SAFETY DATA SHEET

BENZOIC ACID METHYLESTER, TECHNICAL

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

1.1 Product identifier

Product name : BENZOIC ACID METHYLESTER, TECHNICAL

EC number : 202-259-7

REACH Registration number

Registration number	Legal entity
01-2119969268-21-0002	-

CAS number : 93-58-3

Other means of identification : BME, TECHN., Benzoic acid, methyl ester; Methyl benzenecarboxylate; Methyl-benzenecarboxylate; Benzoic methyl ester

Chemical formula : C8-H8-O2

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

Identified uses
ES01: Manufacture of substance - Manufacture/Industrial: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08b, PROC09, PROC15; ERC01 **ES02:** Formulation into mixture - Formulation or re-packing/Industrial: PC09a, PC12, PC21, PC24, PC28, PC32, PC35, PC40; PROC01, PROC02, PROC03, PROC04, PROC05, PROC08b, PROC09, PROC15; ERC02 **ES03:** Use at industrial sites - Industrial: SU01, SU02b, SU08, SU09, SU12; PC09a, PC12, PC21, PC24, PC28, PC32, PC35, PC40; PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC12, PROC13, PROC15; ERC04, ERC05, ERC06a, ERC06b **ES04:** Widespread use by professional workers, Use in cleaning agents - Professional: PC09a, PC28, PC35; PROC01, PROC03, PROC04, PROC08a, PROC10, PROC11, PROC13, PROC19; ERC08a

See Annex to the Safety data sheet for additional information in the Exposure Scenario(s).

1.3 Details of the supplier of the safety data sheet

Oxxynova GmbH
Borsteler Weg 50
D-31595 Steyerberg
Tel.: +49 5764 291 0
Fax: +49 5764 291 114

e-mail address of person responsible for this SDS : info@oxxynova.com

1.4 Emergency telephone number

Supplier

Telephone number : +49 (0)2365 49-2232 (Interpreting service available), +49 (0)2365 49-4423 (Telefax)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mono-constituent substance

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

Acute Tox. 4, H302

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

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

2.2 Label elements

SECTION 2: Hazards identification

Hazard pictograms :

Signal word : Warning

Hazard statements : H302 - Harmful if swallowed.

Precautionary statements

Prevention : P270 - Do not eat, drink or smoke when using this product.
P264 - Wash hands thoroughly after handling.

Response : P301 + P312 + P330 - IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.

Storage : Not applicable.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients : methyl benzoate

Supplemental label elements : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII :

PBT	P	B	T	vPvB	vP	vB
No	No	No	No	No	No	No

Other hazards which do not result in classification : Vapours may form explosive mixtures with air.

SECTION 3: Composition/information on ingredients

3.1 Substances : Mono-constituent substance

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
methyl benzoate	REACH #: 01-2119969268-21 EC: 202-259-7 CAS: 93-58-3	70 - 85	Acute Tox. 4, H302 **See Section 16 for the full text of the H statements declared above.**	[A]

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

[A] Constituent
[B] Impurity
[C] Stabilising additive

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

SECTION 4: First aid measures

4.1 Description of first aid measures

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 if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 adverse health effects persist or are severe. 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.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. 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.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam. Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : Do not 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.

SECTION 5: Firefighting measures

Hazardous combustion products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

5.3 Advice for firefighters

Special protective actions 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.

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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

Additional information (Explosibility) : Not expected based on structure. Vapours may form explosive mixtures with air.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials.
See also the information in "For non-emergency personnel".

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).

6.3 Methods and material 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. Alternatively, or if water-insoluble, 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. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. 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. Dispose of via a licensed waste disposal contractor. 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

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. 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. Do not reuse container.

SECTION 7: Handling and storage

Advice on general occupational hygiene : 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. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. 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. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Section 7. Handling and storage: The information in this section contains generic advice and guidance.

SECTION 8: Exposure controls/personal protection

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

Occupational exposure limits

No exposure limit value known.

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.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
methyl benzoate	DNEL	Long term Oral	5.57 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	5.57 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	9.68 mg/m³	General population	Systemic
	DNEL	Long term Dermal	11 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	39.3 mg/m³	Workers	Systemic

PNECs

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Compartment Detail	Value	Method Detail
methyl benzoate	Fresh water	0.023 mg/l	Assessment Factors
	Marine water	0.002 mg/l	Assessment Factors
	Fresh water sediment	0.492 mg/kg dwt	Equilibrium Partitioning
	Marine water sediment	0.049 mg/kg dwt	Equilibrium Partitioning
	Sewage Treatment Plant	8.15 mg/l	Assessment Factors
	Soil	0.085 mg/kg dwt	Equilibrium Partitioning

8.2 Exposure controls

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

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.

Eye/face 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. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
Recommended: Wear safety glasses with side protection in accordance with EN 166.

Skin protection

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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Recommended: Wear suitable gloves tested to EN374.
Chloroprene/Nitrile gloves. Nitopren 717, Kächele-Cama Latex GmbH (KCL), Germany, thickness 0.65 mm, > 8 hours (breakthrough time): DIN EN 374.
Nitrile gloves. Camatril (731), Kächele-Cama Latex GmbH (KCL), Germany, thickness 0.33 mm, > 8 hours (breakthrough time): DIN EN 374.

Body 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.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
Recommended: Combination filtering device (DIN EN 14387), Filter type: A (P2).

Environmental exposure controls : 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

Appearance

Physical state	:	Liquid. [Oily liquid.]
Colour	:	Colourless to light yellow.
Odour	:	Ester.
Odour threshold	:	Not available.
pH	:	Not available.
Melting point/freezing point	:	-14.5°C
Initial boiling point and boiling range	:	199.5°C (OECD 103)
Flash point	:	Closed cup: 77°C [EU Method A.9]
Evaporation rate	:	Not available.
Flammability (solid, gas)	:	Not applicable.
Upper/lower flammability or explosive limits	:	Lower: 8.6% Upper: 20%
Vapour pressure	:	50.7 Pa (25°C)
Vapour density	:	Not available.
Relative density	:	1.09 (OECD 109)
Density	:	1.0878 g/cm³ [20°C]
Solubility(ies)	:	Not available.
Solubility in water	:	2.1 g/l (20°C)
Partition coefficient: n-octanol/water	:	2.2
Auto-ignition temperature	:	542°C (Method Used: EU A.15)
Decomposition temperature	:	Not available.
Viscosity	:	Dynamic (room temperature): 1.94 mPa·s (EN ISO 3219: 1994)
Explosive properties	:	Not expected based on structure. Vapours may form explosive mixtures with air.
Oxidising properties	:	Not expected based on structure.

