

SAFETY DATA SHEET

LANXESS
Energizing Chemistry

Diphyl

04829794

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

1.1 Product identifier

Product name : Diphyl
Hazardous ingredients : Contains: biphenyl

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

Suitable uses : Synthetic organic heat transfer medium

<u>Identified uses</u>	<u>Sector of Use</u>	<u>Chemical Product Category</u>	<u>Process Category</u>	<u>Article Category</u>	<u>Environmental Release Category</u>
biphenyl . Formulation (Industrial)	SU03 SU10		PROC01 PROC02 PROC03 PROC04 PROC05 PROC08a PROC08b PROC09		ERC02
biphenyl. heat transfer fluid (Industrial)	SU03 SU08 SU09	PC16	PROC01 PROC02 PROC03 PROC08a PROC08b PROC09		ERC07
diphenyl ether. Formulation (Industrial)	SU10		PROC16 PROC01 PROC03 PROC05 PROC08a PROC08b PROC09		ERC02
diphenyl ether . heat transfer fluid (Industrial)	SU03		PROC15 PROC01 PROC03 PROC08a PROC08b PROC09 PROC15 PROC16		ERC07

1.3 Details of the supplier of the safety data sheet

Supplier : Lanxess India Private Limited,
LANXESS House, Plot no 162, 163,164
Road No 27. Wagle Estate, Opp. ITI College, MIDC,
Thane (W) – 400604
e-mail: infosdsindia_na@lanxess.com

1.4 Emergency telephone number : +917566660717 (This is a mobile phone number)
+917366-245104



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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification : Skin Irrit. 2, H315
 Eye Irrit. 2, H319
 STOT SE 3, H335
 Aquatic Acute 1, H400
 Aquatic Chronic 1, H410

Classification according to Directive 1999/45/EC [DPD]

Classification : Xi; R36/37/38
 N; R50/53
Human health hazards : Irritating to eyes, respiratory system and skin.
Environmental hazards : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2 Label elements

Hazard pictograms :



Signal word : Warning

Contains: biphenyl

Hazard statements :

H319 - Causes serious eye irritation.
 H315 - Causes skin irritation.
 H335 - May cause respiratory irritation.
 H410 - Very toxic to aquatic life with long lasting effects.

Additional warning phrases :

Not applicable.

Precautionary statements

Prevention :

Do not breathe vapour or spray. Wear protective gloves and eye or face protection. Avoid release to the environment.

Response :

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF ON SKIN: Wash with plenty of soap and water. IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

Storage :

Not applicable.

Disposal :

Not applicable.

2.3 Other hazards

Other hazards which do not result in classification :

None known.

SECTION 3: Composition/information on ingredients

Product definition (REACH) : Mixture



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Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
diphenyl ether	REACH #: 01-2119472545-33 EC: 202-981-2 CAS: 101-84-8	72 - 75	Xi; R36 N; R51/53	Eye Irrit. 2, H319	[1]
biphenyl	REACH #: 01-2119480408-33 EC: 202-163-5 CAS: 92-52-4 Index: 601-042-00-8	25 - 28	Xi; R36/37/38 N; R50/53	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
			See Section 16 for the full text of the R-phrases declared above.	See Section 16 for the full text of the H statements declared above.	

Occupational exposure limits, if available, are listed in Section 8.

Type

- [1] Substance classified with a health or environmental hazard
 [2] Substance with a workplace exposure limit
 [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
 [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

SECTION 4: First aid measures

4.1 Description of first aid measures

- Inhalation** : Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Ensure that the patient drinks water.
- Skin contact** : Wash skin immediately with plenty of water and soap.
- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Indication of any immediate medical attention and special treatment needed

See Section 11 for more detailed information on health effects and symptoms.



SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : In case of fire, use water spray (fog), foam, dry chemical or CO₂.

Unsuitable extinguishing media : Never use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products : Decomposition products may include the following materials: carbon oxides, aromatic hydrocarbons, phenol

5.3 Advice for firefighters

Special precautions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. This material is very toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures : No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment (see Section 8).

6.2 Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

6.3 Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.



SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

- 7.1 Precautions for safe handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not breathe vapour or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous.
- 7.2 Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Keep container in a well-ventilated place. Store away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Seveso II Directive - Reporting thresholds (in tonnes)

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1	100	200
C9i: Very toxic for the environment	100	200

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

Remarks : Open and empty container only by applying suction apparatus on the spot. Vent waste air only via suitable separators or scrubbers. Take precautionary measures against electrostatic discharges. Avoid all possible sources of ignition (spark or flame).

