Justification for the selection of a candidate CoRAP substance

Substance Name (Public Name):	Diethyl phthalate
Chemical Group:	
EC Number:	201-550-6
CAS Number:	84-66-2
Submitted by:	Germany/Portugal
Published:	20/03/2013

NOTE

This document has been prepared by the evaluating Member State given in the CoRAP update.

Contents

1 IDENTITY OF THE SUBSTANCE

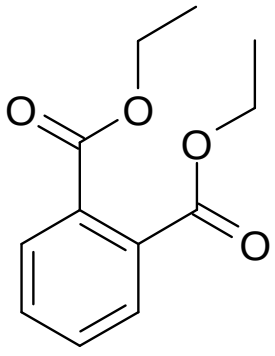
1.1 Name and other identifiers of the substance

Table 1: Substance identity

Public Name:	Diethyl phthalate
EC number:	201-550-6
EC name:	Diethyl phthalate
CAS number (in the EC inventory):	84-66-2
CAS number:	84-66-2
CAS name:	1,2-Benzenedicarboxylic acid, 1,2-diethylester
IUPAC name:	Diethyl benzene-1,2-dicarboxylate
Index number in Annex VI of the CLP Regulation	Not applicable
Molecular formula:	C12H14O4
Molecular weight or molecular weight range:	222.2372
Synonyms:	Diethyl phthalate, DEP

Type of substance ☒ Mono-constituent ☐ Multi-constituent ☐ UVCB

Structural formula:



2 CLASSIFICATION AND LABELLING

2.1 Harmonised Classification in Annex VI of the CLP

Diethyl phthalate is not listed in Annex VI of the CLP.

2.2 Proposal for Harmonised Classification in Annex VI of the CLP

No proposal for harmonised classification in Annex VI of the CLP has been submitted.

2.3 Self classification

Not classified by registrants.

Notified classifications to "Classification and Labelling Inventory" according to CLP criteria:

Acute Tox. 3; H331: Toxic if inhaled.

STOT RE 2; H373: May cause damage to organs.

Eye Irrit. 2 ; H319 : Causes serious eye irritation.

Skin Irrit. 2 ; H315 : Causes skin irritation.

Acute Tox. 4; H332: Harmful if inhaled.

STOT SE 3; H335: May cause respiratory irritation.

Repr. 2 ; H361: Suspected of damaging fertility or the unborn child.

Different notifications can be found in the inventory for DEP. The above listed notifications comprise all endpoints for which notifications have been made.

3 JUSTIFICATION FOR THE SELECTION OF THE CANDIDATE CoRAP SUBSTANCE

3.1 Legal basis for the proposal

☐ Article 44(1) (refined prioritisation criteria for substance evaluation)

☒ Article 45(5) (Member State priority)

3.2 Grounds for concern

☒ (Suspected) CMR	☒ Wide dispersive use	☐ Cumulative exposure
☐ (Suspected) Sensitiser	☒ Consumer use	☐ High RCR
☐ (Suspected) PBT	☐ Exposure of sensitive populations	☒ Aggregated tonnage
☒ Suspected endocrine disruptor	☐ Other (provide further details below)	

(a) Health effects

Endocrine Disrupter: ***Information from databases:***

EC Endocrine Substances Database	Conclusion: Clear Evidence of ED effects Human Health: CAT1 Wildlife CAT3b
FDA Endocrine Screening Database	Potential for Androgen Receptor Binding/Species:Rat/Structure:DDT/Assay: AR Binding (Receptor Binding Assay)

Oestrogenic activity weak in recombinant yeast assay (Harris et al. 1997),[1] increased proliferation of human breast cancer MCF-7 cells (Hong et al. 2005).[2]

Acute toxicity: Dermal LD_{50} = 1118 mg/kg (Acute tox., Cat 4)

Repeated dose toxicity: Oral – rat, 16 wk study (1978), NOAEL 150 mg/kg/day, LOAEL 750 mg/kg/day (reduced body weight), rat (Wistar), 150 day study (Pereira et al. 2008),[3] LOAEL 0.57 mg/kg/day (reduced body weight, testis weights, epididymis weight).

Dermal – mouse (B6C6F1), rat (Fisher 344/N), NTP (2001) 28 day study, administration 5/7 days, NOAEL mouse/rat ~450/368 mg/kg/day (adjusted 321/262 mg/kg), LOAEL mouse/rat 750/736 (adjusted 536/526 mg/kg) mg/kg/day (increased liver weight/increase liver and kidney weight)

Reproduction: *Developmental toxicity* (1992): diet exposure gestation day 6-15, Maternal NOAEL 200 mg/kg/day; Developmental NOAEL 1910 mg/kg/day (supernumery ribs).

