



SAFETY DATA SHEET DIALLYL PHTHALATE

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	DIALLYL PHTHALATE
Product number	710
Synonyms; trade names	BISOMER DALP, DIALLYL PHTHALATE MONOMER (DAP)
REACH registration number	01-2119832891-34-XXXX
CAS number	131-17-9
EC number	205-016-3

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Industrial application Chemical Intermediate For further information, see attached Exposure Scenario.
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1.3. Details of the supplier of the safety data sheet

Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com
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1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
Sds No.	710

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Not Classified
Health hazards	Acute Tox. 4 - H302 Acute Tox. 4 - H332 Skin Sens. 1 - H317
Environmental hazards	Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410

2.2. Label elements

EC number	205-016-3
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Hazard pictograms



DIALLYL PHTHALATE

Signal word	Warning
Hazard statements	H302+H332 Harmful if swallowed or if inhaled. H317 May cause an allergic skin reaction. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements	P261 Avoid breathing vapour/ spray. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301+P312 IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell. P302+P352 IF ON SKIN: Wash with plenty of water. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P501 Dispose of contents/ container in accordance with national regulations.

2.3. Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.1. Substances

Product name	DIALLYL PHTHALATE
REACH registration number	01-2119832891-34-XXXX
CAS number	131-17-9
EC number	205-016-3
Composition comments	The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Rinse nose and mouth with water. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. If breathing stops, provide artificial respiration. Get medical attention.
Ingestion	Rinse mouth thoroughly with water. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs. Give plenty of water to drink. Get medical attention.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.
Eye contact	Remove any contact lenses and open eyelids wide apart. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes. Get medical attention promptly if symptoms occur after washing.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation	Harmful if inhaled.
Ingestion	Harmful if swallowed.
Skin contact	May cause an allergic skin reaction.
Eye contact	May cause temporary eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor	Treat symptomatically.
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SECTION 5: Firefighting measures

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5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Aldehydes.

5.3. Advice for firefighters

Protective actions during firefighting Contain and collect extinguishing water. Cool containers exposed to flames with water until well after the fire is out.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation.

6.2. Environmental precautions

Environmental precautions Avoid discharge into water courses or onto the ground. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Avoid the spillage or runoff entering drains, sewers or watercourses. Absorb spillage with non-combustible, absorbent material. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation.

Advice on general occupational hygiene Provide eyewash station and safety shower. Do not eat, drink or smoke when using this product. Wash after use and before eating, smoking and using the toilet. Take off contaminated clothing and wash it before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry and cool place. Store at temperatures not exceeding 25°C. Protect against direct sunlight. Avoid contact with the following materials: Oxidising agents. Strong acids.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

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Long-term exposure limit (8-hour TWA): WEL 5 mg/m³

WEL = Workplace Exposure Limit.

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Observe any occupational exposure limits for the product or ingredients. Provide eyewash station and safety shower. Provide adequate ventilation.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Wear chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacture, who can provide information about the breakthrough time of the glove material. It is recommended that gloves are made of the following material: Polyvinyl chloride (PVC). Nitrile rubber. To protect hands from chemicals, gloves should comply with European Standard EN374.

Other skin and body protection

Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapour contact.

Hygiene measures

Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Take off immediately all contaminated clothing and wash it before reuse.

Respiratory protection

Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit. Gas filter, type A2. EN 136/140/141/145/143/149

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Colourless to pale yellow.
Odour threshold	No information available.
pH	No information available.
Melting point	No information available.
Initial boiling point and range	290°C @ 1013 hPa
Flash point	168°C
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	No information available.
Other flammability	No information available.

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Vapour pressure	0.0213 Pa @ 25°C
Vapour density	No information available.
Relative density	1.12 @ 20°C
Bulk density	No information available.
Solubility(ies)	148 mg/l water @ 20°C
Partition coefficient	log Pow: 3.23
Auto-ignition temperature	No information available.
Decomposition Temperature	No information available.
Viscosity	13 mm ² /s @ 20°C
Explosive properties	No information available.
Explosive under the influence of a flame	No information available.
Oxidising properties	No information available.

9.2. Other information

Other information	No information available.
Refractive index	No information available.
Particle size	No information available.
Molecular weight	246
Volatility	No information available.
Saturation concentration	No information available.
Critical temperature	No information available.
Volatile organic compound	No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	No test data specifically related to reactivity available for this product or its ingredients.
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10.2. Chemical stability

Stability	Stable under the prescribed storage conditions.
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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Under normal conditions of storage and use, no hazardous reactions will occur.
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10.4. Conditions to avoid

Conditions to avoid	Avoid heat, flames and other sources of ignition.
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10.5. Incompatible materials

Materials to avoid	Oxidising agents. Strong acids.
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10.6. Hazardous decomposition products

Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Aldehydes.
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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 656.0

Species Rat

ATE oral (mg/kg) 656.0

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 3,300.0

Species Rabbit

ATE dermal (mg/kg) 3,300.0

Acute toxicity - inhalation

Notes (inhalation LC₅₀) LD₅₀ 4470 mg/m³, Inhalation, Rat

ATE inhalation (vapours mg/l) 11.0

Skin corrosion/irritation

Skin corrosion/irritation No information available.

