


**SAFETY DATA SHEET**

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

■ V7 – amendments in this revision ■

<b>SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXURE AND OF THE COMPANY/UNDERTAKING</b>			
<b>1.1 Product identifier</b>			
Trade name	<b>AMMONIUM HYDROGEN CARBONATE with anticaking agent</b>  premixture: ammonium hydrogen carbonate – E503 (ii) with anticaking agent magnesium hydroxide carbonate – E504 (ii)		
Synonyms	Ammonium bicarbonate		
Neochim PLC code	12-02		
<b>1.2 Relevant identified uses of the substance or mixture and uses advised against</b>			
Uses:	<ul style="list-style-type: none"> <li>- raw material in chemical synthesis;</li> <li>- in formulation of mixture;</li> <li>- raising agent in food industry</li> </ul>		
Uses advised against:	Unknown		
<b>1.3 Details of the supplier of the safety data sheet</b>			
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 <a href="http://www.neochim.bg">http:// www.neochim.bg</a> neochim@neochim.bg		
Company e-mail for SDS	pto@neochim.bg		
<b>1.4 Emergency telephone number</b>			
National Toxicology Center - Pirogov NEOCHIM PLC	+ 359 2 915 44 09	24/24 h	7/7 d
	+359 2 809 20 30	24/24 h	7/7 d
<b>SECTION 2: HAZARDS IDENTIFICATION</b>			
<b>2.1 Classification of the substance or mixture</b>			
■ 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			
<b>2.2 Label elements</b>			
■ 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	H302	Harmful if swallowed	

statement(s):		
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** - not applicable

**3.2 Mixture**

CAS №	EC №	REACH registration number	Concentration, % (w/w)	Name	Classification according to Regulation 1272/2008
1066-33-7	213-911-5	01-2119486970-26-0003	min. 99,4	ammonium hydrogen carbonate	Acute Tox 4., H302

**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)

**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 water sources 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
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Recommended occupational and consumer exposure limit values for ammonium bicarbonate are as follows:

**Derived No Effect Level (DNEL) for workers**

Exposure pattern	Acute effects	Acute effects	Chronic effects	Chronic effects
	local	systemic	local	systemic
inhalation	160.7 mg/m <sup>3</sup>	160.7 mg/m <sup>3</sup>	62.5 mg/m <sup>3</sup>	62.5 mg/m <sup>3</sup>
dermal	Not applicable	Not applicable	Not applicable	57 mg/kg bw/day

**Derived No Effect Level (DNEL) for general population**

Exposure pattern	Acute effects	Acute effects	Chronic effects	Chronic effects
	local	systemic	local	systemic
oral	Not applicable	34.05 mg/kg bw/day	Not applicable	17.1 mg/kg bw/day
inhalation	143.91 mg/m <sup>3</sup>	143.91 mg/m <sup>3</sup>	13.33 mg/m <sup>3</sup>	13.33 mg/m <sup>3</sup>
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.

Hand protection:

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.

Others:

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
<b>SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES</b>	
<b>9.1 Information on basic physical and chemical properties ( main constituent)</b>	
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
<b>SECTION 10: STABILITY AND REACTIVITY</b>	
<b>10.1 Reactivity</b>	
Stable under recommended storage and handling conditions (see section 7, handling and storage).	
<b>10.2 Chemical stability</b>	
Stable under recommended storage and handling conditions (see section 7, handling and storage).	
<b>10.3 Possibility of hazardous reactions</b>	
Exothermic reaction. Reactions with nitrates, nitrites and strong alkalis.	
<b>10.4 Conditions to avoid</b>	
Temperatures above 35°C; contamination with incompatible materials; proximity with fire or ignition sources.	
<b>10.5 Incompatible materials</b>	
Incompatible with strong bases, strong acids, nitrates and nitrites.	
<b>10.6 Hazardous decomposition products</b>	
When heated the product is released ammonia and carbon dioxide.	
<b>SECTION 11: TOXICOLOGICAL INFORMATION</b>	
<b>11.1 Information on toxicological effects ( main constituent - ammonium bicarbonate )</b>	
<b>ACUTE TOXICITY</b>	
Acute oral toxicity:	LD <sub>50</sub> /Orally, rats/ >1576 mg/kg
Acute dermal toxicity:	LD <sub>50</sub> /rats/> 2000 mg/kg bw
Acute inhalation toxicity:	LC <sub>50</sub> /rats/ > 4.74 mg/L air - 4.5 h
<b>LOCAL EFFECTS</b>	