[1] Harris CA, Henttu P, Parker MG & Sumpter JP (1997). The estrogenic activity of phthalate esters in vitro. Environmental Health Perspectives 105 (8): 802-811.

[2] Hong EJ, Ji YK, Choi KC, Manabe N, & Jeung EB (2005) Conflict of estrogenic activity by various phthalates between in vitro and in vivo models related to the expression of Calbindin-D9k. Journal of Reproduction & Development 51(2): 253-63.

[3] Pereira, C, Mapuskar K & Rao CV (2008). Effect of diethyl phthalate on rat testicular antioxidant system: A dose-dependent toxicity study. Pesticide Biochemistry and Physiology 90: 52–57.

Fertility: Two-generation study (2005, rat) NOAEL (P, F1 parents) 1016-1297 mg/kg (197-267 mg/kg increased abnormal sperm),[4] NOAEL (F1, F2 pups) 222-267 mg/kg; additional studies NTP two-generation study (2000, mouse) and One-generation study (1989, rat). Mice study (NTP) indicates moderate effects in F2 (sperm parameters also affected). DEP had no effect on F0 reproductive performance, while producing moderate reproductive effects in the second generation in the presence of mild body weight gain inhibitions and moderate increases in liver weight.

(b) Wide and dispersive use, consumer and worker exposure

DEP has a wide dispersive use (worker/professional and consumer uses). According to the information on the registration data dissemination website, DEP is present in various products for consumer uses e.g. air care products, washing and cleaning products, personal care products, polishes and wax blends. It is also in coatings and paints, thinners, paint removes, fillers, putties, plasters, modelling clay and in plastic articles.

DEP is added as a solvent for fragrances in a various common consumer products e.g. air fresheners as aerosol sprays or continuously emitting liquids, washing and cleaning products, toys, etc. One intention for substance evaluation is to scrutinize if the exposure is acceptable/under controlled conditions.

3.3 Information on aggregated tonnage and uses

☐ 1 – 10 tpa	☐ 10 – 100 tpa	☐ 100 – 1000 tpa
☒ 1000 – 10,000 tpa	☐ 10,000 – 100,000 tpa	
☐ 100,000 – 1000,000 tpa	☐ > 1000,000 tpa	
☐ Confidential		

Note: In-addition to the above mentioned tonnage band, another registration identified intermediate use of the substance, for which the tonnage band is not disseminated.

[4] Fujii S, Yabe K, Furukawa M, Hirata M, Kiguchi M, & Ikka T (2005). J Tox Sc 30: 97-116.

☒ Industrial use	☒ Professional use	☒ Consumer use	☐ Closed System

DEP has wide and dispersive uses by workers/professionals and consumers.

The substance is part of disperse dye and plastic plasters and used for denaturation of perfume alcohols and as fixing agent (GESTIS-database on hazardous substances, 2011).[5]

According to the information on the "ECHA registration data dissemination website" DEP is registered as constituent for the following consumer uses:

PC 3: Air care products
PC 21: Laboratory chemicals
PC 28: Perfumes, fragrances
PC 29: Pharmaceuticals
PC 35: Washing and cleaning products (including solvent based products)
PC 39: Cosmetics, personal care products
PC 9a: Coatings and paints, thinners, paint removes
PC 9b: Fillers, putties, plasters, modelling clay
PC 31: Polishes and wax blends

3.4 Other completed/ongoing regulatory processes that may affect suitability for substance evaluation

☐ Compliance check final	☐ Dangerous substances Directive 67/548/EEC
☐ Testing proposal	☐ Existing Substances Regulation 793/93/EEC
☐ Annex VI (CLP)	☐ Plant Protection Products Regulation 91/414/EEC
☐ Annex XV (SVHC)	☐ Biocidal Products Directive 98/8/EEC
☐ Annex XIV (Authorisation)	☐ Other (provide further details below)
☐ Annex XVII (Restriction)	

Please provide further details

[5] GESTIS-database on hazardous substances, 2011: http://gestis-en.itrust.de/

3.5 Information to be requested to clarify the suspected risk

☒ Information on toxicological properties	☐ Information on physico-chemical properties
☐ Information on fate and behaviour	☒ Information on exposure
☐ Information on ecotoxicological properties	☒ Information on uses
☐ Other (provide further details below)	

Investigation of potential for endocrine disruption and more detailed information on adverse effects on male reproductive system is needed.

Information related to consumer products and identified consumer uses are needed to refine exposure assessments.

3.6 Potential follow-up and link to risk management

☐ Restriction	☐ Harmonised C&L	☐ Authorisation	☐ Other (provide further details)

The substance evaluation will be performed with an open outcome. The most appropriate follow-up measure can not be predicted so far.