Animal data Slightly irritating.

Serious eye damage/irritation

Serious eye damage/irritation Slightly irritating.

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

Skin sensitisation May cause an allergic skin reaction.

Germ cell mutagenicity

Genotoxicity - in vitro No information available.

Carcinogenicity

Carcinogenicity No information available.

Reproductive toxicity

Reproductive toxicity - fertility No information available.

Specific target organ toxicity - single exposure

STOT - single exposure No information available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure No information available.

Aspiration hazard

Aspiration hazard No information available.

Inhalation Harmful if inhaled. Gas or vapour in high concentrations may irritate the respiratory system.

Ingestion Harmful if swallowed.

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Skin contact May cause an allergic skin reaction.

Eye contact May cause temporary eye irritation.

SECTION 12: Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

12.1. Toxicity

Toxicity Very toxic to aquatic life.

Acute aquatic toxicity

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Acute toxicity - fish LC₅₀, 96 hours: 0.23 mg/l, Oncorhynchus mykiss (Rainbow trout)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 5.5 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: 3.8 mg/l, Algae

Acute toxicity - microorganisms EC₀, : >10-<=100 mg/l, Activated sludge

Chronic aquatic toxicity

M factor (Chronic) 1

12.2. Persistence and degradability

Persistence and degradability Inherently biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential The product does not contain any substances expected to be bioaccumulating. BCF: <200,

Partition coefficient log Pow: 3.23

12.4. Mobility in soil

Mobility No information available.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects No information required.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Waste is classified as hazardous waste. Do not puncture or incinerate, even when empty.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

General Wear protective clothing as described in Section 8 of this safety data sheet.

14.1. UN number

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UN No. (ADR/RID)	3082
UN No. (IMDG)	3082
UN No. (ICAO)	3082
UN No. (ADN)	3082

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIALLYL PHTHALATE)
Proper shipping name (IMDG)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIALLYL PHTHALATE)
Proper shipping name (ICAO)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIALLYL PHTHALATE)
Proper shipping name (ADN)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIALLYL PHTHALATE)

14.3. Transport hazard class(es)

ADR/RID class	9
ADR/RID classification code	M6
ADR/RID label	9
IMDG class	9
ICAO class/division	9
ADN class	9

Transport labels



14.4. Packing group

ADR/RID packing group	III
IMDG packing group	III
ICAO packing group	III
ADN packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant



14.6. Special precautions for user

EmS	F-A, S-F
ADR transport category	3
Emergency Action Code	•3Z
Hazard Identification Number (ADR/RID)	90
Tunnel restriction code	(-)

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14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.
Annex II of MARPOL 73/78
and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation
Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).
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 (as amended).
Commission Regulation (EU) No 2015/830 of 28 May 2015.
This product may impact SEVESO storage regulations.

15.2. Chemical safety assessment

No information available.

Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

Canada - DSL/NDSL

All the ingredients are listed or exempt.
DSL

US - TSCA

All the ingredients are listed or exempt.

Australia - AICS

All the ingredients are listed or exempt.

Japan - ENCS

All the ingredients are listed or exempt.

Korea - KECI

All the ingredients are listed or exempt.

China - IECSC

All the ingredients are listed or exempt.

Philippines – PICCS

All the ingredients are listed or exempt.

SECTION 16: Other information

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Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
 CAS: Chemical Abstracts Service.
 DNEL: Derived No Effect Level.
 IATA: International Air Transport Association.
 IMDG: International Maritime Dangerous Goods.
 Kow: Octanol-water partition coefficient.
 LC₅₀: Lethal Concentration to 50 % of a test population.
 LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
 PBT: Persistent, Bioaccumulative and Toxic substance.
 PNEC: Predicted No Effect Concentration.
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
 vPvB: Very Persistent and Very Bioaccumulative.
 IARC: International Agency for Research on Cancer.
 MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
 cATpE: Converted Acute Toxicity Point Estimate.
 BCF: Bioconcentration Factor.
 BOD: Biochemical Oxygen Demand.
 EC₅₀: 50% of maximal Effective Concentration.
 LOAEC: Lowest Observed Adverse Effect Concentration.
 LOAEL: Lowest Observed Adverse Effect Level.
 NOAEC: No Observed Adverse Effect Concentration.
 NOAEL: No Observed Adverse Effect Level.
 NOEC: No Observed Effect Concentration.
 LOEC: Lowest Observed Effect Concentration.
 DMEL: Derived Minimal Effect Level.
 EL50: Exposure Limit 50
 hPa: Hectopascal
 LL50: Lethal Loading fifty
 OECD: Organisation for Economic Co-operation and Development
 POW: Octanol-water partition coefficient
 SCBA: self-contained breathing apparatus
 STP: Sewage Treatment Plant
 VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Aquatic Acute = Hazardous to the aquatic environment (acute)
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Key literature references and sources for data

Supplier's information.

