

SAFETY DATA SHEET

■ V4 in accordance with Regulation (EC) 1907/2006 (REACH) amended with Commission Regulation(EU) 2015/830 ■

■ V4 – amendments in this revision ■

SECTION 1: IDENTIFICATION OF THE	E SUBSTANCE/MIXURE ANI	O OF THE COMPAN	Y/ UNDERTAKING	
1.1 Product identifier				
Trade name	NEOMULTIFERT [®] NPK f	ertilizer		
Synonyms	Ammonium nitrate based N	Ammonium nitrate based NPK, NPK blend		
V4 Neochim PLC code	35-01; 35-02; 35-03 ∎			
1.2 Relevant identified uses of the su	bstance or mixture and use	s advised against		
Uses:	Fertilizer			
	Note: see section 16 for the annex	e complete list of uses	s covered by ES in provided	
Uses advised against:	No information available			
1.3 Details of the supplier of the safe	ty data sheet			
Manufacturer: Address:	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			
Tel./fax: URL website: Email:				
Company e-mail for SDS	pto@neochim.bg			
1.4 Emergency telephone number				
National Toxicology Center - Pirogov	+ 359 2 915 4409	24/24 h	7/7 d	
NEOCHIM PLC* *(the information is available in Bulgarian, English and Turkish languages)	+359 2 809 20 30	24/24 h	7/7 d	
SECTION 2: HAZARDS IDENTIFICATI	ON			
2.1 Classification of the substance of	r mixture			
V4 Classification of the substance or of the issue of the document	mixture according to Regulati	on (EC) 1272/2008 a	nd its amendments at the date	
The product is not classified as hazardo	bus			
2.2 Label elements				
Labelling according to Regulation 1272	2/2008 (CLP)			
V4 The product is not classified as ha	zardous and its amendments	at the date of the issu	ue of the document	

The latest version can be found on: <u>http://www.neochim.bg/files/SDS_NPK_en.pdf</u>



Precautionary statement(s):	P280	Wear protective goggles and protective gloves
	P305+P351	IF IN EYES: Rinse cautiously with water for several minutes.
	P337+P313	If eye irritation persists: get medical advice/attention.
	P411	Store indoor in a well-ventilated, and dry warehouses at temperatures not
	P501	exceeding 40 °C. Dispose of packages in accordance with national waste legislation.

Supplemental Hazard information:

EUH210 - 'Safety data sheet available on request'.

2.3 Other hazards

PBT/vPvB criteria:

According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been carried out since components of the mixture are inorganic substances.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances - not relevant

3.2 Mixtures - NEOMULTIFERT

CAS №	EC №	REACH registration №	Content, % (w/w)	Name	Classification according to Regulation (EC) No 1272/2008 (CLP)	Туре
6484-52-2	229-347-8	01-2119490981-27	<70	Ammonium Nitrate	Oxid. Solid 3; H272 Eye Irrit. 2; H319	[1]
7447-40-7	231-211-8	exemption from registration obligation	<30	Potassium Chloride	Not classified	[2]

For full text of Hazard statements: see Section 16

Type [1] Substance classified with a physical, health or environmental hazard

- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern

Additional information: specific concentration limits: Mixtures containing less than 80% ammonium nitrate are not classified Irritating to eyes (OECD 405 and OECD 437 studies lead on similar mixtures)

SECTION 4: FIRST- AID MEASURES

4.1 Description of first aid measures

- general notes	Speed is essential. If unconscious, place casualty in a recovery position with head sideways to avoid choking. Provide shower and a place to wash the eyes near the work place.
- following inhalation	Avoid dustiness. Remove the person to the fresh air. If adverse effects occur (e.g. dizziness, drowsiness or respiratory irritation) get medical attention immediately. If the person not breathing apply artificial respiration. Loosen tight clothing.
- following skin contact	Wash the lesion area with plenty of water and soap. Seek medical advice if irritation develops and persists.



