



**Substance name: Hydrazine**  
**EC number: 206-114-9**  
**CAS number: 302-01-2**

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

**HYDRAZINE**

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

**Adopted on 26 May 2011**



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**Substance Name(s): Hydrazine**

**EC Number(s): 206-114-9**

**CAS number(s): 302-01-2**

This dossier covers the anhydrous hydrazine, EC number 206-114-9 and CAS number 302-01-2, and all its possible hydrates.

- The substance is identified as a substance meeting the criteria of Article 57 (a) of Regulation (EC) 1907/2006 (REACH) owing to its classification as carcinogen category 1B<sup>1</sup> which corresponds to classification as carcinogen category 2<sup>2</sup>

#### **Summary of how the substance meets the CMR<sup>3</sup> 1B criteria**

Hydrazine is covered by index number 007-008-00-3 of Regulation (EC) No 1272/2008 in Annex VI, part 3, Table 3.1 (the list of harmonised classification and labelling of hazardous substances) as carcinogen, Carc. 1B (H350: “May cause cancer”). 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 carcinogen, Carc. Cat. 2, R45 (“May cause cancer”).

Therefore, this classification of the substance in Regulation (EC) No 1272/2008 shows that it meets the criteria for classification as carcinogen in accordance with Article 57 (a) of REACH.

**Registration dossiers submitted for the substance? Yes**

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<sup>1</sup> 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.

<sup>2</sup> 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).

<sup>3</sup> CMR = Carcinogenic, mutagenic or toxic for reproduction

## JUSTIFICATION

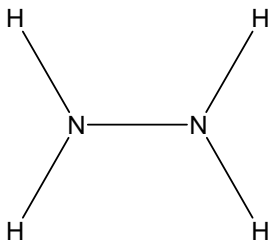
### 1 IDENTITY OF THE SUBSTANCE AND PHYSICAL AND CHEMICAL PROPERTIES

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

**Table 1.1: Substance identity**

<b>EC number:</b>	206-114-9
<b>EC name:</b>	Hydrazine
<b>CAS number (in the EC inventory):</b>	302-01-2
<b>1. CAS number: hydrate(s)</b> <b>2. CAS number (alternate):</b> <b>3. CAS number: deleted</b>	7803-57-8 10217-52-4 119775-10-9; 75013-58-0; 78206-91-4; 31886-26-7
<b>CAS name:</b>	Hydrazine
<b>IUPAC name:</b>	Hydrazine
<b>Index number in Annex VI of the CLP Regulation</b>	007-008-00-3
<b>Molecular formula:</b>	H <sub>4</sub> N <sub>2</sub>
<b>Molecular weight:</b>	32 g/mol
<b>Synonyms:</b>	Hydrazine; H70; H70 (fuel); Levoxine; Nitrogen hydride(N <sub>2</sub> H <sub>4</sub> ); Oxytreat 35, diamine  Hydrazine hydrate: hydrazine hydroxide, hydrazinium hydroxide

**Structural formula:**



## 1.2 Composition of the substance

Name: Hydrazine

Degree of purity: 93 - 100 %

**Table 1.2: Constituents**

Constituents	Typical concentration	Concentration range	Remarks
<i>Hydrazine</i> <i>206-114-9</i>		93 – 100 %	Based on the information received in the registration dossiers