Revision comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date

10/09/2020

Version number

4.000

Supersedes date

12/04/2019

SDS number

710

DIALLYL PHTHALATE

SDS status

Approved.

Hazard statements in full

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H332 Harmful if inhaled.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

Signature

Jitendra Panchal



Exposure scenario

Formulation of polymers and synthetic rubber

Identification

Product name	DIALLYL PHTHALATE
REACH registration number	01-2119832891-34-XXXX
CAS number	131-17-9
EC number	205-016-3
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Formulation of polymers and synthetic rubber
Product category	PC32 Polymer preparations and compounds.
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging SU11 Manufacture of rubber products

Environment

Environmental release category	ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
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Worker

Process category	PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC19 Manual activities involving hand contact
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Formulation of polymers and synthetic rubber

Annual amount used in the EU: 566 tonnes

Daily amount per site: 1887 kg

Frequency and duration of use

Continuous use/release.

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.00025

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.00025

Emission factor - soil Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution Receiving surface water flow: 18000 m³/day

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Risk management measures

Good practice Carefully handle the substance to minimise releases.

Technical measures Store substance within a closed system. Use of closed filling equipment.

STP type Municipal STP.

STP details Assumed domestic sewage treatment plant flow: 2000 m³/day

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air Treat air emission to provide a typical removal efficiency of 90%.

Water Typical onsite wastewater treatment technology provides removal efficiency of 90%.

Soil Not applicable - no direct release to soil.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid , or: Solid, high dustiness

Concentration details Covers concentrations up to 100 %. Unless otherwise stated.

Formulation or re-packing Concentration of substance in product: 5%

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Formulation of polymers and synthetic rubber

Potentially exposed body parts	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Both hands. Covers skin contact area up to 960 cm ² .
	PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm ² .
	PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tableting, compression, extrusion, pelletisation, granulation Palm of both hands. Covers skin contact area up to 480 cm ² .
	PROC19 Manual activities involving hand contact Covers skin contact area up to 1980 cm ² . Hands and forearms.

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Provide extract ventilation to points where emissions occur. Formulation or re-packing Limit the substance content in the product to 5%.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Regular cleaning of equipment. Regular cleaning of work area.
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Risk management measures

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 PROC4 Chemical production where opportunity for exposure arises
 PROC5 Mixing or blending in batch processes
 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
 PROC14 Tableting, compression, extrusion, pelletisation, granulation
 Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
 Efficiency of at least 95%
 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 Wear a respirator providing a minimum efficiency of (%): 90

3. Exposure estimation (Environment 1)

Assessment method	Used ECETOC TRA model.
Environmental exposure	Fresh water: Exposure 0.00103 mg/l, PNEC 0.0023 mg/l, RCR 0.448 Marine water: Exposure 0.000104 mg/l, PNEC 0.00023 mg/l, RCR 0.452 Soil: Exposure 0.00550 mg/kg, PNEC 0.0177 mg/kg, RCR 0.311

3. Exposure estimation (Health 1)

Assessment method	Used ECETOC TRA model.
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Formulation of polymers and synthetic rubber

Exposure

Concentration of substance in product: 100%

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 1.03 mg/m³, DNEL 3.52 mg/m³, RCR 0.291

Worker - inhalation, short-term - systemic: Exposure 4.10 mg/m³, DNEL 6.22 mg/m³, RCR 0.660

Worker - dermal, long-term - systemic: Exposure 0.0686 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.137

Worker - dermal, long-term - local: Exposure 5.00 µg/cm², DNEL 20 µg/cm², RCR 0.250

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 0.770 mg/m³, DNEL 3.52 mg/m³, RCR 0.219

Worker - inhalation, short-term - systemic: Exposure 3.08 mg/m³, DNEL 6.22 mg/m³, RCR 0.495

Worker - dermal, long-term - systemic: Exposure 0.0343 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0686

Worker - dermal, long-term - local: Exposure 2.50 µg/cm², DNEL 20 µg/cm², RCR 0.125

Concentration of substance in product: 1%

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Worker - inhalation, long-term - systemic: Exposure 0.308 mg/m³, DNEL 3.52 mg/m³, RCR 0.0874

Worker - inhalation, short-term - systemic: Exposure 1.23 mg/m³, DNEL 6.22 mg/m³, RCR 0.198

Worker - dermal, long-term - systemic: Exposure 0.000343 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.000686

Worker - dermal, long-term - local: Exposure 0.100 µg/cm², DNEL 20 µg/cm², RCR 0.00500

PROC4 Chemical production where opportunity for exposure arises

Worker - inhalation, long-term - systemic: Exposure 1.54 mg/m³, DNEL 3.52 mg/m³, RCR 0.437