9.2 Other information

Molecular weight	:	136.148 g/mole

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 : Prevent the creation of flammable or explosive concentrations of vapours in air and avoid vapour concentrations higher than the occupational exposure limits.

10.5 Incompatible materials : Reactive or incompatible with the following materials: Strong oxidising materials, strong acids, strong alkalis.

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

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure	Remarks
methyl benzoate	LD50 Dermal [OECD 402]	Rabbit - Male, Female	>2000 mg/kg	-	Mortality: None.
	LD50 Dermal	Rat - Male, Female	>5000 mg/kg	-	test substance: CAS no. 65-85-0 (read-across)
	LD50 Oral [OECD 401]	Rat - Male	1625 mg/kg	-	-

Conclusion/Summary : Harmful if swallowed.

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
methyl benzoate	1625	N/A	N/A	N/A	N/A

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation	Remarks
methyl benzoate	Skin - Non-irritating to the skin. [OECD 404]	Rabbit	-	-	-	-
	Eyes - Non-irritating to the eyes. [OECD 405]	Rabbit	-	-	-	-

Conclusion/Summary

Eyes : Based on available data, the classification criteria are not met.

Sensitisation

Product/ingredient name	Route of exposure	Species	Result	Remarks
methyl benzoate	skin	Mouse	Not sensitizing [OECD 429]	-

Conclusion/Summary

Skin : Based on available data, the classification criteria are not met.

Mutagenicity

Product/ingredient name	Test	Experiment	Result	Remarks
methyl benzoate	OECD 471	Experiment: In vitro Subject: Bacteria	Negative	-
	OECD 476	Experiment: In vitro Subject: Mammalian-Animal	Negative	-
	OECD 487	Experiment: In vitro Subject: Mammalian-Human	Negative	-

Conclusion/Summary : Based on available data, the classification criteria are not met.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

SECTION 11: Toxicological information

Product/ingredient name	Maternal toxicity	Fertility	Developmental toxin	Species	Dose	Exposure	Remarks
methyl benzoate	-	-	-	Rat - Male, Female	Oral: 557 mg/kg NOEL	-	test substance: CAS no. 65-85-0 (read-across)

Conclusion/Summary : Based on available data, the classification criteria are not met.

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure	Remarks
methyl benzoate	Negative - Oral [OECD 414]	Rat	165 mg/kg NOEL	-	test substance: CAS no. 532-32-1 (read-across)

Conclusion/Summary : Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure	Remarks
methyl benzoate	Chronic NOEL Oral	Rat - Male, Female	557 mg/kg	-	test substance: CAS no. 65-85-0 (read-across)

Conclusion/Summary : Based on available data, the classification criteria are not met.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure	Remarks
methyl benzoate	Acute EC50 111.9 mg/l Fresh water [EU Method C.3]	Aquatic plants - Desmodesmus subspicatus	72 hours	-
	Acute LC50 28.5 mg/l Fresh water [QSAR (ECOSAR v1.00)]	Daphnia - Daphnia magna	48 hours	-
	Acute LC50 23 mg/l Fresh water [EU Method C.1]	Fish - Danio rerio	96 hours	-
	Chronic NOEC 62.4 mg/l Fresh water [EU Method C.3]	Aquatic plants - Desmodesmus subspicatus	72 hours	-

Conclusion/Summary : Based on available data, the classification criteria are not met.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
methyl benzoate	EU Method C. 4-C	62 % - Readily - 29 days	-	Activated sludge

Conclusion/Summary : Readily biodegradable.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
methyl benzoate	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
methyl benzoate	2.2	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) : 178

Mobility : Not available.

SECTION 12: Ecological information

12.5 Results of PBT and vPvB assessment

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
methyl benzoate	No	No	No	No	No	No	No

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance.

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

The allocation of waste identity numbers/waste descriptions must be carried out according to the EWC, specific to the industry and process.

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.

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	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
Label				
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	Marine Pollutant: No	No.

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code : Not applicable.

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

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Other EU regulations

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

National regulations

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia inventory (AICS) : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : **Japan inventory (ENCS):** This material is listed or exempted.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Taiwan : This material is listed or exempted.

Turkey : This material is listed or exempted.

United States : This material is listed or exempted.

Viet Nam : This material is listed or exempted.

SECTION 15: Regulatory information

15.2 Chemical safety assessment : Complete.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
EWC = European Waste Catalogue
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
RRN = REACH Registration Number
SGG = Segregation Group
vPvB = Very Persistent and Very Bioaccumulative

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

Classification	Justification
Acute Tox. 4, H302	On basis of test data

Full text of abbreviated H statements

H302	Harmful if swallowed.

Full text of classifications [CLP/GHS]

Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4

Date of printing : 20/11/2019

Date of issue/ Date of revision : 20/11/2019

Date of previous issue : No previous validation

Version : 1

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mono-constituent substance

Product name : BENZOIC ACID METHYLESTER, TECHNICAL

Section 1 - Title

Short title of the exposure scenario : Manufacture

List of use descriptors : **Identified use name: ES01:** Manufacture of substance - Manufacture/Industrial: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08b, PROC09, PROC15; ERC01
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08b, PROC09, PROC15
Substance supplied to that use in form of: As such
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC01

Environmental contributing scenarios : **Manufacture of the substance -** ERC01

Health Contributing scenarios : **Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions -** PROC01
Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions - PROC02
Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition - PROC03
Chemical production where opportunity for exposure arises - PROC04
Mixing or blending in batch processes - PROC05
Transfer of substance or mixture (charging and discharging) at dedicated facilities - PROC08b
Transfer of substance or mixture into small containers (dedicated filling line, including weighing) - PROC09
Use as laboratory reagent - PROC15

Number of the ES : 1

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: Manufacture of the substance

Amounts used : Daily amount per site: ≤3.33 tonnes/day.
Annual amount per site: ≤999 tonnes/year.

Frequency and duration of use : Emission days: ≤300 days per year.

Other conditions affecting environmental exposure : Receiving surface water flow: 18000 m³/d.

Release to waste water from process:
Release factor after on-site risk management: 0%.