- following eye contact	Rinse thoroughly with water for several minutes. Remove contact lenses if present and easy to do. Seek medical advice if irritation develops and persists.
- following Ingestion	Rinse the mouth with plenty of water. Give the casualty plenty of water to drink. Do not induce vomiting . Seek medical advice.
- self-protection of the first aider	First aider should protect himself prior
4.2 Most important symptoms and	effects, both acute and delayed
Acute effects	Not known
Delayed effects	Not known

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:	If fertilizer is not directly involved in the fire - use most suitable means to extinguish the fire.
	If fertilizer is involved in the fire - use plenty of dispersed and finely dispersed water jets to extinguish
Unsuitable extinguishing media:	Combustible materials. Do not use chemical extinguisher, foam and firefighting blanket and/or attempt to smother the fire with sand or steam.

5.2 Special hazards arising from the substance or mixture

Immediately evacuate the personnel, not occupied with firefighting. There is the possibility of explosion when the product is at confined spaces or is contaminated with incompatibilities (e.g. organic substances and halogenated compounds. In case of fire, hazardous decomposition products such as nitrogen oxides, ammonia and depends of composition of the product - Hydrogen chloride and other products maybe produced.

5.3 Advice for firefighters

In the event of fire, wear a self-contained breathing apparatus and a chemical protective suit. Make sure that doors and windows of storerooms are opened.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personal

Depending on the route of exposure use: safety goggles according to EN 166, dust masks, EN 149, protective gloves EN 388.

Avoid dust generation. Avoid inhalation of dust. Avoid contact with eyes, skin and clothing. Keep away from sources of ignition.

6.1.2. For emergency responders

Protective clothing, protective masks, protective gloves, safety goggles. See Section 8.

6.2 Environmental precautions

Do not allow spillage of the product. Prevent spillages to enter into the surface water or sanitary sewer system. Do not discharge directly to a water source. If accidental spillage or washings enter drains or watercourses contact local authority.

6.3 Methods and material for containment and cleaning up

Vacuum or sweep up the product and place it into properly labelled containers. If fertilizer is not contaminated with organic materials, metal powder, chlorine contain compounds that may reduce the detonation resistance of ammonium nitrate it may be reused. Otherwise prepare risk assessment as risk depends on nature and quantity of contaminants. Clean up traces with water. Do not collect spilled material in sawdust, fuels and hydrocarbons based lubricants or other combustible material. During cleaning use PPE. Contaminated with incompatibilities to be dispose according to national legislation.

6.4 Reference to other sections

See section 8 for personal protective equipment and section 13 for waste disposal.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

9	-
Protective measures:	Provide adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid dust generation. Keep in original tightly closed containers, away from heat and ignition sources. Avoid contamination with metals, dust and organic materials. Keep away from moisture.
Advice on general occupation hygiene:	Work under a high standard of personal hygiene. Do not eat, drink or smoke in work areas. Wash hands after handling with the product. Remove clothing and protective equipment before visiting the catering.
7.2 Conditions for safe storage, inclue	ding any incompatibilities
Technical measures and storage conditions:	Storage premises should comply with the requirements of national and regional laws. They should be dry and well ventilated. Provide a high level of security in the warehouse. Do not allow smoking and use of open fire in the warehouse. Store away from sources of fire and heat. Store away from combustible materials and reducing substances. Do not stack fertilizer near hay, straw, grain, fuel and lubricants hydrocarbon base and others on the field. Do not store in direct sunlight. Store at temperature no higher than 40 °C. The maximum size of the stack should be in compliance with national and regional regulations. Provide distance for quick access to stacks. Do not store together with other products of the same stack. Packaging materials: stainless steel, synthetic material. Unsuitable: Zinc, Copper, Paper and Wood
7.2 Specific end use(s)	fertilizer

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limit values	The product has no Community OEL (occupational exposure limits) but contain potassium chloride that has OEL - 5 mg/m ³ for 8 hours
Recommended professional and custom component Ammonium nitrate - Derived	ner exposure limits (according to chemical safety assessment of the main I No Effect Level (DNEL) for workers