Worker - inhalation, short-term - systemic: Exposure 6.16 mg/m³, DNEL 6.22 mg/m³, RCR 0.99

Worker - dermal, long-term - systemic: Exposure 0.0343 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0686

Worker - dermal, long-term - local: Exposure 5.00 µg/cm², DNEL 20 µg/cm², RCR 0.250

PROC5 Mixing or blending in batch processes

Worker - inhalation, long-term - systemic: Exposure 1.54 mg/m³, DNEL 3.52 mg/m³, RCR 0.437

Worker - inhalation, short-term - systemic: Exposure 6.16 mg/m³, DNEL 6.22 mg/m³, RCR 0.99

Worker - dermal, long-term - systemic: Exposure 0.0686 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.137

Worker - dermal, long-term - local: Exposure 10 µg/cm², DNEL 20 µg/cm², RCR 0.5

PROC19 Manual activities involving hand contact

Worker - inhalation, long-term - systemic: Exposure 0.718 mg/m³, DNEL 3.52 mg/m³, RCR 0.204

Worker - inhalation, short-term - systemic: Exposure 2.87 mg/m³, DNEL 6.22 mg/m³, RCR 0.462

Worker - dermal, long-term - systemic: Exposure 0.707 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 1.41

Worst case assumption

Formulation of polymers and synthetic rubber

Worker - dermal, long-term - local: Exposure 2.50 µg/cm², DNEL 20 µg/cm², RCR 1.25
Worst case assumption

PROC14 Tableting, compression, extrusion, pelletisation, granulation

Worker - inhalation, long-term - systemic: Exposure 0.513 mg/m³, DNEL 3.52 mg/m³, RCR 0.146

Worker - inhalation, short-term - systemic: Exposure 2.05 mg/m³, DNEL 6.22 mg/m³, RCR 0.330

Worker - dermal, long-term - systemic: Exposure 0.0171 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0343

Worker - dermal, long-term - local: Exposure 2.50 µg/cm², DNEL 20 µg/cm², RCR 0.125
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 1.03 mg/m³, DNEL 3.52 mg/m³, RCR 0.291

Worker - inhalation, short-term - systemic: Exposure 4.1 mg/m³, DNEL 6.22 mg/m³, RCR 0.66

Worker - dermal, long-term - systemic: Exposure 0.0686 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.137

Worker - dermal, long-term - local: Exposure 5 µg/cm², DNEL 20 µg/cm², RCR 0.25

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 1.54 mg/m³, DNEL 3.52 mg/m³, RCR 0.437

Worker - inhalation, short-term - systemic: Exposure 6.16 mg/m³, DNEL 6.22 mg/m³, RCR 0.99

Worker - dermal, long-term - systemic: Exposure 0.0686 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.137

Worker - dermal, long-term - local: Exposure 5 µg/cm², DNEL 20 µg/cm², RCR 0.25

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Worker - inhalation, long-term - systemic: Exposure 1.54 mg/m³, DNEL 3.52 mg/m³, RCR 0.437

Worker - inhalation, short-term - systemic: Exposure 6.16 mg/m³, DNEL 6.22 mg/m³, RCR 0.99

Worker - dermal, long-term - systemic: Exposure 0.0343 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0686

Worker - dermal, long-term - local: Exposure 5 µg/cm², DNEL 20 µg/cm², RCR 0.25

Concentration of substance in product: 5%

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Worker - inhalation, long-term - systemic: Exposure 0.616 mg/m³, DNEL 3.52 mg/m³, RCR 0.175

Worker - inhalation, short-term - systemic: Exposure 2.46 mg/m³, DNEL 6.22 mg/m³, RCR 0.396

Worker - dermal, long-term - systemic: Exposure 0.00686 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0137

Worker - dermal, long-term - local: Exposure 2 µg/cm², DNEL 20 µg/cm², RCR 0.1

PROC4 Chemical production where opportunity for exposure arises

Worker - inhalation, long-term - systemic: Exposure 1.03 mg/m³, DNEL 3.52 mg/m³, RCR 0.219

Worker - inhalation, short-term - systemic: Exposure 4.10 mg/m³, DNEL 6.22 mg/m³, RCR 0.66

Worker - dermal, long-term - systemic: Exposure 0.0686 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.137

Formulation of polymers and synthetic rubber

Worker - dermal, long-term - local: Exposure 10 µg/cm², DNEL 20 µg/cm², RCR 0.5

PROC5 Mixing or blending in batch processes

Worker - inhalation, long-term - systemic: Exposure 1.03 mg/m³, DNEL 3.52 mg/m³, RCR 0.291

Worker - inhalation, short-term - systemic: Exposure 4.10 mg/m³, DNEL 6.22 mg/m³, RCR 0.66

Worker - dermal, long-term - systemic: Exposure 0.0137 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0274