Release to air from process:
Release factor after on-site risk management: 0.1%. (EUTGD Part II table A1.1)
Local release rate: 3.33 kg/day.

Release to soil from process:
Release factor after on-site risk management: 0%.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	:	Waste water treatment: Incineration (Water - minimum efficiency of 100%) Suitable technique(s) to limit releases to air: Gas scrubber, Activated carbon adsorption
Conditions and measures related to sewage treatment plant	:	Sewage Treatment Plant: Yes. (Efficiency of at least 87.72%) Discharge rate: ≥2000 m^3/d. Application of the STP sludge on agricultural soil: Yes.
Conditions and measures related to external treatment of waste for disposal	:	Send to an appropriate hazardous waste incineration facility, in compliance with legislation.

Contributing scenario controlling worker exposure for: All Contributing scenarios

Product characteristics	:	Liquid. Vapour pressure: 133.2 Pa (40 °C).
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours.
Other conditions affecting workers exposure	:	Indoor use Process temperature: ≤40 °C.
Technical conditions and measures to control dispersion from source towards the worker	:	Occupational Health and Safety Management System: Advanced Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Contributing scenario controlling worker exposure for 2: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

No other specific measures identified.

Contributing scenario controlling worker exposure for 3: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

No other specific measures identified.

Contributing scenario controlling worker exposure for 4: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

No other specific measures identified.

Contributing scenario controlling worker exposure for 5: Chemical production where opportunity for exposure arises

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

Personal protection	:	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 6: Mixing or blending in batch processes

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

Personal protection	:	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 7: Transfer of substance or mixture (charging and discharging) at dedicated facilities

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

Personal protection	:	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 8: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

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

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 9: Use as laboratory reagent

No other specific measures identified.

Section 3 - Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment: 1: Manufacture of the substance

Exposure assessment (environment): : EUSES 2.1.2

Exposure estimation : Freshwater: 0.000113 mg/l.
Risk characterisation ratio (PEC/PNEC): <0.01.

Freshwater sediment: 0.00242 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): <0.01.

Marine water: 0.0000106 mg/l.
Risk characterisation ratio (PEC/PNEC): <0.01.

Marine water sediment: 0.000227 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): <0.01.

Sewage Treatment Plant: 0 mg/l.
Risk characterisation ratio (PEC/PNEC): <0.01.

Soil: 0.000157 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): <0.01.

Remark : Based on the applied RMMs the risk towards environment is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 2: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 0.057 mg/m³.
Risk characterisation ratio: <0.01.

Worker - dermal, long-term - systemic: 0.034 mg/kg bw/day.
Risk characterisation ratio: <0.01.

Worker - combined, long-term - systemic: <0.01.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 3: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 5.673 mg/m³.
Risk characterisation ratio: 0.144.

Worker - dermal, long-term - systemic: 1.37 mg/kg bw/day.
Risk characterisation ratio: 0.125.

Worker - combined, long-term - systemic: 0.269.

Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 4: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 17.01 mg/m³. Risk characterisation ratio: 0.433. **Worker - dermal, long-term - systemic:** 0.69 mg/kg bw/day. Risk characterisation ratio: 0.063. **Worker - combined, long-term - systemic:** 0.496.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 5: Chemical production where opportunity for exposure arises

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 28.36 mg/m³. Risk characterisation ratio: 0.722. **Worker - dermal, long-term - systemic:** 0.686 mg/kg bw/day. Risk characterisation ratio: 0.062. **Worker - combined, long-term - systemic:** 0.784.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 6: Mixing or blending in batch processes

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 28.36 mg/m³. Risk characterisation ratio: 0.722. **Worker - dermal, long-term - systemic:** 1.371 mg/kg bw/day. Risk characterisation ratio: 0.125. **Worker - combined, long-term - systemic:** 0.846.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 7: Transfer of substance or mixture (charging and discharging) at dedicated facilities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 28.36 mg/m³. Risk characterisation ratio: 0.722. **Worker - dermal, long-term - systemic:** 1.371 mg/kg bw/day. Risk characterisation ratio: 0.125. **Worker - combined, long-term - systemic:** 0.846.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 8: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 28.36 mg/m³. Risk characterisation ratio: 0.722. **Worker - dermal, long-term - systemic:** 0.686 mg/kg bw/day. Risk characterisation ratio: 0.062. **Worker - combined, long-term - systemic:** 0.784.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 9: Use as laboratory reagent

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 28.36 mg/m³. Risk characterisation ratio: 0.722. **Worker - dermal, long-term - systemic:** 0.34 mg/kg bw/day. Risk characterisation ratio: 0.031. **Worker - combined, long-term - systemic:** 0.753.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

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

General	:	The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use. If other OC/RMM are adopted, the user has to ensure that risks are managed to at least equivalent levels. The risk assessment methods/tools given in section 3 may be used for this evaluation.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mono-constituent substance

Product name : BENZOIC ACID METHYLESTER, TECHNICAL

Section 1 - Title

Short title of the exposure scenario : Formulation or re-packing; Various products (PC9a, PC12, PC21, PC24, PC28, PC32, PC35, PC40)

List of use descriptors :
Identified use name: ES02: Formulation into mixture - Formulation or re-packing/ Industrial: PC09a, PC12, PC21, PC24, PC28, PC32, PC35, PC40; PROC01, PROC02, PROC03, PROC04, PROC05, PROC08b, PROC09, PROC15; ERC02
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08b, PROC09, PROC15
Substance supplied to that use in form of: As such
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC02
Market sector by type of chemical product: PC09a, PC12, PC21, PC24, PC28, PC32, PC35, PC40

Environmental contributing scenarios :
Washing and cleaning products - ERC02
Coatings - ERC02
Perfumes, fragrances - ERC02
Various products - ERC02

Health Contributing scenarios :
Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions - PROC01
Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions - PROC02
Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition - PROC03
Chemical production where opportunity for exposure arises - PROC04
Mixing or blending in batch processes - PROC05
Transfer of substance or mixture (charging and discharging) at dedicated facilities - PROC08b
Transfer of substance or mixture into small containers (dedicated filling line, including weighing) - PROC09
Use as laboratory reagent - PROC15

Number of the ES : 2

Additional information : Information concerning technical function: Catalyst.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: Washing and cleaning products

Amounts used : Daily amount per site: ≤3.996 tonnes/day.
Annual amount per site: ≤999 tonnes/year.

