

SAFETY DATA SHEET

■ V7 in accordance with Regulation (EC) 1907/2006 (REACH) amended with Commission Regulation (EU) 2015/830■

■ V7 – amendments in this revision ■

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1 Product identifier**

Substance name	AMMONIUM HYDROGEN CARBONATE without anticaking agent
Synonyms	Ammonium bicarbonate
CAS number:	1066-33-7
EC number:	213-911-5
REACH registration number:	01-2119486970-26-0003
Neochim PLC code	12-01

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

Uses:	<ul style="list-style-type: none">- raw material in chemical synthesis;- in formulation of mixture;- raising agent in food industry
Uses advised against:	Unknown

1.3 Details of the supplier of the safety data sheet

Manufacturer: Address: Tel.;fax: URL website: Email:	NEOCHIM PLC East Industrial Zone, Himkombinatska Str. 6403 Dimitrovgrad, Bulgaria +359 391 65 205; +359 391 60 555 http:// www.neochim.bg neochim@neochim.bg
Company e-mail for SDS	pto@neochim.bg

1.4 Emergency telephone number

National Toxicology Center - Pirogov	+ 359 2 915 44 09	24/24 h	7/7 d
NEOCHIM PLC	+359 2 809 20 30	24/24 h	7/7 d


SECTION 2: HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture**

■ V7 Classification of the substance or mixture in accordance with Regulation 1272/2008 (CLP) and its amendments at the date of the issue of the document ■

Acute Toxicity-oral, hazard category 4 (Acute Tox 4.), H302 - Harmful if swallowed

2.2 Label elements

■ V7 Labelling in accordance with Regulation 1272/2008 (CLP) and its amendments at the date of the issue of the document ■.

Hazard pictogram(s):		
Signal word		Warning
Hazard statement(s):	H302	Harmful if swallowed
Precautionary statement(s):	P264 P270 P301+P312+ P330 P411 P501	Wash the exposed parts of the body thoroughly with water after handling. Do not eat, drink or smoke when using this product. IF SWALLOWED: Rinse mouth. Call a POISON CENTER if you feel unwell. Store at temperatures not exceeding 35°C. Packing/content waste to be managed in accordance with national legislation.
2.3 Other hazards		
PBT/vPvB criteria:		According to Annex XIII of Regulation (EC) No 1907/2006, PBT and vPvB assessment has not been conducted since ammonium hydrogen carbonate is inorganic.
Other hazards:		Unknown
SECTION 3: HAZARDS IDENTIFICATION		
3.1 Substances		
CAS number	Name	Content, % (w/w)
1066-33-7	Ammonium hydrogen carbonate	min. 99,4
SECTION 4: FIRST- AID MEASURES		
4.1 Description of first aid measures		
- general notes	Consult physician in case of persisting adverse effects. Never give anything by mouth to an unconscious person or a person with spasms. Give this SDS to the physician.	
- following inhalation	After inhalation of decomposition products: Keep patient calm, remove to fresh air, seek medical attention.	
- following skin contact	Wash the affected area with water and soap.	
- following eye contact	Wash affected eyes for at least 15 minutes under running water with eyelids held open. Get medical attention if the irritation of the eyes continues.	
- following ingestion	Do not induce vomiting! Carefully rinse the mouth immediately and then drink plenty of water. Seek medical attention.	
4.2 Most important symptoms and effects, both acute and delayed		
Acute effects	Irritation of the respiratory tract and eyes, runny nose, nausea, vomiting. Ingestion of very large quantities: drop in blood pressure, collapse, CNS damage, spasms, narcotic conditions etc.	
Delayed effects	Repeated or prolonged contact with skin may cause dermatitis (red, cracked skin)	