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Exposure limit values : Not available.



Derived effect levels

Ingredient name	Type	Exposure	Value	Population	Effects	Remarks
diphenyl ether	DNEL	Long term Inhalation	245,8 mg/ m ³	Workers	Systemic	-
		Long term Inhalation	9,68 mg/ m ³	Workers	Local	-
	DNEL	Long term Dermal	58,33 mg/ kg bw/day	Workers	Systemic	-
		Long term Dermal	0,15 mg/ cm ²	Workers	Local	-
biphenyl	DNEL	Long term Inhalation	11,17 mg/ m ³	Workers	Systemic	-
		Long term Dermal	3,17 mg/ m ³	Workers	Systemic	-

Conclusion/Summary : Not available.

Predicted No Effect Concentration (PNEC)

Ingredient name	Compartment Detail	Value	Method Detail	Remarks	
diphenyl ether	soil	0,0681 mg/kg dwt	Equilibrium Partitioning	-	
	Sewage Treatment Plant	10 mg/l	Assessment Factors	-	
	Marine water sediment	0,0345 mg/kg dwt	Equilibrium Partitioning	-	
	Marine water	0,00071 mg/l	Assessment Factors	-	
	Intermittent release. Fresh water sediment	0,017 mg/l 0,345 mg/ kg dwt	Assessment Factors Equilibrium Partitioning	-	
	Fresh water	0,0071 mg/l	Assessment Factors	-	
	biphenyl	Sewage Treatment Plant	3,2 mg/l	Assessment Factors	-
		Marine water sediment	0,0701 mg/kg dwt	Sensitivity Distribution	-
Marine water		0,0017 mg/l	Assessment Factors	-	
Fresh water sediment		0,701 mg/ kg dwt	Sensitivity Distribution	-	
Fresh water		0,017 mg/l	Assessment Factors	-	

Conclusion/Summary : Not available.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere 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. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.



8.2 Exposure controls

Risk management measures

Occupational exposure controls

Technical measures : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection measures

- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Recommended: Full mask with type ABEK filter
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations
Recommended: (< 1 hour) Nitrile rubber - NBR, Polychloroprene - CR
- Eye protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
Recommended: Safety glasses.
- Skin protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Recommended: Wear protective clothing.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Environmental exposure controls

Technical measures : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General information

Appearance

Physical state : Liquid.

Colour : Colourless to light yellow.

Odour : Characteristic.

Important health, safety and environmental information

Boiling point : 257 °C (1013 hPa)

Melting point : 12,2°C (54°F)



Flash point	: Closed cup: 115°C (239°F)
Explosion limits	: Lower: 1,01% Upper: 3,47%
Density	: 1,062 kg/L (20°C)
Solubility	: Immiscible in water.
Viscosity	: Kinematic: 0,0405 cm ² /s
Ignition temperature	: 615°C

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: The product is stable.
10.3 Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Prolonged exposure to heat during proper use leads to the formation of decomposition products, including phenol and benzene. The safety precautions for these compounds must be followed if the material is handled or processed while not fully enclosed or a leakage or similar mishap occurs.
10.5 Incompatible materials	: strong oxidizing agents
10.6 Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Potential acute health effects**

Inhalation	: May cause respiratory irritation.
Ingestion	: Irritating to mouth, throat and stomach.
Skin contact	: Causes skin irritation.
Eye contact	: Causes eye irritation.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure	Test
diphenyl ether	LD50 Oral	- Rat	2830 mg/kg	-	-
biphenyl	LD50 Oral	- Rat	2180 to 5040 mg/kg	-	-
diphenyl ether	LD50 Dermal	- rabbit	>7940 mg/kg	-	-
biphenyl	LD50 Dermal	- Rabbit	3090 to 5010 mg/kg	-	*

Conclusion/Summary : biphenyl:* Dosage caused no mortality

Acute toxicity estimates

Route	ATE value
Not available.	

