevant.

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

2 CMR means carcinogenic, mutagenic or toxic for reproduction

3 PBT means persistent, bioaccumulative and toxic

4 vPvB means very persistent and very bioaccumulative

5 The classification of ammonium 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.

6 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.

7 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)

8 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).

9 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).

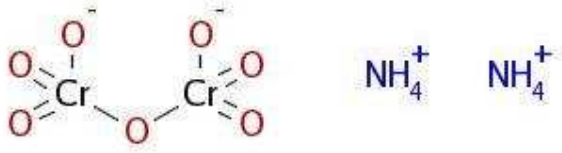
JUSTIFICATION

1 IDENTITY OF THE SUBSTANCE AND PHYSICAL AND CHEMICAL PROPERTIES

1.1 Name and other identifiers of the substance

Chemical Name:	Ammonium dichromate
EC Number:	232-143-1
CAS Number:	7789-09-5
IUPAC Name:	Diammonium dichromate
Synonyms:	Ammonium bichromate, ammonium chromate, chromic acid [$H_2Cr_2O_7$] diammonium salt, diammonium dichromate, dichromic acid diammonium salt

1.2 Composition of the substance

Chemical Name:	Ammonium dichromate
EC Number:	232-143-1
CAS Number:	7789-09-5
IUPAC Name:	Diammonium dichromate
Molecular Formula (Hill):	$(NH_4)_2Cr_2O_7$
Molecular Formula (CAS):	$Cr_2H_2O_7.2H3N$
Structural Formula:	
Molecular Weight:	252.07 g/mol
Typical concentration (% w/w):	99 to 99,8% (reagent, technical) (HSDB, 2005) 98,5% (E.C., 2005)

Typical impurities: water (~1.5%) and sodium sulphate (0.02 to 0.04%) (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. Bright orange-red crystals, monoclinic, prismatic	(HSDB, 2005)
VII, 7.2	Melting point (°C)	Decomposes at 180°C	(HSDB, 2005)
VII, 7.3	Boiling point		
VII, 7.4	Relative density at 18°C	2.155	(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)	308	(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.

Ammonium dichromate has index number 024-003-00-1 in Annex VI, part 3, Tables 3.1 and 3.2 of Regulation (EC) No 1272/2008.

Ammonium 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
E; R2 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	E; T+; N R: 45-46-60-61-2-8-21-25-26-34-42/43-48/23-50/53 S: 53-45-60-61	C;R34: C ≥ 10 % Xi; R36/37/38: 5% ≤ C < 10% R42/43:C ≥ 0,2 %	E 3

Key:
Carc.: Carcinogenic; Muta: Mutagenic; Repr.: Toxic for reproduction
R2: Risk of explosion by shock, friction, fire or other sources of ignition
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
E: explosive
O: oxidising
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

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****	H272	GHS03	H272	STOT SE 3 ;	G
Carc. 1B	H350	GHS06	H350	H335 : C ≥ 5%	3
Muta. 1B	H340	GHS08	H340	Resp. Sens.;	
Repr. 1B	H360-FD	GHS05	H360FD	H334: C ≥ 0,2%	
Acute Tox. 2 *	H330	GHS09	H330	Skin Sens.;	
Acute Tox. 3 *	H301	Dgr	H301	H317:C ≥ 0,2%	
STOT RE 1	H372**		H372 **		
Acute Tox. 4 *	H312		H312		
Skin Corr. 1B	H314		H314		
Resp. Sens. 1	H334		H334		
Skin Sens. 1	H317		H317		
Aquatic Acute 1	H400		H410		
Aquatic Chronic 1	H410				

Key:
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
Asterisks (****) indicate which physical hazards need to be confirmed by testing

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>