Worker - dermal, long-term - local: Exposure 2 µg/cm², DNEL 20 µg/cm², RCR 0.1

PROC19 Manual activities involving hand contact

Worker - inhalation, long-term - systemic: Exposure 1.44 mg/m³, DNEL 3.52 mg/m³, RCR 0.408

Worker - inhalation, short-term - systemic: Exposure 5.75 mg/m³, DNEL 6.22 mg/m³, RCR 0.942

Worker - dermal, long-term - systemic: Exposure 1.41 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 2.83

Worst case assumption

Worker - dermal, long-term - local: Exposure 50 µg/cm², DNEL 20 µg/cm², RCR 2.5

Worst case assumption

PROC14 Tableting, compression, extrusion, pelletisation, granulation

Worker - inhalation, long-term - systemic: Exposure 1.03 mg/m³, DNEL 3.52 mg/m³, RCR 0.291

Worker - inhalation, short-term - systemic: Exposure 4.10 mg/m³, DNEL 6.22 mg/m³, RCR 0.66

Worker - dermal, long-term - systemic: Exposure 0.0343 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.066

Worker - dermal, long-term - local: Exposure 5 µg/cm², DNEL 20 µg/cm², RCR 0.25

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 1.44 mg/m³, DNEL 3.52 mg/m³, RCR 0.408

Worker - inhalation, short-term - systemic: Exposure 5.75 mg/m³, DNEL 6.22 mg/m³, RCR 0.924

Worker - dermal, long-term - systemic: Exposure 0.137 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.274

Worker - dermal, long-term - local: Exposure 10 µg/cm², DNEL 20 µg/cm², RCR 0.5

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 0.513 mg/m³, DNEL 3.52 mg/m³, RCR 0.146

Worker - inhalation, short-term - systemic: Exposure 2.05 mg/m³, DNEL 6.22 mg/m³, RCR 0.33

Worker - dermal, long-term - systemic: Exposure 0.137 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.274

Worker - dermal, long-term - local: Exposure 10 µg/cm², DNEL 20 µg/cm², RCR 0.5

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Worker - inhalation, long-term - systemic: Exposure 1.03 mg/m³, DNEL 3.52 mg/m³, RCR 0.291

Worker - inhalation, short-term - systemic: Exposure 4.10 mg/m³, DNEL 6.22 mg/m³, RCR 0.66

Worker - dermal, long-term - systemic: Exposure 0.0686 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.137

Worker - dermal, long-term - local: Exposure 10 µg/cm², DNEL 20 µg/cm², RCR 0.5

Powder.

Formulation of polymers and synthetic rubber

Concentration of substance in product: 5%

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 0.7 mg/m³, DNEL 3.52 mg/m³, RCR 0.199

Worker - inhalation, short-term - systemic: Exposure 2.8 mg/m³, DNEL 6.22 mg/m³, RCR 0.45

Worker - dermal, long-term - systemic: Exposure 0.137 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.274

Worker - dermal, long-term - local: Exposure 10 µg/cm², DNEL 20 µg/cm², RCR 0.5

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 1.5 mg/m³, DNEL 3.52 mg/m³, RCR 0.426

Worker - dermal, short-term - systemic: Exposure 6.00 mg/m³, DNEL 6.22 mg/m³, RCR 0.965

Worker - dermal, long-term - systemic: Exposure 0.137 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.274

Worker - dermal, long-term - local: Exposure 10 µg/cm², DNEL 20 µg/cm², RCR 0.5

Observe any occupational exposure limits for the product or ingredients. Personal, workplace environment or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.



Exposure scenario

Formulation of insulating varnish

Identification

Product name	DIALLYL PHTHALATE
REACH registration number	01-2119832891-34-XXXX
CAS number	131-17-9
EC number	205-016-3
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Formulation of insulating varnish
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging SU11 Manufacture of rubber products

Environment

Environmental release category	ERC2 Formulation into mixture
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Annual amount used in the EU: 350 tonnes
Daily amount per site: 4000 kg

Formulation of insulating varnish

Frequency and duration of use

Continuous use/release.
Emission days: 100 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.00001
Emission factor - soil	Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution	Receiving surface water flow: 18000 m ³ /day Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Risk management measures

Good practice	Carefully handle the substance to minimise releases.
Technical measures	Store substance within a closed system. Use of closed filling equipment.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m ³ /day

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	Treat air emission to provide a typical removal efficiency of 90%.
Water	Typical onsite wastewater treatment technology provides removal efficiency of 90%.
Soil	Not applicable - no direct release to soil.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Both hands. Covers skin contact area up to 960 cm². PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Palm of both hands. Covers skin contact area up to 480 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Formulation of insulating varnish

Ventilation rate Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Regular cleaning of equipment. Regular cleaning of work area.

Risk management measures

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
 Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
 Efficiency of at least 95%
 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 Wear a respirator providing a minimum efficiency of (%): 90

3. Exposure estimation (Environment 1)

Assessment method Used ECETOC TRA model.