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Test
diphenyl ether	Skin - Erythema/ Eschar	Rabbit	1,6	4 hours	-
	Skin - Oedema	Rabbit	0,17	4 hours	-
	Eyes - Moderate irritant	Rabbit	-	-	-

Skin : diphenyl ether : Non-irritating
 Eyes : diphenyl ether : Moderate irritant

**Sensitiser**

Product/ingredient name	Route of exposure	Species	Result	Test description
diphenyl ether	skin	Human	Not sensitizing	-
biphenyl	skin	Guinea pig	Not sensitizing	406 Skin Sensitization

Potential chronic health effects**Chronic toxicity**

Product/ingredient name	Result	Species	Dose	Exposure
diphenyl ether	Sub-chronic NOEL Dermal	Rat - Male	301 mg/kg	-
	Sub-chronic NOAEL Oral	Rat	1000 mg/kg	13 weeks; 6 days per week
	Chronic NOEL Inhalation Vapour	Rat	4,9 ppm	33 days
biphenyl	Chronic NOAEL Oral	Rat - Male, Female	38 mg/kg	105 weeks

Mutagenicity

Product/ingredient name	Test	Experiment	Result
diphenyl ether	-	Experiment: In vitro Subject: Bacteria	Negative
biphenyl	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative
	OECD 473 In vitro Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal	Negative
	OECD 474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal	Negative

Reproductive toxicity

Product/ingredient name	Maternal Fertility toxicity	Developmental toxin	Species	Dose	Exposure / Test
diphenyl ether	Positive	-	Negative Rat	Oral: 500 mg/kg NOAEL	11 days OECD 414 Prenatal Developmental Toxicity Study

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
biphenyl	Category 3	Not applicable.	Respiratory tract irritation

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Test	Result	Species	Exposure
diphenyl ether	-	Acute EC50 1,7 mg/l	Daphnia - Daphnia magna	48 hours
	-	Acute IC50 2,5 to 5 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours
	-	Acute LC50 4,2 mg/l	Fish - Oncorhynchus mykiss	96 hours
biphenyl	(Q)SAR	Acute EC50 1,772 mg/l	Algae	96 hours
	(Q)SAR	NOEC 0,66 mg/l	Algae	96 hours
	-	Acute EC50 0,36 mg/l	Daphnia - Daphnia magna	48 hours
	OECD 203 Fish, Acute Toxicity Test	Acute LC50 3 mg/l	Fish - Pimephales promelas	96 hours
	OECD 210 Fish, Early- Life Stage Toxicity Test	Chronic NOEC 0,229 mg/l	Fish - Oncorhynchus mykiss	87 days
	-	Chronic NOEC 0,17 mg/l	Daphnia - Daphnia magna	21 days



Conclusion/Summary : Not available.

12.2 Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
diphenyl ether	-	50%; 1.7 day(s)	Readily
biphenyl	-	-	Readily

Product/ingredient name	Rate of degradation/ elimination (%)	Period (days)	Test
diphenyl ether	76 %	20 days	OECD 301D Ready Biodegradability - Closed Bottle Test
biphenyl	66 %	14 days	OECD 301C Ready Biodegradability - Modified MITI Test (I)

Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
diphenyl ether	4,21	196	low
biphenyl	4,008	1900	high

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
12.4 Mobility in soil			
Soil/water partition coefficient (K _{oc})	: Not available.		
Mobility	: Not available.		
12.5 Results of PBT and vPvB assessment			
PBT	: Not applicable.		
vPvB	: Not applicable.		
12.6 Other adverse effects			
Other adverse effects	: Not available.		

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).









13.1 Waste treatment methods**Product**

- Methods of disposal** : Examine possibilities for re-utilisation. Product residues and uncleaned empty containers should be packaged, sealed, labelled, and disposed of or recycled according to relevant national and local regulations. Where large quantities are concerned, consult the supplier. When uncleaned empty containers are passed on, the recipient must be warned of any possible hazard that may be caused by residues. For disposal within the EC, the appropriate code according to the European Waste List (EWL) should be used. It is among the tasks of the polluter to assign the waste to waste codes specific to industrial sectors and processes according to the European Waste List (EWL).
- Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

Packaging

- Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
- Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN3082	UN3082	UN3082	UN3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIPHENYL ETHER, DIPHENYL)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIPHENYL ETHER, DIPHENYL)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIPHENYL ETHER, DIPHENYL)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIPHENYL ETHER, DIPHENYL)
14.3 Transport hazard class(es)/ Marks	 	 	 	 
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	Yes.	Yes.	Yes	Yes
14.6 Special precautions for user/Additional information	<u>Hazard identification number</u> 90	<u>Hazard identification number</u> 90	<u>Emergency schedules (EmS)</u> F-A, S-F	<u>Passenger aircraft</u> 964: 450 L <u>Cargo aircraft</u> 964: 450 L

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

Hazard notes:

Environmentally hazardous substance.
Irritating to skin and mucous membranes.
Irritating to the eyes.
Evil smelling.
Keep separated from foodstuffs.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Substances of very high concern

None of the components are listed.