Г

DN(M)EL for w			for work	orkers DN(M)EL		for customers		
Route of exposure	Acute effect local	Acute effect systemic	Chronic effects local	Chronic effects systemic	Acute effect local	Acute effect systemic	Chronic effects local	Chronic effects system
Oral		Not	t required	I		No hazard identified		2.56 mg/kg/bw/day
Inhalation	Hazard unknown	No hazard identified	Hazard unknown	36 mg/m ³	Hazard unknown	No hazard identified	Hazard unknown	8.9 mg/m ³
Dermal	No hazard identified	No hazard identified	Hazard unknown	5.12 mg/kg/bw/ day	No hazard identified	No hazard identified	Hazard unknown	2.56 mg/kg/bw/day
ECHA Gu	iidance on int ation]-respon 10.	formation req se for huma	luirements a n health, M	and chemical safe	y assessment: B: Hazard Ass	Chapter R.8: C	ot occur (in accordan haracterisation of dos new chapter B.8 Sc	
	Ellect Con	centration	(FINEC)		FINEC ST	P. To my/L		
2 Exposure	controls							
2.1 App ontrols:	ropriate	engine	—	•			of eye flushing ustrial practice.	g system and safe
2.2. Individ	ual protec	tion meas	sures, su	ch as person	al protectiv	e equipmen	t	
eneral:			bi di	reaks. When u	using the pr as. Avoid co	oduct, do n	ot eat, drink or s	hands and face befo smoke. Do not brea s. Wash contaminate
e/face prote	ection:		С	hemical goggle	es (recomme	ended: EN 1	66) or face shield	
ermal protec	tion:		L	ong sleeved ov	verall and ch	emically res	istant gloves con	forming to EN374
espiratory P	Protection: If dust concentra		tion is high and /or ventilation is inadequate, use suitable dus tion with an appropriate filter (recommended: EN 143, 149					
vironmenta	l exposure	controls:	D	ispose of rinse	water in ac	cordance wit	h local and nation	nal regulations.
ECTION 9: I	PHYSICAL	AND CH	EMICAL	PROPERTIES	;			
I Informatio	on on bas	ic physica	al and ch	emical prope	rties			
pearance:				Vhite or colored				
lour:	Odourless							
lour thresho	old: Not applicable							
of agricolut	tion at 20°	C:	>	4.5 (of the mai	n ingredient	ammonium	nitrate)	
	t /freezing point: 160 – 170°C dep nitrate)			picturo conto	nt (of the main in	aradiant ammonium		
g/ 100 cm ³)		oint:			bends on mo			greatent annionium



Flash-point:	Not relevant, as the substance is an inorganic solid
Evaporation rate:	No data available
Flammability:	No flammable (based on molecular structure)
Upper/lower flammability or explosive limits	Not relevant, incombustible substance
Vapour pressure:	Not relevant
Relative density (D4 (20)):	1.72 at 20°C of ammonium nitrate (peer-reviewed handbook)
Solubility in water:	>100 g/l at 20°C of ammonium nitrate (peer-reviewed handbook)
Partition coefficient n-octanol/water:	(-)3.1 of ammonium nitrate
Auto ignition temperature:	Not on fire (based on molecular structure)
Decomposition temperature:	> 210 °C (of the main ingredient ammonium nitrate)
Viscosity:	Not applicable to solids
Explosive properties:	Not classified as explosive
Oxidizing properties:	Not classified as oxidizer
9.2 Other information - not available	

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

Hazard reaction is not possible to occur when work and store product under recommended conditions.

10.3 Possibility of hazardous reactions

Potentially explosive under fire conditions, confined space and/or contaminated with incompatible materials (for example, organic materials or halogen compounds)

10.4 Conditions to avoid

Heat, fire, sources of ignition and incompatibles

10.5 Incompatible materials

Combustible materials, reducing agents, acids, alkalis, sulfur, chlorates, chlorides, chromates, nitrites, permanganates, metallic powders and substances containing metals such as copper, nickel, cobalt, zinc and their alloys. Do not mix solid urea with solid ammonium nitrate.