**Table 1.3: Impurities**

Impurities	Typical concentration	Concentration range	Remarks

**Table 1.4: Additives**

Additives	Typical concentration	Concentration range	Remarks

## 1.3 Physico-chemical properties

**Table 1.5: Overview of physicochemical properties (Hydrazine, CAS no 302-01-2)**

Property	Value	Remarks
Physical state at 20°C and 101.3 kPa	Colorless liquid with an ammoniacal odor	Ullmanns Encyclopedia of Industrial Chemistry, Hydrazine, Jean-Pierre Schirmann, Paul Pourdauducq, Wiley-VCH Verlag GmbH & Co. KHaA, Weinheim, 2005
Melting/freezing point	2.0 °C	Lide, David, R., Handbook of Chemistry and Physics, 75 <sup>th</sup> Edition, CRC Press, Boca Raton, Ann Arbor, London, Tokyo, 1994-1995
Boiling point	113.5 °C at 760 mmHg	The Merck Index, 14 <sup>th</sup> Edition, Merck & Co., Inc., Whitehouse Station, NJ, USA, 2006
Vapour pressure	1.91 kPa at 25 °C	Lide, David, R., Handbook of Chemistry and Physics, 75 <sup>th</sup> Edition, CRC Press, Boca Raton, Ann Arbor, London, Tokyo, 1994-1995
Water solubility	Miscible with water in all proportions	Ullmanns Encyclopedia of Industrial Chemistry, Hydrazine, Jean-Pierre Schirmann, Paul Pourdauducq, Wiley-VCH Verlag GmbH & Co. KHaA, Weinheim, 2005
Surface tension	66.7 mN/m at 25 °C (c = pure substance)	Ullmanns Encyclopedia of Industrial Chemistry, Hydrazine, Jean-Pierre Schirmann, Paul Pourdauducq, Wiley-VCH Verlag GmbH & Co. KHaA, Weinheim, 2005
Partition coefficient n-octanol/water (log value)	logPow = -2.07 at 25 °C	ECHA, calculation according to EPISUITE performed with the module WSKOWWIN, 2011
PK <sub>a</sub> value	8.1 at 25 °C	Lide, David, R., Handbook of Chemistry and Physics, 75 <sup>th</sup> Edition, CRC Press, Boca Raton, Ann Arbor, London, Tokyo, 1994-1995
Viscosity	0.974 μPa.s at 20 °C (c = pure substance)	Ullmanns Encyclopedia of Industrial Chemistry, Hydrazine, Jean-Pierre Schirmann, Paul Pourdauducq, Wiley-VCH Verlag GmbH & Co. KHaA, Weinheim, 2005
Flash point	52 °C	Lide, David, R., Handbook of Chemistry and Physics, 75 <sup>th</sup> Edition, CRC Press, Boca Raton, Ann Arbor, London, Tokyo, 1994-1995

**Table 1.6: Overview of physicochemical properties (Hydrazine hydrate, CAS no 7803-57-8)**

Property	Value	Remarks
Physical state at 20°C and 120.3 kPa	Colorless liquid	RCOM, 2011
Melting/freezing point	-51.7 °C	RCOM, 2011
Boiling point	120.1 °C at 1013 hPa	RCOM, 2011
Vapour pressure	20 hPa at 20 °C	RCOM, 2011
Water solubility	Miscible	RCOM, 2011
Partition coefficient n-octanol/water (log value)	logPow = - 3.8	RCOM, 2011
PK <sub>a</sub> value	8.1 at 25 °C	RCOM, 2011
Dynamic viscosity	1.5 mPa.S at 20°C	RCOM, 2011



## 2 HARMONISED CLASSIFICATION AND LABELLING

Hydrazine is covered by Index number 007-008-00-3 in Annex VI, part 3 of Regulation (EC) No 1272/2008 as follows:

**Table 2.1: 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)		
007-008-00-3	HYDRAZINE	206-114-9	302-01-2	Flam. Liq. 3 Carc. 1B Acute Tox. 3* Acute Tox. 3* Acute Tox. 3* Skin Corr. 1B Skin Sens. 1 Aquatic Acute 1 Aquatic Chronic 1	H226 H350 H331 H311 H301 H314 H317 H400 H410	GHS02 GHS06 GHS08 GHS05 GHS09 Dgr	H226 H350 H331 H311 H301 H314 H317 H410		Skin Corr. 1B; H314: C <sub>≥</sub> 10% Skin Irrit. 2; H315: 3% ≤ C < 10% Eye Irrit. 2; H319: 3% ≤ C < 10%	

**Table 2.2: 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
007-008-00-3	HYDRAZINE	206-114-9	302-01-2	R10 CARC. CAT.2; R45 T; R23/24/25 C; R34 R43 N; R50-53	T; N R: 45-10-23/24/25-34-43-50/53 S: 53-45-60-61	C; R34: C <sub>≥</sub> 10% XI; R36/38: 3% ≤ C < 10%	E

### **3 CONCLUSIONS ON THE SVHC PROPERTIES**

#### **3.1 PBT, vPvB assessment**

Not relevant for this dossier.

#### **3.2 CMR assessment**

Hydrazine is covered by index number 007-008-00-3 of Regulation (EC) No 1272/2008 in Annex VI, part 3, Table 3.1 (the list of harmonised classification and labelling of hazardous substances) as carcinogen, Carc. 1B (H350: “May cause cancer”). 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 carcinogen, Carc. Cat. 2, R45 (“May cause cancer”).

Therefore, this classification of the substance in Regulation (EC) No 1272/2008 shows that it meets the criteria for classification as carcinogen in accordance with Article 57 (a) of REACH.

#### **3.3 Substances of equivalent level of concern assessment**

Not relevant for identification of SVHC in accordance with Article 57(c) of REACH.