Annex XVII - : Not applicable.

Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Other EU regulations



Seveso II Directive

This product is controlled under the Seveso II Directive.

Danger criteria**Category**

☑1: Hazardous to the aquatic environment - Acute 1 or Chronic 1
C9i: Very toxic for the environment

15.2 Chemical Safety Assessment : Complete.

SECTION 16: Other information**Abbreviations and acronyms**

: ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	Calculation method Regulatory data Calculation method Calculation method Calculation method

Full text of abbreviated H statements : H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Full text of R-phrases referred to in sections 2 and 3 : R36- Irritating to eyes.
R36/37/38- Irritating to eyes, respiratory system and skin.
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Wording of the instructions for use according to Use Descriptor System, to which reference is made in paragraph 1:

ERC02	Formulation of preparations*
ERC07	Industrial use of substances in closed systems
PC16	Heat transfer fluids
PROC01	Use in closed process, no likelihood of exposure
PROC02	Use in closed, continuous process with occasional controlled exposure
PROC03	Use in closed batch process (synthesis or formulation)
PROC04	Use in batch and other process (synthesis) where opportunity for exposure arises
PROC05	Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)
PROC08a	Transfer of substance or preparation (charging/ discharging) from/to vessels/large containers at non-dedicated facilities
PROC08b	Transfer of substance or preparation (charging/ discharging) from/to vessels/large containers at dedicated facilities
PROC09	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

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PROC15	Use as laboratory reagent
PROC16	Using material as fuel sources, limited exposure to unburned product to be expected
SU03	Industrial uses: Uses of substances as such or in preparations* at industrial sites
SU08	Manufacture of bulk, large scale chemicals (including petroleum products)
SU09	Manufacture of fine chemicals
SU10	Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

History

Date of issue : 2013-02-07
Date of previous issue : 2012-09-07
Version : 4.02

☑ Indicates information that has changed from previously issued version.

Notice to reader

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet and its Annex [if required according to Regulation (EC) 1907/2006 (REACH)] is to describe the products in terms of their safety requirements. The given details do not imply any guarantee concerning the composition, properties or performance.



Annex to the extended Safety Data Sheet (eSDS)



Identification of the substance or mixture

Product definition : Mixture
Code : 04829794
Product name : Diphyl

Section 1: - Title

Short title of the exposure scenario : Biphenyl. Formulation (Industrial)
List of use descriptors : **Identified use name:** biphenyl . Formulation (Industrial)
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09
Substance supplied to that use in form of: In a mixture
Sector of end use: SU03, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC02

Name of contributing environmental scenario and corresponding ERC : -ERC02

List of names of contributing worker scenarios and corresponding PROCs : -PROC01, PROC08b
-PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09
-PROC03

Additional information : ERCs for communication purposes only. Risk assessments based on maximum release to typical sewage plant.

Section 2: - Exposure controls

Contributing scenario controlling environmental exposure for : -ERC02	
Product characteristics	: Liquid. Vapour pressure: 1.19 hPa (25 °C)
Amounts used	: Not applicable.
Frequency and duration of use	: Continuous release (d/a) : 300
Environmental factors not influenced by risk management	: Local freshwater dilution factor: 10 If receiving surface water flow is (m ³ /d): 18.000. Local marine water dilution factor: 100
Other given operational conditions affecting environmental exposure	: Water: Release to sewage is set to maximum of 3 kg/d for sites discharging to freshwater and 0.33 kg/d for sites discharging to the sea. Percentage release to air : 0.005 Percentage release to soil : 0
Technical conditions and measures at process level (source) to prevent release	: No special measures required.