Environmental exposure Fresh water: Exposure 0.000627 mg/l, PNEC 0.0023 mg/l, RCR 0.273
 Marine water: Exposure 0.0000628 mg/l, PNEC 0.00023 mg/l, RCR 0.273
 Soil: Exposure 0.00330 mg/kg, PNEC 0.0177 mg/kg, RCR 0.186

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

Formulation of insulating varnish

Exposure

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 1.03 mg/m³, DNEL 3.52 mg/m³, RCR 0.291

Worker - inhalation, short-term - systemic: Exposure 4.10 mg/m³, DNEL 6.22 mg/m³, RCR 0.660

Worker - dermal, long-term - systemic: Exposure 0.0686 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.137

Worker - dermal, long-term - local: Exposure 5.00 µg/cm², DNEL 20 µg/cm², RCR 0.250

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 0.770 mg/m³, DNEL 3.52 mg/m³, RCR 0.219

Worker - inhalation, short-term - systemic: Exposure 3.08 mg/m³, DNEL 6.22 mg/m³, RCR 0.495

Worker - dermal, long-term - systemic: Exposure 0.0343 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0686

Worker - dermal, long-term - local: Exposure 2.50 µg/cm², DNEL 20 µg/cm², RCR 0.125

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Worker - inhalation, long-term - systemic: Exposure 0.103 mg/m³, DNEL 3.52 mg/m³, RCR 0.00291

Worker - inhalation, short-term - systemic: Exposure 0.410 mg/m³, DNEL 6.22 mg/m³, RCR 0.066

Worker - dermal, long-term - systemic: Exposure 0.0343 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0686

Worker - dermal, long-term - local: Exposure 10 µg/cm², DNEL 20 µg/cm², RCR 0.5

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Worker - inhalation, long-term - systemic: Exposure 1.03 mg/m³, DNEL 3.52 mg/m³, RCR 0.291

Worker - inhalation, short-term - systemic: Exposure 4.10 mg/m³, DNEL 6.22 mg/m³, RCR 0.66

Worker - dermal, long-term - systemic: Exposure 0.0686 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.137

Worker - dermal, long-term - local: Exposure 10 µg/cm², DNEL 20 µg/cm², RCR 0.5

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Worker - inhalation, long-term - systemic: Exposure 0.923 mg/m³, DNEL 3.52 mg/m³, RCR 0.262

Worker - inhalation, short-term - systemic: Exposure 3.69 mg/m³, DNEL 6.22 mg/m³, RCR 0.594

Worker - dermal, long-term - systemic: Exposure 0.0343 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0686

Worker - dermal, long-term - local: Exposure 10 µg/cm², DNEL 20 µg/cm², RCR 0.5

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Worker - inhalation, long-term - systemic: Exposure 1.54 mg/m³, DNEL 3.52 mg/m³, RCR 0.437

Worker - inhalation, short-term - systemic: Exposure 6.16 mg/m³, DNEL 6.22 mg/m³, RCR 0.99

Worker - dermal, long-term - systemic: Exposure 0.0343 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0686

Worker - dermal, long-term - local: Exposure 5 µg/cm², DNEL 20 µg/cm², RCR 0.25

Observe any occupational exposure limits for the product or ingredients.



Exposure scenario

Industrial application of insulating varnish

Identification

Product name	DIALLYL PHTHALATE
REACH registration number	01-2119832891-34-XXXX
CAS number	131-17-9
EC number	205-016-3
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial application of insulating varnish
Main sector	SU3 Industrial uses
Sector of use	SU16 Manufacture of computer, electronic and optical products, electrical equipment

Environment

Environmental release category	ERC5 Use at industrial site leading to inclusion into/onto article
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Worker

Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC7 Industrial spraying PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC19 Manual activities involving hand contact
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Annual amount used in the EU: 340 tonnes
Daily amount per site: 17000 kg

Frequency and duration of use

Continuous use/release.
Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Industrial application of insulating varnish

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.005
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0
Emission factor - soil	Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution	Receiving surface water flow: 18000 m ³ /day Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Risk management measures

Good practice	Carefully handle the substance to minimise releases.
Technical measures	Store substance within a closed system. Use of closed filling equipment.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m ³ /day

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	Treat air emission to provide a typical removal efficiency of 90%.
Water	Typical onsite wastewater treatment technology provides removal efficiency of 90%.
Soil	Not applicable - no direct release to soil.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing Both hands. Covers skin contact area up to 960 cm ² . PROC13 Treatment of articles by dipping and pouring. Palm of both hands. Covers skin contact area up to 480 cm ² . PROC19 Manual activities involving hand contact Both hands and main part of the arms. Covers skin contact area up to 1980 cm ² . PROC7 Industrial spraying Hands and forearms. Covers skin contact area up to 1500 cm ² .
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Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). PROC7 Industrial spraying Provide enhanced general ventilation by mechanical means.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Provide extract ventilation to points where emissions occur.
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Organisational measures to prevent/limit releases, dispersion and exposure

Industrial application of insulating varnish

Organisational measures Regular cleaning of equipment. Regular cleaning of work area.