Frequency and duration of use : Emission days: ≤250 days per year.

Other conditions affecting environmental exposure : Release to waste water from process:
Release factor after on-site risk management: 0.01%. (AISE SPERC 2.1.g.v2)
Local release rate: 0.4 kg/day.

Release to air from process:
Release factor after on-site risk management: 0%. (AISE SPERC 2.1.g.v2)

Release to soil from process:
Release factor after on-site risk management: 0%. (AISE SPERC 2.1.g.v2)

Technical conditions and measures at process level (source) to prevent release	:	Equipment cleaning with minimized emissions to wastewater. Substance applied in aqueous process solution with negligible volatilization. Process optimised for highly efficient use of raw materials.
Organisational measures to prevent/limit release from site	:	General good practice: Trained staff, spill protection including waste reuse.
Conditions and measures related to sewage treatment plant	:	Sewage Treatment Plant: Yes. (Efficiency of at least 87.72%) Discharge rate: ≥2000 m³/d. Application of the STP sludge on agricultural soil: Yes.
Conditions and measures related to external treatment of waste for disposal	:	Send to an appropriate hazardous waste incineration facility, in compliance with legislation.

Contributing scenario controlling environmental exposure for 2: Coatings

Amounts used	:	Daily amount per site: ≤9.99 tonnes/day. Annual amount per site: ≤999 tonnes/year.
Frequency and duration of use	:	Emission days: ≤100 days per year.
Other conditions affecting environmental exposure	:	Release to waste water from process: Release factor after on-site risk management: 0%. (CEPE SPERC 2.2a.v1) Release to air from process: Release factor after on-site risk management: 3%. (CEPE SPERC 2.2a.v1) Local release rate: 299.7 kg/day. Release to soil from process: Release factor after on-site risk management: 0%.
Conditions and measures related to sewage treatment plant	:	Sewage Treatment Plant: Yes. (Efficiency of at least 87.72%) Discharge rate: ≥2000 m³/d. Application of the STP sludge on agricultural soil: Yes.
Conditions and measures related to external treatment of waste for disposal	:	Send to an appropriate hazardous waste incineration facility, in compliance with legislation.

Contributing scenario controlling environmental exposure for 3: Perfumes, fragrances

Amounts used	:	Daily amount per site: ≤1 tonnes/day. Annual amount per site: ≤250 tonnes/year.
Frequency and duration of use	:	Emission days: ≤250 days per year.
Other conditions affecting environmental exposure	:	Release to waste water from process: Release factor after on-site risk management: 0.2%. (IFRA SPERC 2.1.a.v1) Local release rate: 2 kg/day. Release to air from process: Release factor after on-site risk management: 2.5%. (ERC02) Local release rate: 25 kg/day. Release to soil from process: Release factor after on-site risk management: 0%.
Conditions and measures related to sewage treatment plant	:	Sewage Treatment Plant: Yes. (Efficiency of at least 87.72%) Discharge rate: ≥2000 m³/d. Application of the STP sludge on agricultural soil: Yes.
Conditions and measures related to external treatment of waste for disposal	:	Send to an appropriate hazardous waste incineration facility, in compliance with legislation.

Contributing scenario controlling environmental exposure for 4: Various products

Amounts used	:	Daily amount per site: ≤0.5 tonnes/day. Annual amount per site: ≤100 tonnes/year.
Frequency and duration of use	:	Emission days: ≤200 days per year.
Other conditions affecting environmental exposure	:	Release to waste water from process: Release factor after on-site risk management: 0.5%. (ESVOC SPERC 2.2.v1) Local release rate: 2.5 kg/day. Release to air from process: Release factor after on-site risk management: 0.5%. (ESVOC SPERC 2.2.v1) Local release rate: 2.5 kg/day. Release to soil from process: Release factor after on-site risk management: 0.01%. (ERC02)
Conditions and measures related to sewage treatment plant	:	Sewage Treatment Plant: Yes. (Efficiency of at least 87.72%) Discharge rate: ≥2000 m³/d. Application of the STP sludge on agricultural soil: Yes.
Conditions and measures related to external treatment of waste for disposal	:	Send to an appropriate hazardous waste incineration facility, in compliance with legislation.

Contributing scenario controlling worker exposure for: All Contributing scenarios

Product characteristics	:	Liquid. Vapour pressure: 133.2 Pa (40 °C).
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours.
Other conditions affecting workers exposure	:	Indoor use Process temperature: ≤40 °C.
Technical conditions and measures to control dispersion from source towards the worker	:	Occupational Health and Safety Management System: Advanced Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Contributing scenario controlling worker exposure for 5: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

No other specific measures identified.

Contributing scenario controlling worker exposure for 6: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

No other specific measures identified.

Contributing scenario controlling worker exposure for 7: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

No other specific measures identified.

Contributing scenario controlling worker exposure for 8: Chemical production where opportunity for exposure arises

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

Personal protection	:	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 9: Mixing or blending in batch processes

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

Personal protection	:	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 10: Transfer of substance or mixture (charging and discharging) at dedicated facilities

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

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 11: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

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

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 12: Use as laboratory reagent

No other specific measures identified.

Section 3 - Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment: 1: Washing and cleaning products

Exposure assessment (environment): : EUSES 2.1.2

Exposure estimation : Freshwater: 0.00257 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.112.

Freshwater sediment: 0.055 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.112.

Marine water: 0.000256 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.111.

Marine water sediment: 0.00547 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.111.

Sewage Treatment Plant: 0.025 mg/l.
Risk characterisation ratio (PEC/PNEC): <0.01.

Soil: 0.00961 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.113.

Remark : Based on the applied RMMs the risk towards environment is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Environment: 2: Coatings

Exposure assessment (environment): : EUSES 2.1.2

Exposure estimation : Freshwater: 0.000113 mg/l.
Risk characterisation ratio (PEC/PNEC): <0.01.

Freshwater sediment: 0.00242 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): <0.01.

Marine water: 0.0000106 mg/l.
Risk characterisation ratio (PEC/PNEC): <0.01.

Marine water sediment: 0.000227 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): <0.01.

Sewage Treatment Plant: 0 mg/l.
Risk characterisation ratio (PEC/PNEC): <0.01.

Soil: 0.00422 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.05.