<i>Diphyl</i>	<i>Biphenyl. Formulation (Industrial)</i>
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: The waste water has to be directed to a dedicated sewage treatment plant or treated by other suitable techniques. Floor should be impervious and resistant to liquid.
Organisational measures to prevent/limit release from site	: Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised.
Conditions and measures related to municipal sewage treatment plant	: Size of sewage treatment plant (m ³ /d): 2000 Removal rate (%): 89.9
Conditions and measures related to external treatment of waste for disposal	: No special measures required. General information on waste disposal see section 13.
Conditions and measures related to external recovery of waste	: No special measures required. General information on waste disposal see section 13.
Contributing scenario controlling worker exposure for : -PROC01, PROC08b	
Product characteristics	: Vapour pressure: 1.19 (25 °C)
Concentration of substance in mixture or article	: 100 %
Physical state	: solid
Dust	: low
Amounts used	: Not applicable.
Frequency and duration of use	: Continuous release (d/a) : 230 Exposure duration (h/d): 8
Other given operational conditions affecting workers exposure	: Indoor use.
Technical conditions and measures to control dispersion from source towards the worker	: According to the given conditions: No special measures are required.
Organisational measures to prevent/limit releases, dispersion and exposure	: Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised.
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection	: Wear protective clothing as described in section 8. PROC8b : Wear gloves as described in section 8. (efficiency %): 80



Contributing scenario controlling worker exposure for : -PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09

Product characteristics	: Physical state: Liquid. Vapour pressure: (25 °C) 1.19 Pa
Concentration of substance in mixture or article	: > 25%
Physical state	: solution
Dust	: low
Amounts used	: Not applicable.
Frequency and duration of use	: Continuous release (d/a) : 230 Exposure duration (h/d): 8
Human factors not influenced by risk management	: Respiratory volume (m ³ /d): 10 (light activity)
Other given operational conditions affecting workers exposure	: Indoor use.
Technical conditions and measures to control dispersion from source towards the worker	: PROC01, PROC02: According to the given conditions: No special measures are required. PROC03, PROC04, PROC05, PROC8a, PROC09: Local exhaust ventilation required. (efficiency %): 90 PROC8b: Local exhaust ventilation required. (efficiency %): 97
Organisational measures to prevent/limit releases, dispersion and exposure	: Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and strictly supervised.
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection	: Wear protective clothing as described in section 8. PROC03, PROC04, PROC05, PROC8a, PROC8b, PROC09 : Wear gloves as described in section 8. (efficiency %): 80

Contributing scenario controlling worker exposure for : -PROC03

Product characteristics	: Physical state: Liquid. Vapour pressure: (25 °C) 1.19 Pa
Concentration of substance in mixture or article	: > 25%
Physical state	: solution
Dust	: low
Amounts used	: Not applicable.
Frequency and duration of use	: Continuous release (d/a) : 230 Exposure duration (h/d): ≤ 1
Human factors not influenced by risk management	: Respiratory volume (m ³ /d): 10 (light activity)



<i>Diphyl</i>	<i>Biphenyl. Formulation (Industrial)</i>
Other given operational conditions affecting workers exposure	: Indoor use.
Technical conditions and measures to control dispersion from source towards the worker	: According to the given conditions: No special measures are required.
Organisational measures to prevent/limit releases, dispersion and exposure	: Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised.
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection	: Wear protective clothing as described in section 8. Wear gloves as described in section 8. (efficiency %): 80

Section 3: - Exposure estimation and reference to its source

Website:	: Not available.
Exposure estimation and reference to its source - Environment: -ERC02	
Exposure assessment (environment):	: EUSES 2.1
Exposure estimation	: The predicted exposure concentrations for air, the aquatic and the terrestrial environment are below derived PNEC values, resulting in RCRs < 1.
Exposure estimation and reference to its source - Workers: -PROC01, PROC08b	
Exposure assessment (human):	: Used ECETOC TRA model (May 2010 release). (2010/04)
Exposure estimation	: The calculated individual and combined (dermal and inhalation) exposure values are below the DNELs (RCR < 1).
Exposure estimation and reference to its source - Workers: -PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09	
Exposure assessment (human):	: Used ECETOC TRA model (May 2010 release). (2010/04)
Exposure estimation	: The calculated individual and combined (dermal and inhalation) exposure values are below the DNELs (RCR < 1).
Exposure estimation and reference to its source - Workers: -PROC03	
Exposure assessment (human):	: Used ECETOC TRA model (May 2010 release). (2010/04)
Exposure estimation	: The calculated individual and combined (dermal and inhalation) exposure values are below the DNELs (RCR < 1).