4.3 Indication of any immediate medical attention and special treatment needed	
Notes for the doctor: Treat symptomatically. Special measure to be taken to prevent absorption in case of ingestion	
SECTION 5: FIRE - FIGHTING MEASURES	
5.1 Extinguishing media	
Suitable:	Not combustible. Use extinguishing media appropriate for surrounding fire.
Not suitable:	Unknown
5.2 Special hazards arising from the substance or mixture	
Ammonia and carbon dioxide released during the fire are caught with water spray. Do not allow water from the fire or contaminated water to run into watercourses or drains.	
5.3 Advice for firefighters	
Special heat- resistant clothing, gloves, boots and self-contained breathing apparatus	
SECTION 6: ACCIDENTAL RELEASE MEASURES	
6.1 Personal precautions, protective equipment and emergency procedures	
6.1.1 For non-emergency personnel	
Immediately evacuate the personnel, not occupied with the removal of the accident in the area. Provide adequate ventilation. Wear personal protective equipment (PPE).	
6.1.2 For emergency responders	
Gloves, anti-dust masks, protective glasses. Filtering gas mask for protection against ammonia.	
6.2 Environmental precautions	
Avoid dust formation. Prevent the material from contact with soil, entering surface water or sanitary sewer system. Ensure waste is collected. Inform authorities in case of accidental contamination of some environmental compartments.	
6.3 Methods and material for containment and cleaning up	
Take up mechanically; placing in appropriate labelled containers for recovery or disposal.	
6.4 Reference to other sections	
See section 8 for personal protective equipment and section 13 for disposal.	
SECTION 7: HANDLING AND STORAGE	
7.1 Precautions for safe handling	
Technical measures/ Precautions:	No special measures are required if the product is used correctly. Avoid dust formation. Ensure adequate ventilation of stores and work areas.
General occupation hygiene:	When handling the product do not eat, drink or smoke. Wash hands after handling and before eating, smoking and using the lavatory and at the end of the working period.
7.2 Storage, including incompatibilities	
Segregate from nitrates, nitrites, alkaline substances, strong acids and bases. Further information on storage conditions: Keep only in original tightly closed containers in a cool, well-ventilated place. The pallets must not be stacked one on top of the others, because the pressure thus applied would favor caking. Keep at temperature not exceeding 35 °C. Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time. Packing: polyethylene, polypropylene Storage class: 13/11	
SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION	
8.1 Control parameters	

Regulated occupational exposure limit values	No specific data			
Recommended occupational and consumer exposure limit values are as follows:				
Derived No Effect Level (DNEL) for workers				
Exposure pattern	Acute effects local	Acute effects systemic	Chronic effects local	Chronic effects systemic
inhalation	160.7 mg/m ³	160.7 mg/m ³	62.5 mg/m ³	62.5 mg/m ³
dermal	Not applicable	Not applicable	Not applicable	57 mg/kg bw/day
Derived No Effect Level (DNEL) for general population				
Exposure pattern	Acute effects local	Acute effects systemic	Chronic effects local	Chronic effects systemic
oral	Not applicable	34.05 mg/kg bw/day	Not applicable	17.1 mg/kg bw/day
inhalation	143.91 mg/m ³	143.91 mg/m ³	13.33 mg/m ³	13.33 mg/m ³
dermal	Not applicable	Not applicable	Not applicable	34.2 mg/kg bw/day
Predicted No Effect Concentration:				
PNEC aqua (freshwater)	0.37 mg/L			
PNEC aqua (marine water)	0.037 mg/L			
PNEC aqua (intermittent releases)	0.63 mg/L			
PNEC STP	1347 mg/L			
PNEC sediment (freshwater)	0.1332 mg/kg sediment dw			
PNEC sediment (marine water)	0.01332 mg/kg sediment dw			
PNEC soil	74.9 mg/kg soil dw			
8.2 Exposure controls				
8.2.1 Appropriate engineering controls:	Provide adequate ventilation.			
8.2.2 Individual protection measures, such as personal protective equipment				
8.2.2.1 Eye protection:	Safety goggles or full face shield (recommended: EN 166)			
8.2.2.2 Skin and body protection:	Body protection must be chosen based on level of activity and exposure.			
<u>Hand protection:</u>	Suitable chemical resistant safety gloves (recommended: EN 374) also with prolonged, direct contact (recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) and other Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing. Manufacturer's directions for use should be observed because of great diversity of types.			
<u>Others:</u>	Protective clothes and boots			
Respiratory protection:	Breathing protection if gases/vapours are formed: Mask/half mask with gas filter for gases/vapours of inorganic compounds (recommended EN 14387 Type B) or gas filter for gases/vapours of alkaline compounds such as ammonia, amines (recommended: EN 14387 Type K). Breathing protection if dusts are formed: Half mask for finery dispersed dust. Mask/half mask with combination filter			