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 ( main constituent - ammonium bicarbonate)

#### Acute (short-term) toxicity

Fish	LC <sub>50</sub> (96 h) – 68.4 mg/l
Daphnia magna	LC <sub>50</sub> (48h) – ca.324.9 mg/l

#### Chronic (long-term) toxicity

Fish	EC <sub>20</sub> (72d) – 1.34 mg/l EC <sub>20</sub> (72d) – 7.2 mg/l NOEC (72d) – 0.38 mg/l NOEC (72d) – 2.1 mg/l
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Daphnia magna	EC <sub>10</sub> (21d) – 4.81 mg/l EC <sub>10</sub> (21d) – 27.2 mg/l
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Algae:	EC <sub>50</sub> (5 d) – 1921 mg/l
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Other above –ground organisms	6 week old tadpoles: NOEC: 82 mg/l Ammonium sulphate (calculated from 17.4 mg/l NH <sub>4</sub> -N) LOEC: 154 mg/l Ammonium sulphate (calculated from 37.0 mg/l NH <sub>4</sub> -N)  9 week old tadpoles: NOEC: 153 mg/l Ammonium sulphate (calculated from 32.4 mg/l NH <sub>4</sub> -N) LOEC: 247 mg/l Ammonium sulphate (calculated from 52.5 mg/l NH <sub>4</sub> -N)  LC <sub>50</sub> calculated for both 6 and 9 week old tadpoles was >995 mg/l Ammonium sulphate (calculated from 211.2 mg/l NH <sub>4</sub> -N)
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### 12.2 Persistence and degradability

Biodegradation:	Easy biodegradable in water
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### 12.3 Bioaccumulative potential

Octanol-water partition coefficient (K <sub>ow</sub> ):	-2.4 at 25°C
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Bioconcentration factor (BCF):	Not available
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### 12.4 Mobility in soil

Adsorption coefficient:	Study scientifically unjustified
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### 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

\* Regulations / legislation and amendments to the date of issue of the document are indicated

15.2 Chemical Safety Assessment:

In accordance with REACH Article 14, a Chemical Safety Assessment has been carried out for this product.

### 16. OTHER INFORMATION

**Indication of changes:** Changes since the last version are highlighted with  **V7...** . This version replaces all previous versions.

**List of abbreviations**

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<sub>x</sub> - lethal concentration  
 EC<sub>x</sub> - effective concentration  
 LD<sub>x</sub> - lethal dose

The information above is on the basis of our knowledge about the product and represents the data currently available to us at 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

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



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

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

Domain	Professional	
<b>Technical conditions and measures at process level (source) to prevent release</b>		
Not relevant		
<b>Technical conditions and measures to control dispersion from source towards the worker</b>		
Local exhaust ventilation	Yes	Effectiveness: 80%
<b>Organisational measures to prevent /limit releases, dispersion and exposure</b>		
Not relevant.		
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>		
Suitable gloves required	No	
Suitable respiratory protection required	No	
<b>Contributing exposure scenario (6) controlling worker exposure for PROC 15</b>		
<b>Use descriptor covered</b>	PROC 15 Use as laboratory reagent	
<b>Assessment Method</b>	ECETOC TRA Worker v2.0 with modifications	
<b>Product characteristic</b>		
Physical state of the product	Solid (dust)	
Concentration of substance in product	100%	
Dustiness	high	
<b>Amounts used</b>		
Not relevant.		
<b>Frequency and duration of use/exposure</b>		
Duration of exposure	> 4 Hours/day	
Frequency of exposure	<= 240 Days /year	
<b>Human factors not influenced by risk management</b>		
Palm of one hand (240 cm <sup>2</sup> )		
<b>Other given operational conditions affecting workers exposure</b>		
Inside/outside	Inside	
Domain	Professional	
<b>Technical conditions and measures at process level (source) to prevent release</b>		
Not relevant		
<b>Technical conditions and measures to control dispersion from source towards the worker</b>		
Local exhaust ventilation	Yes	Effectiveness: 80%
<b>Organisational measures to prevent /limit releases, dispersion and exposure</b>		
Not relevant.		
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>		
Suitable gloves required	No	
Suitable respiratory protection required	No	
<b>Contributing exposure scenario (7) controlling worker exposure for PROC 19</b>		
<b>Use descriptor covered</b>	PROC 19 Hand-mixing with intimate contact and only PPE available	

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

<b>Exposure estimation and reference to its source</b>			
<b>Estimated exposure for professionals – PROC 4</b>			
<b>Route of exposure</b>	<b>Concentrations</b>		<b>Justification</b>
	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 <sup>3</sup>	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 <sup>3</sup>	NA