Remark : Based on the applied RMMs the risk towards environment is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Environment: 3: Perfumes, fragrances

Exposure assessment (environment): : EUSES 2.1.2

Exposure estimation : Freshwater: 0.012 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.539.

Freshwater sediment: 0.265 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.539.

Marine water: 0.00124 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.538.

Marine water sediment: 0.026 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.538.

Sewage Treatment Plant: 0.123 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.015.

Soil: 0.049 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.576.

Remark : Based on the applied RMMs the risk towards environment is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Environment: 4: Various products

Exposure assessment (environment): : EUSES 2.1.2

Exposure estimation : Freshwater: 0.015 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.672.

Freshwater sediment: 0.331 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.672.

Marine water: 0.00154 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.672.

Marine water sediment: 0.033 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.672.

Sewage Treatment Plant: 0.153 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.019.

Soil: 0.06 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.707.

Remark : Based on the applied RMMs the risk towards environment is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 5: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 0.057 mg/m³.
Risk characterisation ratio: <0.01.

Worker - dermal, long-term - systemic: 0.034 mg/kg bw/day.
Risk characterisation ratio: <0.01.

Worker - combined, long-term - systemic: <0.01.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 6: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 5.673 mg/m³.
Risk characterisation ratio: 0.144.

Worker - dermal, long-term - systemic: 1.37 mg/kg bw/day.
Risk characterisation ratio: 0.125.

Worker - combined, long-term - systemic: 0.269.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 7: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 17.01 mg/m³.
Risk characterisation ratio: 0.433.

Worker - dermal, long-term - systemic: 0.69 mg/kg bw/day.
Risk characterisation ratio: 0.063.

Worker - combined, long-term - systemic: 0.496.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 8: Chemical production where opportunity for exposure arises

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 28.36 mg/m³.
Risk characterisation ratio: 0.722.

Worker - dermal, long-term - systemic: 0.686 mg/kg bw/day.
Risk characterisation ratio: 0.062.

Worker - combined, long-term - systemic: 0.784.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 9: Mixing or blending in batch processes

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 28.36 mg/m³.
Risk characterisation ratio: 0.722.

Worker - dermal, long-term - systemic: 1.371 mg/kg bw/day.
Risk characterisation ratio: 0.125.

Worker - combined, long-term - systemic: 0.846.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 10: Transfer of substance or mixture (charging and discharging) at dedicated facilities

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 28.36 mg/m³.
Risk characterisation ratio: 0.722.

Worker - dermal, long-term - systemic: 1.371 mg/kg bw/day.
Risk characterisation ratio: 0.125.

Worker - combined, long-term - systemic: 0.846.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 11: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 28.36 mg/m³.
Risk characterisation ratio: 0.722.

Worker - dermal, long-term - systemic: 0.686 mg/kg bw/day.
Risk characterisation ratio: 0.062.

Worker - combined, long-term - systemic: 0.784.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 12: Use as laboratory reagent

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 28.36 mg/m³.
Risk characterisation ratio: 0.722.

Worker - dermal, long-term - systemic: 0.34 mg/kg bw/day.
Risk characterisation ratio: 0.031.

Worker - combined, long-term - systemic: 0.753.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

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

General : The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use. If other OC/RMM are adopted, the user has to ensure that risks are managed to at least equivalent levels. The risk assessment methods/tools given in section 3 may be used for this evaluation.

Environment : Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mono-constituent substance

Product name : BENZOIC ACID METHYLESTER, TECHNICAL

Section 1 - Title

Short title of the exposure scenario : Industrial use; Various sectors (SU01, SU02b, SU08, SU09, SU12); Various products (PC9a, PC12, PC21, PC24, PC28, PC32, PC35, PC40)

List of use descriptors : **Identified use name: ES03:** Use at industrial sites - Industrial: SU01, SU02b, SU08, SU09, SU12; PC09a, PC12, PC21, PC24, PC28, PC32, PC35, PC40; PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC12, PROC13, PROC15; ERC04, ERC05, ERC06a, ERC06b
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC12, PROC13, PROC15
Substance supplied to that use in form of: As such
Sector of end use: SU01, SU02b, SU08, SU09, SU12
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04, ERC05, ERC06a, ERC06b
Market sector by type of chemical product: PC09a, PC12, PC21, PC24, PC28, PC32, PC35, PC40

Environmental contributing scenarios : **Use of non-reactive processing aid at industrial site (no inclusion into or onto article) -** ERC04
Use at industrial site leading to inclusion into/onto article - ERC05
Use of intermediate - ERC06a
Use of reactive processing aid at industrial site (no inclusion into or onto article) - ERC06b

Health Contributing scenarios : **Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions -** PROC01
Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions - PROC02
Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition - PROC03
Chemical production where opportunity for exposure arises - PROC04
Mixing or blending in batch processes - PROC05
Industrial spraying - PROC07
Transfer of substance or mixture (charging and discharging) at non-dedicated facilities - PROC08a
Transfer of substance or mixture (charging and discharging) at dedicated facilities - PROC08b
Transfer of substance or mixture into small containers (dedicated filling line, including weighing) - PROC09
Roller application or brushing - PROC10
Use of blowing agents in manufacture of foam - PROC12
Treatment of articles by dipping and pouring - PROC13
Use as laboratory reagent - PROC15

Number of the ES : 3

Additional information : Information concerning technical function: Catalyst.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Amounts used : Daily amount per site: ≤1.667 tonnes/day.
Annual amount per site: ≤500 tonnes/year.

Other conditions affecting environmental exposure : Receiving surface water flow: 18000 m³/d.

Release to waste water from process:
Release factor after on-site risk management: 0.1%. (ESVOC 4.1.t.v2)
Local release rate: 1.667 kg/day.

Release to air from process:
Release factor after on-site risk management: 0.1%. (ESVOC 4.1.t.v2)
Local release rate: 1.667 kg/day.

Release to soil from process:
Release factor after on-site risk management: 0.01%. (ESVOC 4.1.t.v2)

Conditions and measures related to sewage treatment plant : Sewage Treatment Plant: Yes. (Efficiency of at least 87.72%)
Discharge rate: ≥2000 m³/d.
Application of the STP sludge on agricultural soil: Yes.
Waste water treatment: Oil-water separation

Conditions and measures related to external treatment of waste for disposal : Send to an appropriate hazardous waste incineration facility, in compliance with legislation.