	for gases/vapours of organic, inorganic, acid inorganic, alkaline compounds and toxic particles (recommended: EN 14387 Type ABEK-P3). Suitable respiratory protection for higher concentrations or long-term effect: Self-contained breathing apparatus.
Thermal hazards:	Not applicable
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES	
9.1 Information on basic physical and chemical properties	
Appearance:	Fine, white crystals
Odour:	Slightly ammonia
Melting/Freezing temperature:	Can not be determined because it decomposes at temperatures above 35°C
Boiling temperature:	Can not be determined because it decomposes at temperatures above 35°C
Flash-point:	Not applicable
Evaporation rate:	Not applicable
Flammability:	Non flammable
Upper/lower flammability or explosive limits:	Not applicable
Vapour pressure:	78.6 hPa at 25.6°C
Vapour density:	No data available
Relative density:	1,54 at 15°C
Solubility:	220 g/l in water at 20°C
Partition coefficient n-octanol/water:	-2.4 at 25°C
Auto ignition temperature:	Not applicable
Decomposition temperature:	>35°C
Viscosity:	Not applicable to solids
Explosive properties:	Not explosive
Oxidizing properties:	Not oxidising
SECTION 10: STABILITY AND REACTIVITY	
10.1 Reactivity	
Stable under recommended storage and handling conditions (see section 7, handling and storage).	
10.2 Chemical stability	
Stable under recommended storage and handling conditions (see section 7, handling and storage).	
10.3 Possibility of hazardous reactions	
Exothermic reaction. Reactions with nitrates, nitrites and strong alkalis.	
10.4 Conditions to avoid	
Temperatures above 35°C; contamination with incompatible materials; proximity with fire or ignition sources.	
10.5 Incompatible materials	
Incompatible with strong bases, strong acids, nitrates and nitrites.	
10.6 Hazardous decomposition products	
When heated the product is released ammonia and carbon dioxide.	

SECTION 11: TOXICOLOGICAL INFORMATION	
11.1 Information on toxicological effects	
ACUTE TOXICITY	
Acute oral toxicity:	LD ₅₀ /Orally, rats/ >1576 mg/kg
Acute dermal toxicity:	LD ₅₀ /rats/> 2000 mg/kg bw
Acute inhalation toxicity:	LC ₅₀ /rats/ > 4.74 mg/L air - 4.5 h
LOCAL EFFECTS	
Skin irritation:	Not irritating
Eye irritation:	Not irritating under the test conditions chosen (HEM-CAM Test in vitro)
Sensitisation:	Not sensitising
Mutagenicity:	Negative results
Reproductive toxicity:	The substance should not be considered as dangerous for reproductive effects
Carcinogenicity:	Not carcinogenic
SECTION 12: ECOLOGICAL INFORMATION	
12.1 Toxicity	
Acute (short-term) toxicity	
Fish:	LC ₅₀ (96 h) -68.4 mg/L
Daphnia magna:	LC ₅₀ (48h) – ca.324.9 mg/L
Chronic (long-term) toxicity	
Fish:	EC ₂₀ (72d) – 1.34 mg/L EC ₂₀ (72d) – 7.2 mg/L NOEC (72d) – 0.38 mg/L NOEC (72d) – 2.1 mg/L
Daphnia magna:	EC ₁₀ (21d) – 4.81 mg/L EC ₁₀ (21d) – 27.2 mg/L
Algae:	EC ₅₀ (5 d) – 1921 mg/L
Other above –ground organisms:	6 week old tadpoles: NOEC: 82 mg/l Ammonium sulphate (calculated from 17.4 mg/l NH ₄ -N) LOEC: 154 mg/l Ammonium sulphate (calculated from 37.0 mg/l NH ₄ -N) 9 week old tadpoles: NOEC: 153 mg/l Ammonium sulphate (calculated from 32.4 mg/l NH ₄ -N) LOEC: 247 mg/l Ammonium sulphate (calculated from 52.5 mg/l NH ₄ -N) LC ₅₀ calculated for both 6 and 9 week old tadpoles was >995 mg/l Ammonium sulphate (calculated from 211.2 mg/l NH ₄ -N)
12.2 Persistence and degradability	
Biodegradation:	Easy biodegradable in water
12.3 Bioaccumulative potential	
Octanol-water partition coefficient (K _{ow}):	-2.4 at 25°C
Bioconcentration factor (BCF):	Not available
12.4 Mobility in soil	