Section 4: - Guidance to DU to evaluate whether he works inside the boundaries set by the ES



<i>Diphyl</i>	<i>Biphenyl. Formulation (Industrial)</i>
Environment	: Under the above listed conditions the process is deemed safe. Other conditions should only be considered when measurements or suitable calculations show that the RCR is < 1.
Health	: Under the above listed conditions the process is deemed safe. Other conditions should only be considered when measurements or suitable calculations show that the RCR is < 1.

Additional good practice advice beyond the REACH CSA

Environment	: Not applicable.
Health	: On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. See Section 8 for information on appropriate personal protective equipment.



Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition : Mixture
Code : 04829794
Product name : Diphyl

Section 1: - Title

Short title of the exposure scenario : Biphenyl. Heat transfer fluids (Industrial)
List of use descriptors : **Identified use name:** biphenyl. heat transfer fluid (Industrial)
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC09, PROC16
Substance supplied to that use in form of: In a mixture
Sector of end use: SU03, SU08, SU09
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC07
Market sector by type of chemical product: PC16
Name of contributing environmental scenario and corresponding ERC : - ERC07
List of names of contributing worker scenarios and corresponding PROCs : - PROC01, PROC02, PROC03, PROC8a, PROC8b, PROC09, PROC16
- PROC03

Additional information	: ERC only for communication purposes. Risk assessment based on Expert judgement
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Section 2: - Exposure controls

Contributing scenario controlling environmental exposure for : - ERC07	
Product characteristics	: solution
Amounts used	: No relevant quantities of the substance released.
Frequency and duration of use	: Continuous release (d/a) : No or negligible emissions to the environment.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: According to the given conditions: No special measures are required.
Organisational measures to prevent/limit release from site	: Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised.
Conditions and measures related to external treatment of waste for disposal	: No special measures required. General information on waste disposal see section 13.



Conditions and measures related to external recovery of waste : No special measures required. General information on waste disposal see section 13.

Contributing scenario controlling worker exposure for : - PROC01, PROC02, PROC03, PROC8a, PROC8b, PROC09, PROC16

Product characteristics : Vapour pressure: (20 °C) 1.19 Pa

Concentration of substance in mixture or article : > 25%

Physical state : Liquid.

Amounts used : Not applicable.

Frequency and duration of use : Exposure frequency (d/a) : 230
Exposure duration (h/d): 8

Human factors not influenced by risk management : Respiratory volume (m³/d): 10 (light activity)

Other given operational conditions affecting workers exposure : Indoor use.
Product is used in solution.

Technical conditions and measures to control dispersion from source towards the worker : PROC01, PROC02, PROC16:
According to the given conditions: No special measures are required.
PROC03, PROC8a, PROC09:
Local exhaust ventilation required. (efficiency %): 90
PROC08b:
Local exhaust ventilation required. (efficiency %): 97

Organisational measures to prevent/limit releases, dispersion and exposure : Only properly trained and authorised personnel shall handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection : Wear protective clothing as described in section 8.
PROC03, PROC8a, PROC8b, PROC09 :
Wear gloves as described in section 8. (efficiency %): 80

Contributing scenario controlling worker exposure for : - PROC03

Product characteristics : Vapour pressure: (25 °C) 1.19 Pa

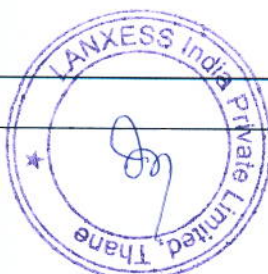
Concentration of substance in mixture or article : > 25%

Physical state : Liquid.

Amounts used : Not applicable.

Frequency and duration of use : Exposure frequency (d/a) :230
Exposure duration (h/d): ≤ 1

Human factors not influenced by risk management : Respiratory volume (m³/d): 10 (light activity)



<i>Diphyl</i>	<i>Biphenyl. Heat transfer fluids (Industrial)</i>
Other given operational conditions affecting workers exposure	: Indoor use. Product is used in solution.
Technical conditions and measures to control dispersion from source towards the worker	: According to the given conditions: No special measures are required.
Organisational measures to prevent/limit releases, dispersion and exposure	: Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised.
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection	: Wear protective clothing as described in section 8. Wear gloves as described in section 8. (efficiency %): 80

Section 3: - Exposure estimation and reference to its source

Website:	: Not available.
Exposure estimation and reference to its source - Environment: - ERC07	
Exposure assessment (environment):	: Expert judgement
Exposure estimation	: No or negligible emissions to the environment.
Exposure estimation and reference to its source - Workers: - PROC01, PROC02, PROC03, PROC8a, PROC8b, PROC09, PROC16	
Exposure assessment (human):	: Used ECETOC TRA model (May 2010 release). (2010/04)
Exposure estimation	: The calculated individual and combined (dermal and inhalation) exposure values are below the DNELs (RCR < 1).
Exposure estimation and reference to its source - Workers: - PROC03	
Exposure assessment (human):	: Used ECETOC TRA model (May 2010 release). (2010/04)
Exposure estimation	: The calculated individual and combined (dermal and inhalation) exposure values are below the DNELs (RCR < 1).