10.6 Hazardous decomposition products

When heating product decomposes releasing toxic gases as ammonia, nitrogen oxides and other gases depending on composition of the fertilizer. When in contact with alkaline materials like limestone, ammonia is released.

10.7 NKP fertilizers do not capable of self-sustaining decomposition according to UN regulation for transport of dangerous goods Trough Test (UN Manuel of Tests and Criteria, Part2, Part 3, Section 38.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

ACUTE TOXICITY

The product is not tested. The statement is based on properties of the dangerous substance - **ammonium nitrate**



Acute oral toxicity:	Method: OECD 401
	Species: rat Road of exposure: oral
	Effective dose: LD ₅₀ : 2950 mg/kg bw
	Exposure time: no data available
	Results: The mortality occurs at LD ₅₀ in range of 1250-5000mg/kg/bw
Acute dermal toxicity:	Method: OECD 402
	Species: rat (Sprague-Dawley)
	Road of exposure: dermal
	Effective dose: LD ₅₀ : > 5000 mg/kg bw Exposure time: no data available
	Results: not toxic
Acute inhalation toxicity:	Method: (no guideline followed)
Acute initialation toxicity.	Species: rat
	Road of exposure: inhalation
	Effective dose: C_{50} : > 88.8 mg/l
	Exposure time: 4 hours
	Results: not toxic
LOCAL EFFECTS	
Skin irritation:	Not irritating (OECD 404)
Eye irritation:	Irritating (OECD 405)
Skin sensitization:	Not sensitizing (OECD 429, with magnesium nitrate, nitric acid ammonium
	calcium salt, sodium nitrate)
OTHER	
Sub-acute toxicity:	Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate)
	Oral 52-week NOAEL = 256 mg/kg bw/day (OECD 453, with ammonium sulphate)
	Inhalation 2-weeks NOAEL ≥ 185 mg/m³ (OECD 412)
Mutagenicity:	Negative (OECD 471, 473, with nitric acid ammonium calcium salt)
	Negative (OECD 476, with potassium nitrate)
Reproductive toxicity:	Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate)
Carcinogenicity:	Not carcinogenic (OECD 453, with ammonium sulphate)
Specific target organ toxicity - single exposure	Not classified
Specific target organ toxicity - repeated exposure	Not classified
	V4 Potassium chloride
Acute toxicity:	Species: rat Road of exposure: intravenously
	Effective dose: LD ₅₀ : 39-142 mg/kg bw
SECTION 12: ECOLOGICAL INFORM	ATION
12.1 Toxicity	
Substance name - ammonium nitrate	
Fish (short-term):	48-h LC ₅₀ : 447 mg/l (no guideline followed)
Fish (long-term):	No data
	1