Adsorption coefficient:	Study scientifically unjustified
12.5 Results of PBT and vPvB assessment	
According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been conducted since ammonium hydrogen carbonate is inorganic.	
SECTION 13: DISPOSAL CONSIDERATIONS	
Waste from residues:	The determination of the waste codes / name of waste must be conducted in accordance with EEC specific industrial and manufacturing process. Communicate licensed companies for waste disposal. Dispose according to national legislation. Depending on the degree of contamination, it can be used as fertilizer in agriculture.
Package waste disposal:	Empty the bag by shaking to remove as much as possible of its content. If approved by local authorities the empty bags may be disposed of as non-hazardous material or returned for recycling. The reuse of the packing is not allowed.
SECTION 14: TRANSPORT INFORMATION	
Not classified as dangerous goods according to international transport legislation (ADR, RID, IMDG). Do not transport together with food and incompatible materials - strong alkalis, nitrates and nitrites.	
SECTION 15: REGULATORY INFORMATION	
15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture: Regulation EC 1907/2006 (REACH), Regulation EC 1272/2008 (CLP), ■ V7 Regulation 1333/2008■	
<u>* Regulations / legislation and amendments to the date of issue of the document are indicated</u>	
15.2 Chemical Safety Assessment: In accordance with REACH Article 14, a Chemical Safety Assessment has been carried out for this sub	
16. OTHER INFORMATION	
<u>Indication of changes:</u> Changes since the last version are highlighted with ■ V7...■ . This version replaces all previous versions_	
<u>List of abbreviations</u>	
PBT – persistent, bioaccumulative and toxic vPvB - very persistent and very bioaccumulative NOAEL - no observed adverse effect level NOAEC - no observed adverse effect concentration DNEL - derived no-effect level PNEC - predicted no-effect concentration PEC - predicted environmental concentration LOEC - lowest observed effect concentration NOEC - no observed effect concentration OECD - Organisation for Economic Cooperation and Development LC _x - lethal concentration EC _x - effective concentration LD _x - lethal dose	
The information above is on the basis of our knowledge about the product and represents the data currently available to us t the moment of safety data sheet issue. This document is intended as guidance for the appropriate precautionary handling with the product by a properly trained person using this product, and does not legally bind in no way manufacturer with guarantee for specific properties, qualities and applications. Neochim PLC does not grant, guarantee or implies any warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Neochim PLC does not carry any liability for damages resulting from the product use or reliance upon this information, data and recommendations for it. Users are responsible to make their own investigations to determine the suitability of the information and the product for their particular purposes, and to comply with applicable laws.	

ANNEX

Exposure Scenario 3	
Free short title	Formulation and repackaging of mixtures
Use descriptors related to the life cycle stage	Sector of end use: SU3; 10; Process category: PROC 4, 5, 8b, 9, 15, 19; Environmental release category: ERC 2, 5, 7, 8a
Name of contributing environmental scenario (1) and corresponding ERC	<ol style="list-style-type: none"> 1. Formulation of mixture (ERC2) 2. Industrial end use resulting in inclusion into or onto a matrix (ERC5) 3. Industrial end use of substances in closed systems (ERC7) 4. Wide dispersive indoor use of processing aids in open systems (ERC8a)
List of names of contributing worker scenarios (2) and corresponding PROC	<ol style="list-style-type: none"> 1. Use in batch and other processes where the potential for exposure occurs (PROC4) 2. Mixing and blending (PROC5) 3. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC8b) 4. Transfer of formulations to small containers (PROC9) 5. Use as laboratory reagent (PROC15) 6. Hand-mixing with intimate contact and only PPE available (PROC19)
Contributing scenario (1) controlling environmental exposure for ES 3	
Formulation of mixture (ERC2); Industrial end use resulting in inclusion into or onto a matrix (ERC5); Industrial end use of substances in closed systems (ERC7); Wide dispersive indoor use of processing aids in open systems (ERC8a). An environmental assessment has not been performed as the product does not meet the criteria for being classified	
Contributing exposure scenario (2) controlling worker exposure for PROC 4	
Use descriptor covered	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Assessment Method	ECETOC TRA Worker v2.0 with modifications
Product characteristic	
Physical state of the product	Solid (dust)
Concentration of substance in product	100%
Dustiness	high
Amounts used	
Not relevant.	
Frequency and duration of use/exposure	
Duration of exposure	> 4 Hours/day
Frequency of exposure	<= 240 Days /year
Human factors not influenced by risk management	
Palm of both hands (480 cm ²)	
Other given operational conditions affecting workers exposure	