Short-term exposure, systemic, combined	6.95	mg/kg bw/d	NA
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NA: not applicable

<b>Estimated exposure for professionals – PROC 5</b>			
<b>Route of exposure</b>	<b>Concentrations</b>		<b>Justification</b>
	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 <sup>3</sup>	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 <sup>3</sup>	NA
Short-term exposure, systemic, combined	13.80	mg/kg bw/d	NA

NA: not applicable

<b>Estimated exposure for professionals – PROC 8b</b>			
<b>Route of exposure</b>	<b>Concentrations</b>		<b>Justification</b>
	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 <sup>3</sup>	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 <sup>3</sup>	NA
Short-term exposure, systemic, combined	6.95	mg/kg bw/d	NA

NA: not applicable

<b>Estimated exposure for professionals – PROC 9</b>			
<b>Route of exposure</b>	<b>Concentrations</b>		<b>Justification</b>
	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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	NA
Short-term exposure, systemic, combined	14.23	mg/kg bw/d	NA

NA: not applicable

<b>Exposure Scenario 4</b>	
<b>Free short title</b>	Use as raw material in chemical synthesis
<b>Use descriptors related to the life cycle stage</b>	Sector of end use: SU 3, 8, 9; Process category: PROC 3, 4, 8b, 15; Environmental release category: ERC 1, 6a, 7
<b>Name of contributing environmental scenario(1) and corresponding ERC</b>	<ol style="list-style-type: none"> <li>1. Manufacture of substances (ERC1)</li> <li>2. Industrial use resulting of manufacture of another substance(use of intermediates) (ERC6a)</li> <li>3. Industrial use of substances in close systems (ERC7)</li> </ol>
<b>List of names of contributing worker scenarios (2) and corresponding PROC</b>	<ol style="list-style-type: none"> <li>1. Use in closed batch processes (PROC 3)</li> <li>2. Use in batch and other processes where the potential for exposure occurs (PROC 4)</li> <li>3. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC 8b)</li> <li>4. Laboratory use (PROC 15)</li> </ol>
<b>Contributing scenario (1) controlling environmental exposure for ES 4</b>	
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	
<b>Contributing exposure scenario (2) controlling workers exposure for PROC 3</b>	
<b>Use descriptor covered</b>	PROC 3 Use in closed batch process (synthesis or formulation)
<b>Assessment Method</b>	ECETOC TRA Worker v2.0 with modifications
<b>For further information see ES 4</b>	
<b>Contributing exposure scenario (3) controlling workers exposure for PROC 4</b>	
<b>Use descriptor covered</b>	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
<b>Assessment Method</b>	ECETOC TRA Worker v2.0 with modifications
<b>For further information see ES 2</b>	
<b>Contributing exposure scenario (4) controlling workers exposure for PROC 8b</b>	
<b>Use descriptor covered</b>	PROC 8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
<b>Assessment Method</b>	ECETOC TRA Worker v2.0 with modifications
<b>For further information see ES 2</b>	
<b>Contributing exposure scenario (5) controlling workers exposure for PROC 15</b>	
<b>Use descriptor covered</b>	PROC 15 Use as laboratory reagent
<b>Assessment Method</b>	ECETOC TRA Worker v2.0 with modifications
<b>For further information see ES 2</b>	

<b>Exposure estimation and reference to its source</b>		
<b>Estimated exposure for workers – PROC 3</b>		
<b>Route of exposure</b>	<b>Concentrations</b>	<b>Justification</b>

	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 <sup>3</sup>	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 <sup>3</sup>	NA
Short-term exposure, systemic, combined	0.35	mg/kg bw/d	NA

NA: not applicable

<b>Estimated exposure for workers – PROC 4</b>			
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 <sup>3</sup>	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 <sup>3</sup>	NA
Short-term exposure, systemic, combined	7.08	mg/kg bw/d	NA

NA: not applicable

<b>Estimated exposure for workers – PROC 8b</b>			
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 <sup>3</sup>	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 <sup>3</sup>	NA
Short-term exposure, systemic, combined	7.08	mg/kg bw/d	NA

NA: not applicable

<b>Estimated exposure for workers – PROC 15</b>			
<b>Route of exposure</b>	<b>Concentrations</b>		<b>Justification</b>
	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 <sup>3</sup>	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 <sup>3</sup>	NA
Short-term exposure, systemic, combined	0.39	mg/kg bw/d	NA

NA: not applicable