Contributing scenario controlling environmental exposure for 2: Use at industrial site leading to inclusion into/ onto article

Amounts used : Daily amount per site: ≤49.95 tonnes/day.
Annual amount per site: ≤999 tonnes/year.

Other conditions affecting environmental exposure : Release to waste water from process:
Release factor after on-site risk management: 0%.

Release to air from process:
Release factor after on-site risk management: 2%. (CEPE SPERC 5.1a.v1)
Local release rate: 999 kg/day.

Release to soil from process:
Release factor after on-site risk management: 0%.

Conditions and measures related to sewage treatment plant : Sewage Treatment Plant: Yes. (Efficiency of at least 87.72%)
Discharge rate: ≥2000 m³/d.
Application of the STP sludge on agricultural soil: Yes.

Conditions and measures related to external treatment of waste for disposal : Send to an appropriate hazardous waste incineration facility, in compliance with legislation.

Contributing scenario controlling environmental exposure for 3: Use of intermediate

Amounts used : Daily amount per site: ≤1.667 tonnes/day.
Annual amount per site: ≤500 tonnes/year.

Frequency and duration of use : Emission days: ≤300 days per year.

Other conditions affecting environmental exposure : Receiving surface water flow: 18000 m³/d.

Release to waste water from process:
Release factor after on-site risk management: 0.1%. (ESVOC 6.1a.t.v2)
Local release rate: 1.667 kg/day.

Release to air from process:
Release factor after on-site risk management: 0.01%. (ESVOC 6.1a.t.v2)
Local release rate: 0.167 kg/day.

		Release to soil from process: Release factor after on-site risk management: 0.1%. (ESVOC 6.1a.t.v2)
Conditions and measures related to sewage treatment plant	:	Sewage Treatment Plant: Yes. (Efficiency of at least 87.72%) Discharge rate: ≥2000 m³/d. Application of the STP sludge on agricultural soil: Yes. Waste water treatment: Oil-water separation
Conditions and measures related to external treatment of waste for disposal	:	Send to an appropriate hazardous waste incineration facility, in compliance with legislation.

Contributing scenario controlling environmental exposure for 4: Use of reactive processing aid at industrial site (no inclusion into or onto article)

Amounts used	:	Daily amount per site: ≤1 tonnes/day. Annual amount per site: ≤300 tonnes/year.
Frequency and duration of use	:	Emission days: ≤300 days per year.
Other conditions affecting environmental exposure	:	Receiving surface water flow: 18000 m³/d. Release to waste water from process: Release factor after on-site risk management: 0.3%. (ESVOC SPERC 4.19.v1) Local release rate: 3 kg/day. Release to air from process: Release factor after on-site risk management: 0.25%. (ESVOC SPERC 4.19.v1) Local release rate: 2.5 kg/day. Release to soil from process: Release factor after on-site risk management: 0.025%. (ERC06b)
Technical conditions and measures at process level (source) to prevent release	:	Process with efficient use of raw materials. No release to wastewater from process as such, wastewater emissions limited to release generated from final equipment cleaning step using water.
Conditions and measures related to sewage treatment plant	:	Sewage Treatment Plant: Yes. (Efficiency of at least 87.72%) Discharge rate: ≥2000 m³/d. Application of the STP sludge on agricultural soil: Yes.
Conditions and measures related to external treatment of waste for disposal	:	Send to an appropriate hazardous waste incineration facility, in compliance with legislation.

Contributing scenario controlling worker exposure for: All Contributing scenarios

Product characteristics	:	Liquid. Vapour pressure: 133.2 Pa (40 °C).
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours.
Other conditions affecting workers exposure	:	Indoor use Process temperature: ≤40 °C.
Technical conditions and measures to control dispersion from source towards the worker	:	Occupational Health and Safety Management System: Advanced

Contributing scenario controlling worker exposure for 5: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Technical conditions and measures to control dispersion from source towards the worker	:	Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Contributing scenario controlling worker exposure for 6: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Technical conditions and measures to control dispersion from source towards the worker : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Contributing scenario controlling worker exposure for 7: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Technical conditions and measures to control dispersion from source towards the worker : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Contributing scenario controlling worker exposure for 8: Chemical production where opportunity for exposure arises

Technical conditions and measures to control dispersion from source towards the worker : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 9: Mixing or blending in batch processes

Technical conditions and measures to control dispersion from source towards the worker : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 10: Industrial spraying

Technical conditions and measures to control dispersion from source towards the worker : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Local exhaust ventilation (Inhalation - minimum efficiency of 95%).

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

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 11: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Technical conditions and measures to control dispersion from source towards the worker : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Local exhaust ventilation (Inhalation - minimum efficiency of 90%).

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

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 12: Transfer of substance or mixture (charging and discharging) at dedicated facilities

Technical conditions and measures to control dispersion from source towards the worker : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 13: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Technical conditions and measures to control dispersion from source towards the worker : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 14: Roller application or brushing

Technical conditions and measures to control dispersion from source towards the worker : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Local exhaust ventilation (Inhalation - minimum efficiency of 90%).

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

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 15: Use of blowing agents in manufacture of foam

Technical conditions and measures to control dispersion from source towards the worker : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Contributing scenario controlling worker exposure for 16: Treatment of articles by dipping and pouring

Technical conditions and measures to control dispersion from source towards the worker : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Local exhaust ventilation (Inhalation - minimum efficiency of 90%).

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

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. (Dermal - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 17: Use as laboratory reagent

No other specific measures identified.

Technical conditions and measures to control dispersion from source towards the worker : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Section 3 - Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment: 1: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Exposure assessment (environment): : EUSES 2.1.2

Exposure estimation : Freshwater: 0.01 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.45.

Freshwater sediment: 0.221 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.45.

Marine water: 0.00103 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.449.

Marine water sediment: 0.022 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.45.

Sewage Treatment Plant: 0.102 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.013.

Soil: 0.04 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.472.

Remark : Based on the applied RMMs the risk towards environment is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Environment: 2: Use at industrial site leading to inclusion into/ onto article

Exposure assessment (environment): : EUSES 2.1.2

Exposure estimation : Freshwater: 0.000113mg/l.
Risk characterisation ratio (PEC/PNEC): <0.01.

Freshwater sediment: 0.00242 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): <0.01.

Marine water: 0.0000106 mg/l.
Risk characterisation ratio (PEC/PNEC): <0.01.