Donhnia magna (chart tarm):	48 h EC + 400 mg/l (no guideling followed with notageium nitrate)
Daphnia magna (short-term):	48-h EC ₅₀ : 490 mg/l (no guideline followed, with potassium nitrate)
Daphnia magna (long-term):	No data
Daphnia magna	10-d EC ₅₀ : > 1700 mg/l (seawater, no guideline followed, performed with potassium nitrate)
Inhibition of microbial activity:	3-h EC ₅₀ : >1000 mg/l, NOEC: 180 mg/l (OECD 209, with sodium nitrate)
Substance name - Калиев хлори,	q
Fish	48 h, CL ₅₀ : 2300 mg/l (Leuciscus idus)
Daphnia magna	48 h, EC ₅₀ : 825 mg/l
Daphnia magna	72 h, EC ₅₀ : 2500 mg/l (Scenedesmus subspicatus)
Invertebrates:	96 h, EC₅₀: 940 mg/l, (Physella heterostropka) ∎
12.2 Persistence and degradability	
Biodegradation:	Standard test is not applicable as the substance is inorganic. In addition, in the anaerobic transformation of ammonium, one group of bacteria oxidizes ammonium to nitrite while another group oxidizes nitrite into nitrate. The average biodegradation rate in wastewater plant at 20°C is 52 g N/kg dissolved solid/day. Nitrate degradation is fastest in anaerobic conditions. In the anaerobic transformation of nitrate into N2, N2O and NH3, the biodegradation rate in wastewater plant at 20°C is 50 g N/kg dissolved rate in wastewater plant at 20°C is 70 g N/kg dissolved solid/day.
Hydrolysis:	No hydrolysable group is present, will completely dissociate into ions.
12.3 Bioaccumulative potential	
Octanol-water partition coefficient (Kow):	Not relevant as the substance is inorganic, but considered to be low (based on high water solubility)
Bioconcentration factor (BCF):	Low potential for bioaccumulation (based on substance properties).
12.4 Mobility in soil	
Adsorption coefficient:	Low potential for adsorption (based on substance properties).
12.5 Results of PBT and vPvB asse	
SECTION 13: DISPOSAL CONSIDE	RATIONS
Waste treatment methods:	The generation of waste should be avoided or minimized wherever possible. Recycle if possible. Do not mix with other waste. The waste should be in the original packaging.
	Do not allow significant quantities of the product or residues to enter in the sewage system. Treat them in WWTP.
	Disposal of this product or it's solutions must always comply with the requirements of environmental protection and local legal requirements in the field of waste management.
Package waste disposal:	The generation of waste should be avoided or minimized wherever possible. Empty packages should be for recycling. Incineration or landfill should be taken into account only when recycling is not possible. The national legal requirements for waste management to be observed.



SECTION 14: TRANSPORT INFORMATION

The product is not classified as hazardous according to International transport regulations (ADR / RID, IMDG or ICAO / IATA). To Be transported with care. Do not to disturb the integrity of the packaging and the conditions of storage. Do not transport together with food and incompatible materials.

If spillage of roadway occur, collect and wash spill area with plenty of water.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture:	Regulation EC 1907/2006 (REACH), Annex XVII, entry 58 concerning the restriction to place on a market of ammonium nitrate as such or in a mixture, see Annex for conditions of restriction,
	1. Shall not be placed on the market for the first time after 27 June 2010 as a substance, or in mixtures that contain more than 28 % by weight of nitrogen in relation to ammonium nitrate, for use as a solid fertiliser, straight or compound, unless the fertiliser complies with the technical provisions for ammonium nitrate fertilisers of high nitrogen content set out in Annex III to Regulation (EC) No 2003/2003 of the European Parliament and of the Council (*******). 2. Shall not be placed on the market after 27 June 2010 as a substance, or in mixtures that contain 16 % or more by weight of nitrogen in relation to ammonium nitrate except for supply to: (a) downstream users and distributors, including natural or legal persons licensed or authorised in accordance with Council Directive 93/15/EEC; (b) farmers for use in agricultural activities, either full time or part time and not necessarily related to the size of the land area.
	Regulation EC 2003/2003, Regulation EC 1272/2008, Regulation EC 98/2013 on the marketing and use of explosives precursors Annex II,
	* 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 of the last version are highlighted with **<u>V4..</u>**. This version replaces all previous versions.

Uses:

* Formulation of chemicals and fertilizers

* Use by professional worker - Use by professional worker (outdoor and indoor of reactive substances in open systems)

* Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches, fertilizer

Classification in accordance with Regulation 1272/2008 (CLP) H statement May intensify fire; oxidiser (H272) Causes serious eye irritation (H319)

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_X - lethal concentration

ECx - effective concentration

LDx - 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

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.