Risk management measures

PROC7 Industrial spraying
 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 PROC10 Roller application or brushing
 PROC13 Treatment of articles by dipping and pouring.
 PROC19 Manual activities involving hand contact
 Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
 Efficiency of at least 95%
 PROC7 Industrial spraying
 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 PROC10 Roller application or brushing
 PROC13 Treatment of articles by dipping and pouring.
 PROC19 Manual activities involving hand contact
 Wear a respirator providing a minimum efficiency of (%): 90

3. Exposure estimation (Environment 1)

Assessment method Used ECETOC TRA model.

Environmental exposure Fresh water: Exposure 0.00000120 mg/l, PNEC 0.0023 mg/l, RCR 0.000522
 Marine water: Exposure 0.000000141 mg/l, PNEC 0.00023 mg/l, RCR 0.00613
 Soil: Exposure 0.000915 mg/kg, PNEC 0.0177 mg/kg, RCR 0.0517

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

Industrial application of insulating varnish

Exposure

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 1.03 mg/m³, DNEL 3.52 mg/m³, RCR 0.291

Worker - inhalation, short-term - systemic: Exposure 4.10 mg/m³, DNEL 6.22 mg/m³, RCR 0.660

Worker - dermal, long-term - systemic: Exposure 0.0686 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.137

Worker - dermal, long-term - local: Exposure 5.00 µg/cm², DNEL 20 µg/cm², RCR 0.250

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 0.770 mg/m³, DNEL 3.52 mg/m³, RCR 0.219

Worker - inhalation, short-term - systemic: Exposure 3.08 mg/m³, DNEL 6.22 mg/m³, RCR 0.495

Worker - dermal, long-term - systemic: Exposure 0.0343 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0686

Worker - dermal, long-term - local: Exposure 2.50 µg/cm², DNEL 20 µg/cm², RCR 0.125

PROC19 Manual activities involving hand contact

Worker - inhalation, long-term - systemic: Exposure 0.103 mg/m³, DNEL 3.52 mg/m³, RCR 0.00291

Worker - inhalation, short-term - systemic: Exposure 0.410 mg/m³, DNEL 6.22 mg/m³, RCR 0.066

Worker - dermal, long-term - systemic: Exposure 7.07 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 14.1

Worst case assumption

Worker - dermal, long-term - local: Exposure 250 µg/cm², DNEL 20 µg/cm², RCR 12.5

Worst case assumption

PROC10 Roller application or brushing

Worker - inhalation, long-term - systemic: Exposure 1.03 mg/m³, DNEL 3.52 mg/m³, RCR 0.291

Worker - inhalation, short-term - systemic: Exposure 4.10 mg/m³, DNEL 6.22 mg/m³, RCR 0.66

Worker - dermal, long-term - systemic: Exposure 1.37 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 2.74

Worst case assumption

Worker - dermal, long-term - local: Exposure 100 µg/cm², DNEL 20 µg/cm², RCR 5

Worst case assumption

PROC13 Treatment of articles by dipping and pouring.

Worker - inhalation, long-term - systemic: Exposure 1.03 mg/m³, DNEL 3.52 mg/m³, RCR 0.291

Worker - inhalation, short-term - systemic: Exposure 4.10 mg/m³, DNEL 6.22 mg/m³, RCR 0.660

Worker - dermal, long-term - systemic: Exposure 0.00686 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.137

Worker - dermal, long-term - local: Exposure 10 µg/cm², DNEL 20 µg/cm², RCR 0.5

PROC7 Industrial spraying

Worker - inhalation, long-term - systemic: Exposure 1.54 mg/m³, DNEL 3.52 mg/m³, RCR 0.437

Worker - inhalation, short-term - systemic: Exposure 6.16 mg/m³, DNEL 6.22 mg/m³, RCR 0.99

Worker - dermal, long-term - systemic: Exposure 0.107 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.214

Worker - dermal, long-term - local: Exposure 5 µg/cm², DNEL 20 µg/cm², RCR 0.25

Industrial application of insulating varnish

Observe any occupational exposure limits for the product or ingredients. Personal, workplace environment or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.