Marine water sediment: 0.000227 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): <0.01.

Sewage Treatment Plant: 0 mg/l.
Risk characterisation ratio (PEC/PNEC): <0.01.

Soil: 0.00282 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.033.

Remark : Based on the applied RMMs the risk towards environment is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Environment: 3: Use of intermediate

Exposure assessment (environment): : EUSES 2.1.2

Exposure estimation : Freshwater: 0.01 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.45.

Freshwater sediment: 0.221 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.45.

Marine water: 0.00103 mg/l.

Risk characterisation ratio (PEC/PNEC): 0.449.

Marine water sediment: 0.022 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.45.

Sewage Treatment Plant: 0.102 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.013.

Soil: 0.04 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.471.

Remark : Based on the applied RMMs the risk towards environment is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Environment: 4: Use of reactive processing aid at industrial site (no inclusion into or onto article)

Exposure assessment (environment): : EUSES 2.1.2

Exposure estimation : Freshwater: 0.019mg/l.
Risk characterisation ratio (PEC/PNEC): 0.805.

Freshwater sediment: 0.396 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.806.

Marine water: 0.00185 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.805.

Marine water sediment: 0.04 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.805.

Sewage Treatment Plant: 0.184 mg/l.
Risk characterisation ratio (PEC/PNEC): 0.023.

Soil: 0.072 mg/kg dwt.
Risk characterisation ratio (PEC/PNEC): 0.849.

Remark : Based on the applied RMMs the risk towards environment is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 5: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 0.057 mg/m³.
Risk characterisation ratio: <0.01.

Worker - dermal, long-term - systemic: 0.034 mg/kg bw/day.
Risk characterisation ratio: <0.01.

Worker - combined, long-term - systemic: <0.01.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 6: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 5.673 mg/m³. Risk characterisation ratio: 0.144. **Worker - dermal, long-term - systemic:** 1.37 mg/kg bw/day. Risk characterisation ratio: 0.125. **Worker - combined, long-term - systemic:** 0.269.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 7: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 17.01 mg/m³. Risk characterisation ratio: 0.433. **Worker - dermal, long-term - systemic:** 0.69 mg/kg bw/day. Risk characterisation ratio: 0.063. **Worker - combined, long-term - systemic:** 0.496.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 8: Chemical production where opportunity for exposure arises

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 28.36 mg/m³. Risk characterisation ratio: 0.722. **Worker - dermal, long-term - systemic:** 0.686 mg/kg bw/day. Risk characterisation ratio: 0.062. **Worker - combined, long-term - systemic:** 0.784.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 9: Mixing or blending in batch processes

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 28.36 mg/m³. Risk characterisation ratio: 0.722. **Worker - dermal, long-term - systemic:** 1.371 mg/kg bw/day. Risk characterisation ratio: 0.125. **Worker - combined, long-term - systemic:** 0.846.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 10: Industrial spraying

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 19.85 mg/m³.
Risk characterisation ratio: 0.505.

Worker - dermal, long-term - systemic: 4.286 mg/kg bw/day.
Risk characterisation ratio: 0.39.

Worker - combined, long-term - systemic: 0.895.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 11: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 3.971 mg/m³.
Risk characterisation ratio: 0.101.

Worker - dermal, long-term - systemic: 1.371 mg/kg bw/day.
Risk characterisation ratio: 0.125.

Worker - combined, long-term - systemic: 0.226.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 12: Transfer of substance or mixture (charging and discharging) at dedicated facilities

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 28.36 mg/m³.
Risk characterisation ratio: 0.722.

Worker - dermal, long-term - systemic: 1.371 mg/kg bw/day.
Risk characterisation ratio: 0.125.

Worker - combined, long-term - systemic: 0.846.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 13: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 28.36 mg/m³.
Risk characterisation ratio: 0.722.

Worker - dermal, long-term - systemic: 0.686 mg/kg bw/day.
Risk characterisation ratio: 0.062.

Worker - combined, long-term - systemic: 0.784.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 14: Roller application or brushing

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 3.971 mg/m³.
Risk characterisation ratio: 0.101.

Worker - dermal, long-term - systemic: 2.743 mg/kg bw/day.
Risk characterisation ratio: 0.249.

Worker - combined, long-term - systemic: 0.35.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 15: Use of blowing agents in manufacture of foam

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 11.34 mg/m³.
Risk characterisation ratio: 0.289.

Worker - dermal, long-term - systemic: 0.34 mg/kg bw/day.
Risk characterisation ratio: 0.031.

Worker - combined, long-term - systemic: 0.32.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 16: Treatment of articles by dipping and pouring

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 3.971 mg/m³.
Risk characterisation ratio: 0.101.

Worker - dermal, long-term - systemic: 1.371 mg/kg bw/day.
Risk characterisation ratio: 0.125.

Worker - combined, long-term - systemic: 0.226.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 17: Use as laboratory reagent

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 28.36 mg/m³.
Risk characterisation ratio: 0.722.

Worker - dermal, long-term - systemic: 0.34 mg/kg bw/day.
Risk characterisation ratio: 0.031.

Worker - combined, long-term - systemic: 0.753.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

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

General	:	The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use. If other OC/RMM are adopted, the user has to ensure that risks are managed to at least equivalent levels. The risk assessment methods/tools given in section 3 may be used for this evaluation.
Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mono-constituent substance

Product name : BENZOIC ACID METHYLESTER, TECHNICAL

Section 1 - Title

Short title of the exposure scenario : Widespread use by professional workers; Various products (PC9a, PC28, PC35)

List of use descriptors : **Identified use name: ES04:** Widespread use by professional workers, Use in cleaning agents - Professional: PC09a, PC28, PC35; PROC01, PROC03, PROC04, PROC08a, PROC10, PROC11, PROC13, PROC19; ERC08a
Process Category: PROC01, PROC03, PROC04, PROC08a, PROC10, PROC11, PROC13, PROC19
Substance supplied to that use in form of: As such
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a
Market sector by type of chemical product: PC09a, PC28, PC35

Environmental contributing scenarios : **Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) -** ERC08a

Health Contributing scenarios : **Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions -** PROC01
Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition - PROC03
Chemical production where opportunity for exposure arises - PROC04
Transfer of substance or mixture (charging and discharging) at non-dedicated facilities - PROC08a
Roller application or brushing - PROC10
Non industrial spraying - PROC11
Treatment of articles by dipping and pouring - PROC13
Manual activities involving hand contact - PROC19

Number of the ES : 4

Additional information : Information concerning technical function: Catalyst.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

Amounts used : Daily amount for wide dispersive uses: ≤0.000275 tonnes/day.