Section 4: - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	: Under the above listed conditions the process is deemed safe. Other conditions should only be considered when measurements or suitable calculations show that the RCR is < 1.
Health	: Under the above listed conditions the process is deemed safe. Other conditions should only be considered when measurements or suitable calculations show that the RCR is < 1.

Additional good practice advice beyond the REACH CSA



<i>Diphyl</i>	<i>Biphenyl. Heat transfer fluids (Industrial)</i>
Environment	: Not applicable.
Health	: On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. See Section 8 for information on appropriate personal protective equipment.



Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition : Mixture
Code : 04829794
Product name : Diphyl

Section 1: - Title

Short title of the exposure scenario : Diphenylether. Formulation (Industrial)
List of use descriptors : **Identified use name:** diphenyl ether. Formulation (Industrial)
Process Category: PROC01, PROC03, PROC05, PROC08a, PROC08b, PROC09, PROC15
Substance supplied to that use in form of: In a mixture
Sector of end use: SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC02
Name of contributing environmental scenario and corresponding ERC : -ERC02
List of names of contributing worker scenarios and corresponding PROCs : -PROC01, PROC03, PROC05, PROC08a, PROC08b, PROC09, PROC15

Additional information : ERC only for communication purposes.

Section 2: - Exposure controls

Contributing scenario controlling environmental exposure for : -ERC02

Product characteristics : Liquid.
Vapour pressure: 2.7 hPa (20 °C)
Amounts used : Annual site tonnage (t/a): 25.
Frequency and duration of use : Continuous release (d/a) : 220.
Environmental factors not influenced by risk management : Local freshwater dilution factor: 10.
If receiving surface water flow is (m³/d): 18.000.
Local marine water dilution factor: 100.
Other given operational conditions affecting environmental exposure : Indoor setting
Technical conditions and measures at process level (source) to prevent release : Percentage release to waste water : 0.01.
Percentage release to air : 0.02.
Percentage release to soil : 0.
Use at ambient temperature.



Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: The waste water has to be directed to a dedicated sewage treatment plant or treated by other suitable techniques. Typical on-site wastewater treatment technology provides removal efficiency of (%): 99. Treat air emission to provide a typical removal efficiency of (%): 99. Floor should be impervious and resistant to liquid.
Organisational measures to prevent/limit release from site	: Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised.
Conditions and measures related to municipal sewage treatment plant	: Size of sewage treatment plant (m ³ /d): 2.000. (Removal rate %): 87.
Conditions and measures related to external treatment of waste for disposal	: No special measures required. General information on waste disposal see section 13.
Conditions and measures related to external recovery of waste	: No special measures required. General information on waste disposal see section 13.

Contributing scenario controlling worker exposure for : -PROC01, PROC03, PROC05, PROC08a, PROC08b, PROC09, PROC15

Product characteristics	: Vapour pressure: 2.7 hPa (20 °C)
Concentration of substance in mixture or article	: <= 100.
Physical state	: Liquid.
Frequency and duration of use	: Exposure frequency (d/a) : 230 . Exposure duration (h/d): PROC01, PROC03, PROC08b : 8. PROC05, PROC09, PROC15 : <4 . PROC08a : < 1. Respiratory protection is required for: (efficiency %): 90. PROC08a : < 4.
Human factors not influenced by risk management	: Respiratory volume (m ³ /d): 10. (light activity)
Other given operational conditions affecting workers exposure	: Indoor setting Use at ambient temperature. Up to 30 °C
Technical conditions and measures at process level (source) to prevent release	: No special measures required.



<i>Diphyl</i>	<i>Diphenylether. Formulation (Industrial)</i>
Technical conditions and measures to control dispersion from source towards the worker	: Local exhaust ventilation required. (efficiency %):> 90.
Organisational measures to prevent/limit releases, dispersion and exposure	: Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised.
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection	: Wear protective clothing as described in section 8. Wear eye protection. Tightly-fitting goggles
	Respiratory protection is required for: PROC08a : 1 - 4 h (efficiency %): 90.