Exposure scenario

Laboratory use

Identification

Product name	DIALLYL PHTHALATE
REACH registration number	01-2119832891-34-XXXX
CAS number	131-17-9
EC number	205-016-3
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Laboratory use
Main sector	SU3 Industrial uses
Sector of use	SU16 Manufacture of computer, electronic and optical products, electrical equipment

Environment

Environmental release category	ERC2 Formulation into mixture
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Worker

Process category	PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Annual amount used in the EU: 10 tonnes
Daily amount per site: 100 kg

Frequency and duration of use

Continuous use/release.
Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.025
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0.0001

Laboratory use

Environmental factors not influenced by risk management measures

Dilution	Receiving surface water flow: 18000 m³/day
	Local freshwater dilution factor: 10
	Local marine water dilution factor: 100

Risk management measures

Good practice	Carefully handle the substance to minimise releases.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m³/day

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	No air emission controls required; required removal efficiency is 0%.
Water	Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 68.67%
Soil	Not applicable - no direct release to soil.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid , or: Solid, high dustiness
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	Palm of one hand. Covers skin contact area up to 240 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Regular cleaning of equipment. Regular cleaning of work area.
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Risk management measures

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 95%

3. Exposure estimation (Environment 1)

Assessment method	Used ECETOC TRA model.
Environmental exposure	Fresh water: Exposure 0.00000120 mg/l, PNEC 0.0023 mg/l, RCR 0.000522 Marine water: Exposure 0.000000141 mg/l, PNEC 0.00023 mg/l, RCR 0.000613 Soil: Exposure 0.0000658 mg/kg, PNEC 0.0177 mg/kg, RCR 0.00372

Laboratory use

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

Exposure

Liquid

Worker - inhalation, long-term - systemic: Exposure 1.54 mg/m³, DNEL 3.52 mg/m³, RCR 0.437

Worker - inhalation, short-term - systemic: Exposure 6.16 mg/m³, DNEL 6.22 mg/m³, RCR 0.99

Worker - dermal, long-term - systemic: Exposure 0.0171 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0342

Worker - dermal, long-term - local: Exposure 5.00 µg/cm², DNEL 20 µg/cm², RCR 0.250

Solid, high dustiness

Worker - inhalation, long-term - systemic: Exposure 0.5 mg/m³, DNEL 3.52 mg/m³, RCR 0.142

Worker - inhalation, short-term - systemic: Exposure 2.00 mg/m³, DNEL 6.22 mg/m³, RCR 0.322

Worker - dermal, long-term - systemic: Exposure 0.0171 mg/kg/day, DNEL 0.5 mg/kg/day, RCR 0.0343

Worker - dermal, long-term - local: Exposure 5 µg/cm², DNEL 20 µg/cm², RCR 0.25

Observe any occupational exposure limits for the product or ingredients.



Exposure scenario

Service life of insulating varnish

Identification

Product name	DIALLYL PHTHALATE
REACH registration number	01-2119832891-34-XXXX
CAS number	131-17-9
EC number	205-016-3
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Service life of insulating varnish
Article category	AC13 Plastic articles
Main sector	SU21 Consumer uses SU22 Professional uses

Environment

Environmental release category	ERC11a Widespread use of articles with low release (indoor)
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2. Conditions of use affecting exposure (Workers - Health 1)

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Regular cleaning of equipment. Regular cleaning of work area.
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2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Amounts used

Annual amount used in the EU: 350 tonnes
 Fraction of EU tonnage used in region: 0.1
 Fraction of Regional tonnage used locally: 0.002

Frequency and duration of use

Continuous release.
 Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from wide dispersive use (regional only): 0.05%
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Service life of insulating varnish

Emission factor - water Release fraction to wastewater from wide dispersive use: 0.05%

Environmental factors not influenced by risk management measures

Dilution Receiving surface water flow: 18000 m³/day
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

STP type Municipal STP.

STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
Estimated substance removal from wastewater via domestic sewage treatment: 68.67%

Conditions and measures related to external treatment of waste for disposal

Disposal method Landfill. , or: Municipal waste incineration.

2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Concentration details Concentration of substance in product: 0.146%

Amounts used

Inhalation
Amount per use: 50 g

Dermal
Amount per use: 5.6 g

Frequency and duration of use

Inhalation
Covers daily exposure up to 24hours
Worst case assumption

Dermal
Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts Covers skin contact area up to 37.5 cm².

Other given operational conditions affecting Non-industrial exposure

Temperature Inhalation Assumes activities and processes are carried out at a temperature of 60°C.
Dermal Assumes activities and processes are carried out at a temperature of 25°C.

Room size 60 m³

Other given operational conditions affecting Non-industrial exposure

Exposure route Inhalation
Dermal

3. Exposure estimation (Environment 1)

Assessment method Used ECETOC TRA model.

Environmental exposure Fresh water: Exposure 0.00000270 mg/l, PNEC 0.0023 mg/l, RCR 0.00117
Marine water: Exposure 0.000000292 mg/l, PNEC 0.00023 mg/l, RCR 0.00123
Soil: Exposure 0.0000479 mg/kg, PNEC 0.0177 mg/kg, RCR 0.00271

Service life of insulating varnish

3. Exposure estimation (Health 1)

Assessment method ConsExpo v4.1

Exposure Consumer - inhalation, long-term - systemic: Exposure 0.0845 mg/m³, DNEL mg/m³, RCR 0.197

Consumer - dermal, long-term - systemic: Exposure 0.00149 mg/kg/day, DNEL mg/kg/day, RCR 0.0124

Observe any occupational exposure limits for the product or ingredients.