



**Substance name:**  
**1,2-Benzenedicarboxylic acid, di-C7-11 –  
branched and linear alkyl esters (DHNUP)**

**EC number: 271-084-6**  
**CAS number: 68515-42-4**

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

**1,2-BENZENEDICARBOXYLIC ACID, DI-C7-11 BRANCHED AND  
LINEAR ALKYL ESTERS (DHNUP)**

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

**Adopted on 26 May 2011**

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## LIST OF ABBREVIATIONS

CMR	Carcinogenic, Mutagenic or toxic to Reproduction
PBT	Persistent, Bioaccumulative and Toxic
SVHC	Substance of Very High Concern
vP vB	very Persistent and very Bioaccumulative

**Substance name:** 1,2-Benzenedicarboxylic acid, di-C<sub>7-11</sub> -branched and linear alkyl esters (DHNUP)

**EC number:** 271-084-6

**CAS number:** 68515-42-4

- The substance is identified as a substance meeting the criteria of Article 57(c) of Regulation (EC) No 1907/2006 (REACH) owing to its classification as toxic for reproduction 1B<sup>1</sup>, which corresponds to classifications as toxic for reproduction category 2<sup>2</sup>.

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

DHNUP (1,2-Benzenedicarboxylic acid, di-C<sub>7-11</sub> -branched and linear alkyl esters) is listed by Index number 607-480-00-6 in Regulation (EC) No 1272/2008 and classified in Annex VI, Part 3, Table 3.1 (list of harmonised classification and labelling of hazardous substances) as toxic for reproduction, Repr. 1B (H360Df: “May damage the unborn child. Suspected of damaging fertility). The corresponding classification 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) of Regulation (EC) No 1272/2008 is toxic for reproduction category 2 (R61: “May cause harm to the unborn child”).

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

**Registration dossiers submitted for the substance:** No

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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).

## JUSTIFICATION

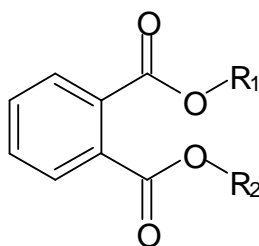
### 1 IDENTITY OF THE SUBSTANCE AND PHYSICAL AND CHEMICAL PROPERTIES

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

**Table 1: Substance identity**

<b>EC number:</b>	271-084-6
<b>EC name:</b>	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters
<b>CAS number (in the EC inventory):</b>	68515-42-4
<b>CAS number:</b>	68515-42-4
<b>CAS name:</b>	1,2-Benzenedicarboxylic acid, di-C <sub>7-11</sub> -branched and linear alkyl esters
<b>IUPAC name:</b>	Di-C7-11-(linear and branched)-alkyl phthalate
<b>Index number in Annex VI of the CLP Regulation</b>	607-480-00-6
<b>Molecular formula:</b>	C <sub>22</sub> H <sub>34</sub> O <sub>4</sub> -C <sub>30</sub> H <sub>50</sub> O <sub>4</sub>
<b>Molecular weight range:</b>	362 – 474
<b>Synonyms:</b>	Dialkyl phthalate (C <sub>7-11</sub> ) branched and linear phthalate ester; 711P; D711P; Di-711-phthalate; Dialkyl(C <sub>7-11</sub> -branched and linear) phthalate; Di(heptyl, nonyl, undecyl) phthalate (DHNUP); Di(heptyl, nonyl, undecyl) phthalate (mixed isomers); Phthalic acid, dialkyl (C7-C11) ester; Santicizer 711 <sup>3</sup>

<sup>3</sup> [Environment Canada 2009]

**Structural formula:**

$R_1$  and  $R_2$  can be linear or branched

**1.2 Composition of the substance**

This substance is a UVCB (Unknown or Variable Composition, Complex Reaction Products, or Biological Materials), and may thus be characterized by a variety of structures. The formula given in section 1.1 represents a representative chemical formula and a general chemical formula (minimum to maximum number of atoms)