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ANNEX

1. Exposure scenario 1: Formulation - Formulation of chemicals and fertilizers					
1.1.Formulation - Formulation of chemicals and fertilizers					
Product category / UCN code:					
PC 1, Adhesives, sealants					
PC 9a, Coatings and paints, thinners, paint removers					
PC 11, Explosives					
PC 12, Fertilizers					
PC 14, Metal surface treatment products, including galvanic and electroplating products					
PC 19, Intermediate					
PC 20, Products such as pH-regulators, flocculants, precipitants, neutralization agents					
PC 35, Washing and cleaning products (including solvent based products)					
PC 37, Water treatment chemicals					
P15900, Process regulators					
Environment contributing scenario(s):					
Formulation of chemicals and fertilizers	ERC 2				
Worker contributing scenario(s):					
Use in closed, continuous process with occasional controlled exposure	PROC 2				
Use in closed batch process (synthesis or formulation)	PROC 3				
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4				
Mixing or blending in batch processes for formulation of preparations and articles (multistage	PROC 5				
and/or significant contact)					
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at	PROC 8a				
non-dedicated facilities					
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b				
Transfer of substance or preparation into small containers (dedicated filling line, including	PROC 9				
weighing)	1 1 1 0 3				
Treatment of articles by dipping and pouring	PROC 13				
Production of preparations or articles by tabletting, compression, extrusion, palletisation	PROC 14				
Use as laboratory reagent	PROC 15				



1.2. Conditions of use affect	ting exposure				
		ormul	ation of chemicals and fertilize	ers (FRC 2)	
				e product does not meet the criteria for	
being classified as dangerous		Shirler	not needed of not required as the	e product does not meet the chtena lor	
			continuous process with coss	cional controllad expective (DDOC 2)	
_		oseu,	continuous process with occa	sional controlled exposure (PROC 2)	
Product (article) characteristics • Concentration of substance in mixture: ≤ 100% (solid or liquid)					
		motor	-)·	≤ 100% (solid or liquid)	
Concentration of substance	(used for exposure est	imates	s):	Substance as such	
Dustiness of material:				Low	
Amount used (or contained	in articles), frequenc	y and	duration of use/exposure		
Duration of activity:				< 8 hours	
Technical and organisation	al conditions and mea				
General ventilation:			c general ventilation (1-3 air char		
Containment:			ed continuous process with occa	sional controlled exposure	
 Local exhaust ventilation: 			Effectiveness Inhal: 0%]		
Occupational Health and Sa	fety Management	Adva	anced		
System:					
			on, hygiene and health evaluati		
• General:	Work under a high sta product, do not eat, d			ds and face before breaks. When using the	
Dermal Protection:				rming to EN374 with basic employee	
	training) [Effectivenes	s Der	mal: 90%]	ming to EN374 with basic employee	
Respiratory Protection:	No [Effectiveness Inh	al: 0%	6]		
Eye Protection:	Yes (chemical goggle	s, or f	full face shield if splashing is poss	sible, in case of using liquid (aqueous)	
	mixtures of the substa	ance)			
Other conditions affecting w	vorkers exposure				
Place of use:		Indo	or		
Skin surface potentially expo	osed:	Two	hands face (480 cm2)		
1.2.3. Worker contributing s	cenario (2): Use in cl	osed	batch process (synthesis or for	rmulation) (PROC 3)	
Product (article) characteris					
Concentration of substance				≤ 100% (solid or liquid)	
Concentration of substance	(used for exposure est	timates):		Substance as such	
Dustiness of material:	х I	Low			
Amount used (or contained	in articles), frequenc	v and	duration of use/exposure		
 Duration of activity: 			•••••	< 8 hours	
Technical and organisation	al conditions and me	asure	S		
General ventilation:			Basic general ventilation (1-3 a	ir changes per hour)	
Containment:			Closed batch process with occa		
Local exhaust ventilation:			no [Effectiveness Inhal: 0%]		
Occupational Health and Sa	fety Management Syst	em.	Advanced		
•			on, hygiene and health evaluati	ion	
General:				ds and face before breaks. When using the	
Conciai.	product, do not eat, d			us and face before breaks. When using the	
Dermal Protection:				rming to EN374 with basic employee	
Derman Polection.					
Respiratory Protection:	training) [Effectiveness Dermal: 90%] Respiratory Protection: No [Effectiveness Inhal: 0%]				
			-	sible in case of using liquid (aqueous)	
• Eye Protection: Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)				נוסיס, ווי סמסט טי משווש ווקטוע (מקעפטעט)	
Other conditions affecting w	vorkers exposure				
Place of use: Indoor					
Skin surface potentially expo	osed:	One	hand face only (240 cm2)		
1.2.4. Worker contributing s	cenario (3): Use in ba	tch a	nd other process (synthesis) w	/here opportunity for exposure arises	