Inside/outside	Inside	
Domain	Professional	
Technical conditions and measures at process level (source) to prevent release		
Not relevant		
Technical conditions and measures to control dispersion from source towards the worker		
Local exhaust ventilation	Yes	Effectiveness: 80%
Organisational measures to prevent /limit releases, dispersion and exposure		
Not relevant.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Suitable gloves required	No	
Suitable respiratory protection required	No	
Contributing exposure scenario (3) controlling worker exposure for PROC 5		
Use descriptor covered	PROC 5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	
Assessment Method	ECETOC TRA Worker v2.0 with modifications	
Product characteristic		
Physical state of the product	Solid (dust)	
Concentration of substance in product	100%	
Dustiness	high	
Amounts used		
Not relevant.		
Frequency and duration of use/exposure		
Duration of exposure	> 4 Hours/day	
Frequency of exposure	<= 240 Days /year	
Human factors not influenced by risk management		
Palm of both hands (480 cm ²)		
Other given operational conditions affecting workers exposure		
Inside/outside	Inside	
Domain	Professional	
Technical conditions and measures at process level (source) to prevent release		
Not relevant		
Technical conditions and measures to control dispersion from source towards the worker		
Local exhaust ventilation	yes	Effectiveness: 80%
Organisational measures to prevent /limit releases, dispersion and exposure		
Not relevant.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Suitable gloves required	No	
Suitable respiratory protection required	No	
Contributing exposure scenario (4) controlling worker exposure for PROC 8b		

Use descriptor covered	PROC 8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Assessment Method	ECETOC TRA Worker v2.0 with modifications	
Product characteristic		
Physical state of the product	Solid (dust)	
Concentration of substance in product	100%	
Dustiness	high	
Amounts used		
Not relevant.		
Frequency and duration of use/exposure		
Duration of exposure	> 4 Hours/day	
Frequency of exposure	<= 240 Days /year	
Human factors not influenced by risk management		
Palm of both hands (480 cm ²)		
Other given operational conditions affecting workers exposure		
Inside/outside	Inside	
Domain	Professional	
Technical conditions and measures at process level (source) to prevent release		
Not relevant		
Technical conditions and measures to control dispersion from source towards the worker		
Local exhaust ventilation	Yes	Effectiveness: 80%
Organisational measures to prevent /limit releases, dispersion and exposure		
Not relevant.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Suitable gloves required	No	
Suitable respiratory protection required	No	
Contributing exposure scenario (5) controlling worker exposure for PROC 9		
Use descriptor covered	PROC 9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
Assessment Method	ECETOC TRA Worker v2.0 with modifications	
Product characteristic		
Physical state of the product	Solid (dust)	
Concentration of substance in product	100%	
Dustiness	high	
Amounts used		
Not relevant.		
Frequency and duration of use/exposure		
Duration of exposure	> 4 Hours/day	

Frequency of exposure	<= 240 Days /year	
Human factors not influenced by risk management		
Palm of both hands (480 cm ²)		
Other given operational conditions affecting workers exposure		
Inside/outside	Inside	
Domain	Professional	
Technical conditions and measures at process level (source) to prevent release		
Not relevant		
Technical conditions and measures to control dispersion from source towards the worker		
Local exhaust ventilation	Yes	Effectiveness: 80%
Organisational measures to prevent /limit releases, dispersion and exposure		
Not relevant.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Suitable gloves required	No	
Suitable respiratory protection required	No	
Contributing exposure scenario (6) controlling worker exposure for PROC 15		
Use descriptor covered	PROC 15 Use as laboratory reagent	
Assessment Method	ECETOC TRA Worker v2.0 with modifications	
Product characteristic		
Physical state of the product	Solid (dust)	
Concentration of substance in product	100%	
Dustiness	high	
Amounts used		
Not relevant.		
Frequency and duration of use/exposure		
Duration of exposure	> 4 Hours/day	
Frequency of exposure	<= 240 Days /year	
Human factors not influenced by risk management		
Palm of one hand (240 cm ²)		
Other given operational conditions affecting workers exposure		
Inside/outside	Inside	
Domain	Professional	
Technical conditions and measures at process level (source) to prevent release		
Not relevant		
Technical conditions and measures to control dispersion from source towards the worker		
Local exhaust ventilation	Yes	Effectiveness: 80%
Organisational measures to prevent /limit releases, dispersion and exposure		