**1.3 Physico-chemical properties****Table 2: Overview of physicochemical properties**

Property	Value	Remarks
Physical state at 20°C and 101.3 kPa	<i>Liquid</i>	<i>IUCLID dataset- [ECB 2000]*</i>
Melting/freezing point	<i>-57 °C (pour point)</i>	<i>IUCLID dataset- [ECB 2000]*</i>
Boiling point	<i>235-278 °C at 7 hPa</i>	<i>IUCLID dataset- [ECB 2000]*</i>
Vapour pressure	<i>&lt;10 Pa at 20 °C</i>	<i>IUCLID dataset- [ECB 2000]*</i>
Water solubility	<i>0.1 mg/L at 20 °C pH neutral</i>	<i>IUCLID dataset- [ECB 2000]*</i>
Partition coefficient n-octanol/water (log value)	<i>ca. 4.8</i>	<i>IUCLID dataset- [ECB 2000]*</i>
Dissociation constant	<i>No data</i>	<i>IUCLID dataset- [ECB 2000]*</i>
Density	<i>969-973 kg/m<sup>3</sup> at 20 °C</i>	<i>IUCLID dataset- [ECB 2000]*</i>

\* According to [Environment Canada 2009] the physico-chemical properties are based on a test chemical named Palatino<sup>®</sup> 711P, a trade name representing the following six CAS Numbers: 85507-79-5, 68515-44-6, 68515-45-7, 111381-89-6, 111381-90-9 and 111381-91-0. It is notable that one of the components of DHNUP, diundecyl phthalate, (CAS No. 3648-20-2), is replaced by diundecyl phthalate, branched and linear (CAS No. 85507-79-5), in Palatino<sup>®</sup> 711P. The IUCLID dataset, however, does not mention Palatino<sup>®</sup> 711P in this context, and gives the impression that test results is based on experiments with DHNUP (CAS No 68515-42-4). [Environment Canada 2009] has in their assessment considered Palatino<sup>®</sup> 711P to be equivalent to DHNUP

## 2 HARMONISED CLASSIFICATION AND LABELLING

DHNUP (1,2-Benzenedicarboxylic acid, di-C<sub>7-11</sub> -branched and linear alkyl esters) is listed by Index number 607-480-00-6 in Regulation (EC) No 1272/2008 as follows:

**Table 3: 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	Classification *1		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)	Suppl. Hazard statement Code(s)		
607-480-00-6	1,2-Benzenedicarboxylic acid, di-C <sub>7-11</sub> -branched and linear alkyl esters	Repr. 1B	H360Df	GHS08 Dgr	H360Df	H360Df		

Hazards statement code: H360Df: May damage the unborn child. Suspected of damaging fertility.

**Table 4: 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) of Regulation (EC) No 1272/2008**

Index No	International Chemical Identification	Classification	Labelling	Concentration Limits	Notes
607-480-00-6	1,2-Benzenedicarboxylic acid, di-C <sub>7-11</sub> -branched and linear alkyl esters	Repr. Cat. 2; R61 Repr. Cat. 3; R62	T R: 61-62 S: 53-45		

### **3 ENVIRONMENTAL FATE PROPERTIES**

Not relevant for this dossier.

### **4 HUMAN HEALTH HAZARD ASSESSMENT**

See section 2 on Harmonised Classification and Labelling.

### **5 ENVIRONMENTAL HAZARD ASSESSMENT**

Not relevant for this dossier.

### **6 CONCLUSIONS ON THE SVHC PROPERTIES**

#### **6.1 PBT, vPvB assessment**

Not relevant for this dossier.

#### **6.2 CMR assessment**

DHNUP (1,2-Benzenedicarboxylic acid, di-C7-11 -branched and linear alkyl esters) is listed by Index number 607-480-00-6 in Regulation (EC) No 1272/2008 and classified in Annex VI, Part 3, Table 3.1 (list of harmonised classification and labelling of hazardous substances) as toxic for reproduction, Repr. 1B (H360Df: “May damage the unborn child. Suspected of damaging fertility). The corresponding classification 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) of Regulation (EC) No 1272/2008 is toxic for reproduction category 2 (R61: “May cause harm to the unborn child”).

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

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

Not relevant for the identification of the substance as SVHC in accordance with Article 57 (c).

## REFERENCES

ECB 2000. IUCLID dataset for 1,2-Benzenedicarboxylic acid, di-C<sub>7-11</sub>-branched and lineal alkyl esters (CAS 68515-42-4). <http://ecb.jrc.it/iuclid-datasheet/68515424.pdf>

Environment Canada 2009. Screening Assessment for the challenge. 1,2-Benzenedicarboxylic acid, di-C<sub>7-11</sub>-branched and lineal alkyl esters. CAS 68515-42-4.