Other conditions affecting environmental exposure : Release to waste water from process:
Release factor after on-site risk management: 100%. (ERC08a)
Local release rate: 0.275 kg/day.

Release to air from process:
Release factor after on-site risk management: 100%. (ERC08a)

Release to soil from process:
Release factor after on-site risk management: 0%. (ERC08a)

Conditions and measures related to sewage treatment plant : Sewage Treatment Plant: Yes. (Efficiency of at least 87.72%)
Discharge rate: ≥2000 m³/d.

Conditions and measures related to external treatment of waste for disposal : Waste disposal according to national/local legislation is sufficient.

Contributing scenario controlling worker exposure for: All Contributing scenarios

Product characteristics	:	Liquid. Vapour pressure: 133.2 Pa (40 °C).
Other conditions affecting workers exposure	:	Indoor use Process temperature: ≤40 °C.
Technical conditions and measures to control dispersion from source towards the worker	:	Occupational Health and Safety Management System: Basic Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Contributing scenario controlling worker exposure for 2: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours.

Contributing scenario controlling worker exposure for 3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours.

Contributing scenario controlling worker exposure for 4: Chemical production where opportunity for exposure arises

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers exposure up to 4 hour(s).

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

Personal protection	:	Wear suitable gloves tested to EN374. (Dermal - minimum efficiency of 80%)

Contributing scenario controlling worker exposure for 5: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers exposure up to 1 hour(s).

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

Personal protection	:	Wear suitable gloves tested to EN374. (Dermal - minimum efficiency of 80%)

Contributing scenario controlling worker exposure for 6: Roller application or brushing

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers exposure up to 4 hour(s).

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

Personal protection	:	Wear suitable gloves tested to EN374. (Dermal - minimum efficiency of 80%)
Respiratory protection	:	Wear suitable respiratory protection. (Inhalation - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 7: Non industrial spraying

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers exposure up to 4 hour(s).

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

Personal protection	:	Wear suitable gloves tested to EN374. (Dermal - minimum efficiency of 80%)
Respiratory protection	:	Wear suitable respiratory protection. (Inhalation - minimum efficiency of 90%)

Contributing scenario controlling worker exposure for 8: Treatment of articles by dipping and pouring

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers exposure up to 1 hour(s).

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

Personal protection	:	Wear suitable gloves tested to EN374. (Dermal - minimum efficiency of 80%)

Contributing scenario controlling worker exposure for 9: Manual activities involving hand contact

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers exposure up to 1 hour(s).

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

Personal protection	:	Wear suitable gloves tested to EN374. (Dermal - minimum efficiency of 80%)

Section 3 - Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment: 1: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

Exposure assessment (environment):	:	EUSES 2.1.2
Exposure estimation	:	Freshwater: 0.0018 mg/l. Risk characterisation ratio (PEC/PNEC): 0.078. Freshwater sediment: 0.039 mg/kg dwt. Risk characterisation ratio (PEC/PNEC): 0.078. Marine water: 0.000179 mg/l. Risk characterisation ratio (PEC/PNEC): 0.078. Marine water sediment: 0.00384 mg/kg dwt. Risk characterisation ratio (PEC/PNEC): 0.078. Sewage Treatment Plant: 0.017 mg/l. Risk characterisation ratio (PEC/PNEC): <0.01. Soil: 0.00662 mg/kg dwt. Risk characterisation ratio (PEC/PNEC): 0.078.
Remark	:	Based on the applied RMMs the risk towards environment is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 2: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 0.057 mg/m³. Risk characterisation ratio: <0.01. **Worker - dermal, long-term - systemic:** 0.034 mg/kg bw/day. Risk characterisation ratio: <0.01. **Worker - combined, long-term - systemic:** <0.01.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 17.01 mg/m³. Risk characterisation ratio: 0.433. **Worker - dermal, long-term - systemic:** 0.69 mg/kg bw/day. Risk characterisation ratio: 0.063. **Worker - combined, long-term - systemic:** 0.496.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 4: Chemical production where opportunity for exposure arises

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 20.42 mg/m³. Risk characterisation ratio: 0.52. **Worker - dermal, long-term - systemic:** 0.823 mg/kg bw/day. Risk characterisation ratio: 0.075. **Worker - combined, long-term - systemic:** 0.594.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 5: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation	:	**Worker - inhalative, long-term - systemic:** 17.01 mg/m³. Risk characterisation ratio: 0.433. **Worker - dermal, long-term - systemic:** 1.645 mg/kg bw/day. Risk characterisation ratio: 0.15. **Worker - combined, long-term - systemic:** 0.583.
Remark	:	Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 6: Roller application or brushing

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 1.702 mg/m³.
Risk characterisation ratio: 0.043.

Worker - dermal, long-term - systemic: 1.097 mg/kg bw/day.
Risk characterisation ratio: 0.1.

Worker - combined, long-term - systemic: 0.143.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 7: Non industrial spraying

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 6.807 mg/m³.
Risk characterisation ratio: 0.173.

Worker - dermal, long-term - systemic: 4.286 mg/kg bw/day.
Risk characterisation ratio: 0.39.

Worker - combined, long-term - systemic: 0.563.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 8: Treatment of articles by dipping and pouring

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 6.807 mg/m³.
Risk characterisation ratio: 0.173.

Worker - dermal, long-term - systemic: 1.645 mg/kg bw/day.
Risk characterisation ratio: 0.15.

Worker - combined, long-term - systemic: 0.323.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

Exposure estimation and reference to its source - Workers: 9: Manual activities involving hand contact

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation : **Worker - inhalative, long-term - systemic:** 5.673 mg/m³.
Risk characterisation ratio: 0.144.

Worker - dermal, long-term - systemic: 5.657 mg/kg bw/day.
Risk characterisation ratio: 0.514.

Worker - combined, long-term - systemic: 0.659.

Remark : Based on the applied RMMs the risk towards humans is sufficiently controlled (RCR < 1).

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

General	:	The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use. If other OC/RMM are adopted, the user has to ensure that risks are managed to at least equivalent levels. The risk assessment methods/tools given in section 3 may be used for this evaluation.