Not relevant.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Suitable gloves required	No	
Suitable respiratory protection required	No	
Contributing exposure scenario (7) controlling worker exposure for PROC 19		
Use descriptor covered	PROC 19 Hand-mixing with intimate contact and only PPE available	
Assessment Method	ECETOC TRA Worker v2.0 with modifications	
Product characteristic		
Physical state of the product	Solid (dust)	
Concentration of substance in product	100 %	
Dustiness	high	
Amounts used		
Not relevant.		
Frequency and duration of use/exposure		
Duration of exposure	> 4 Hours/day	
Frequency of exposure	<= 240 Days /year	
Human factors not influenced by risk management		
(1980 cm ²)		
Other given operational conditions affecting workers exposure		
Inside/outside	Inside	
Domain	Professional	
Technical conditions and measures at process level (source) to prevent release		
Not relevant		
Technical conditions and measures to control dispersion from source towards the worker		
Local exhaust ventilation	Yes	Effectiveness: 80%
Organisational measures to prevent /limit releases, dispersion and exposure		
Not relevant.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Suitable gloves required	Yes	Effectiveness: 90%
Suitable respiratory protection required	No	

Exposure estimation and reference to its source			
Estimated exposure for professionals – PROC 4			
Route of exposure	Concentrations		Justification
	Value	Unit	

Long-term exposure, systemic, dermal	6.86	mg/kg bw/d	NA
Long-term exposure, local and systemic, inhalative	10.00	mg/m ³	NA
Long-term exposure, systemic, combined	8.29	mg/kg bw/d	NA
Short-term exposure, systemic, dermal	6.86	mg/kg bw/d	NA
Short-term exposure, local and systemic, inhalative	20.00	mg/m ³	NA
Short-term exposure, systemic, combined	6.95	mg/kg bw/d	NA

NA: not applicable

Estimated exposure for professionals – PROC 5			
Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	13.71	mg/kg bw/d	NA
Long-term exposure, local and systemic, inhalative	10.00	mg/m ³	NA
Long-term exposure, systemic, combined	15.14	mg/kg bw/d	NA
Short-term exposure, systemic, dermal	13.71	mg/kg bw/d	NA
Short-term exposure, local and systemic, inhalative	20.00	mg/m ³	NA
Short-term exposure, systemic, combined	13.80	mg/kg bw/d	NA

NA: not applicable

Estimated exposure for professionals – PROC 8b			
Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	6.86	mg/kg bw/d	NA
Long-term exposure, local and systemic, inhalative	10.00	mg/m ³	NA
Long-term exposure, systemic, combined	8.29	mg/kg bw/d	NA
Short-term exposure, systemic, dermal	6.86	mg/kg bw/d	NA
Short-term exposure, local and systemic, inhalative	20.00	mg/m ³	NA
Short-term exposure, systemic, combined	6.95	mg/kg bw/d	NA

NA: not applicable

Estimated exposure for professionals – PROC 9			
Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	6.86	mg/kg bw/d	NA
Long-term exposure, local and systemic, inhalative	20.00	mg/m ³	NA
Long-term exposure, systemic, combined	9.71	mg/kg bw/d	NA
Short-term exposure, systemic, dermal	6.86	mg/kg bw/d	NA
Short-term exposure, local and systemic, inhalative	40.00	mg/m ³	NA
Short-term exposure, systemic, combined	7.04	mg/kg bw/d	NA

NA: not applicable

Estimated exposure for professionals – PROC 15			
Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	NA
Long-term exposure, local and systemic, inhalative	5.00	mg/m ³	NA
Long-term exposure, systemic, combined	1.06	mg/kg bw/d	NA
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	NA
Short-term exposure, local and systemic, inhalative	10.00	mg/m ³	NA
Short-term exposure, systemic, combined	0.39	mg/kg bw/d	NA

NA: not applicable

Estimated exposure for professionals – PROC 19			
Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	14.14	mg/kg bw/d	NA