Section 3: - Exposure estimation and reference to its source

Website:	: Not available.
Exposure estimation and reference to its source - Environment: -ERC02	
Exposure assessment (environment):	: Not available.
Exposure estimation	: Not available.
Exposure estimation and reference to its source - Workers: -PROC01, PROC03, PROC05, PROC08a, PROC08b, PROC09, PROC15	
Exposure assessment (human):	: ECETOC TRA V2 (07/2009)
Exposure estimation	: The calculated individual and combined (dermal and inhalation) exposure values are below the DNELs (RCR < 1).

Section 4: - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	: Under the above listed conditions the process is deemed safe. Other conditions should only be considered when measurements or suitable calculations show that the RCR is < 1.
Health	: Under the above listed conditions the process is deemed safe. Other conditions should only be considered when measurements or suitable calculations show that the RCR is < 1.

Additional good practice advice beyond the REACH CSA

Environment	: Not applicable.
Health	: On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. See Section 8 for information on appropriate personal protective equipment.



Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition : Mixture
Code : 04829794
Product name : Diphyl

Section 1: - Title

Short title of the exposure scenario : Diphenylether. Heat transfer fluid (Industrial)
List of use descriptors : **Identified use name:** diphenyl ether . heat transfer fluid (Industrial)
Process Category: PROC01, PROC03, PROC08a, PROC08b, PROC09, PROC15, PROC16
Substance supplied to that use in form of: In a mixture
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC07
Name of contributing environmental scenario and corresponding ERC : -ERC07
List of names of contributing worker scenarios and corresponding PROCs : -PROC01, PROC03, PROC08a, PROC08b, PROC09, PROC15, PROC16

Additional information	: ERCs for communication purposes only. As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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Section 2: - Exposure controls

Contributing scenario controlling environmental exposure for : -ERC07	
Other given operational conditions affecting environmental exposure	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Contributing scenario controlling worker exposure for : -PROC01, PROC03, PROC08a, PROC08b, PROC09, PROC15, PROC16	
Product characteristics	: Vapour pressure: 2.7 Pa (20 °C)
Concentration of substance in mixture or article	: ≤ 100%
Physical state	: Liquid.
Amounts used	: Not applicable.



<i>Diphyl</i>	<i>Diphenylether. Heat transfer fluid (Industrial)</i>
Frequency and duration of use	: Exposure frequency (d/a) : 230. Exposure duration (h/d): PROC01, PROC03, PROC08b, PROC16 : 8. PROC09, PROC15 : < 4. PROC08a : < 1. Respiratory protection is required for: (efficiency %): 90. PROC08a : < 4.
Human factors not influenced by risk management	: Respiratory volume (m ³ /d): 10. (light activity)
Other given operational conditions affecting workers exposure	: Indoor setting Use at ambient temperature. Up to 30 °C
Technical conditions and measures at process level (source) to prevent release	: None
Technical conditions and measures to control dispersion from source towards the worker	: Local exhaust ventilation required. (efficiency %): 90.
Organisational measures to prevent/limit releases, dispersion and exposure	: Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised.
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection	: Wear protective clothing as described in section 8. Tightly-fitting goggles Respiratory protection is required for: PROC08a : 1 - 4h (efficiency %): 90.

Section 3: - Exposure estimation and reference to its source

Website:	: Not available.
Exposure estimation and reference to its source - Environment: -ERC07	
Exposure assessment (environment):	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Exposure estimation	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Exposure estimation and reference to its source - Workers: -PROC01, PROC03, PROC08a, PROC08b, PROC09, PROC15, PROC16	
Exposure assessment (human):	: ECETOC TRA V2 (2009/07)
Exposure estimation	: The calculated individual and combined (dermal and inhalation) exposure values are below the DNELs (RCR < 1).



Section 4: - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	: Under the above listed conditions the process is deemed safe. Other conditions should only be considered when measurements or suitable calculations show that the RCR is < 1.
Health	: Under the above listed conditions the process is deemed safe. Other conditions should only be considered when measurements or suitable calculations show that the RCR is < 1.

Additional good practice advice beyond the REACH CSA

Environment	: Not applicable.
Health	: On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. See Section 8 for information on appropriate personal protective equipment.