Long-term exposure, local and systemic, inhalative	10.00	mg/m ³	NA
Long-term exposure, systemic, combined	15.57	mg/kg bw/d	NA
Short-term exposure, systemic, dermal	14.14	mg/kg bw/d	NA
Short-term exposure, local and systemic, inhalative	20.00	mg/m ³	NA
Short-term exposure, systemic, combined	14.23	mg/kg bw/d	NA

NA: not applicable

Exposure Scenario 4	
Free short title	Use as raw material in chemical synthesis
Use descriptors related to the life cycle stage	Sector of end use: SU 3, 8, 9; Process category: PROC 3, 4, 8b, 15; Environmental release category: ERC 1, 6a, 7
Name of contributing environmental scenario(1) and corresponding ERC	<ol style="list-style-type: none"> 1. Manufacture of substances (ERC1) 2. Industrial use resulting of manufacture of another substance(use of intermediates) (ERC6a) 3. Industrial use of substances in close systems (ERC7)
List of names of contributing worker scenarios (2) and corresponding PROC	<ol style="list-style-type: none"> 1. Use in closed batch processes (PROC 3) 2. Use in batch and other processes where the potential for exposure occurs (PROC 4) 3. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC 8b) 4. Laboratory use (PROC 15)
Contributing scenario (1) controlling environmental exposure for ES 4	
Manufacture of substances (ERC1); Industrial use resulting of manufacture of another substance (use of intermediates) (ERC6a); Industrial use of substances in close systems (ERC7) An environmental assessment has not been performed as the product does not meet the criteria for being classified	
Contributing exposure scenario (2) controlling workers exposure for PROC 3	
Use descriptor covered	PROC 3 Use in closed batch process (synthesis or formulation)
Assessment Method	ECETOC TRA Worker v2.0 with modifications
For further information see ES 4	
Contributing exposure scenario (3) controlling workers exposure for PROC 4	
Use descriptor covered	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Assessment Method	ECETOC TRA Worker v2.0 with modifications
For further information see ES 2	
Contributing exposure scenario (4) controlling workers exposure for PROC 8b	
Use descriptor covered	PROC 8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Assessment Method	ECETOC TRA Worker v2.0 with modifications

For further information see ES 2	
Contributing exposure scenario (5) controlling workers exposure for PROC 15	
Use descriptor covered	PROC 15 Use as laboratory reagent
Assessment Method	ECETOC TRA Worker v2.0 with modifications
For further information see ES 2	

Exposure estimation and reference to its source			
Estimated exposure for workers – PROC 3			
Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	NA
Long-term exposure, local and systemic, inhalative	1.00	mg/m ³	NA
Long-term exposure, systemic, combined	0.49	mg/kg bw/d	NA
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	NA
Short-term exposure, local and systemic, inhalative	2.00	mg/m ³	NA
Short-term exposure, systemic, combined	0.35	mg/kg bw/d	NA

NA: not applicable

Estimated exposure for workers – PROC 4			
Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	6.86	mg/kg bw/d	NA
Long-term exposure, local and systemic, inhalative	25.00	mg/m ³	NA
Long-term exposure, systemic, combined	10.43	mg/kg bw/d	NA
Short-term exposure, systemic, dermal	6.86	mg/kg bw/d	NA
Short-term exposure, local and systemic, inhalative	50.00	mg/m ³	NA

Short-term exposure, systemic, combined	7.08	mg/kg bw/d	NA
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NA: not applicable

Estimated exposure for workers – PROC 8b			
Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	6.86	mg/kg bw/d	NA
Long-term exposure, local and systemic, inhalative	25.00	mg/m ³	NA
Long-term exposure, systemic, combined	10.43	mg/kg bw/d	NA
Short-term exposure, systemic, dermal	6.86	mg/kg bw/d	NA
Short-term exposure, local and systemic, inhalative	50.00	mg/m ³	NA
Short-term exposure, systemic, combined	7.08	mg/kg bw/d	NA

NA: not applicable

Estimated exposure for workers – PROC 15			
Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	NA
Long-term exposure, local and systemic, inhalative	5.00	mg/m ³	NA
Long-term exposure, systemic, combined	1.06	mg/kg bw/d	NA
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	NA
Short-term exposure, local and systemic, inhalative	10.00	mg/m ³	NA
Short-term exposure, systemic, combined	0.39	mg/kg bw/d	NA

NA: not applicable