(PROC 4)				
Product (article) characteris	stics			
Concentration of substance	in mixture:		≤ 100% (solid or liquid)	
 Concentration of substance (used for exposure estimates): 			Substance as such	
Dustiness of material:				Low
Amount used (or contained	in articles), frequency	and du	ration of use/exposure	
Duration of activity:				< 8 hours
Technical and organisation	al conditions and meas	sures		
General ventilation:		B	asic general ventilation (1-3 a	ir changes per hour)
Containment:			emi-closed process with occa	
Local exhaust ventilation:			o [Effectiveness Inhal: 0%]	
Occupational Health and Sa	fety Management Syste	m: A	dvanced	
Conditions and measures re	· · · ·		hygiene and health evaluati	ion
• General:		ndard of	personal hygiene. Wash han	ds and face before breaks. When using the
Dermal Protection:	Yes (long sleeved ove training) [Effectiveness			rming to EN374 with basic employee
 Respiratory Protection: 	No [Effectiveness Inha			
Eye Protection:	Yes (chemical goggles	s, or full f	ace shield if splashing is pos	sible, in case of using liquid (aqueous)
	mixtures of the substan	nce)		
Other conditions affecting v		la da an		
Place of use:		Indoor		
Skin surface potentially expo	osed:	I wo han	ids face (480 cm2)	
1.2.5. Worker contributing s (multistage and/or significa		blending	g in batch processes for for	mulation of preparations and articles
Product (article) characteris	stics			
Concentration of substance	in mixture:			≤ 100% (solid or liquid)
Concentration of substance	(used for exposure estir	nates):		Substance as such
Dustiness of material:	•			Low
Amount used (or contained	in articles), frequency	and du	ration of use/exposure	
Duration of activity:				< 8 hours
Technical and organisation	al conditions and meas	sures		
General ventilation:			Basic general ventilation (1	-3 air changes per hour)
Containment:			No	
Local exhaust ventilation:			no [Effectiveness Inhal: 0%]
Occupational Health and Sa	fety Management Syste	m:	Advanced	-
Conditions and measures re	elated to personal prot	tection,	hygiene and health evaluati	ion
• General:				ds and face before breaks. When using the
	product, do not eat, dri			
Dermal Protection:	Yes (long sleeved ove training) [Effectiveness			rming to EN374 with basic employee
Respiratory Protection:	No [Effectiveness Inha		. 90 %]	
Eye Protection:		-	and chield if onloching is now	aible in appa of using liquid (aquaqua)
• Eye Protection.	mixtures of the substa		ace shield if splashing is pos	sible, in case of using liquid (aqueous)
Other conditions affecting w	workers exposure			
Place of use:		Indoor		
Skin surface potentially expo			ids face (480 cm ²)	
1.2.6. Worker contributing scenario (5): Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC 8a)				
Product (article) characteristics				
Concentration of substance				≤ 100% (solid or liquid)
Concentration of substance (used for exposure estimates): Substance as such				



 Dustiness of material: 				Low		
Amount used (or contained	Amount used (or contained in articles), frequency and duration of use/exposure					
Duration of activity:				< 8 hours		
Technical and organisation	al conditions and me	asures				
General ventilation:			Basic general ventilation (1-3 air changes per hour)			
Containment:			No			
 Local exhaust ventilation: 			no [Effectiveness Inhal: 0%]			
Occupational Health and Sa	ifety Management Syst	em:	Advanced			
Conditions and measures r	elated to personal pro	otection, h	hygiene and health evaluati	ion		
• General:	Work under a high st product, do not eat, c			ds and face before breaks. When using the		
Dermal Protection:	· · · ·	erall; chen	nically resistant gloves confo	rming to EN374 with basic employee		
Respiratory Protection:	No [Effectiveness Inh		. 90 /0]			
Eye Protection:		-	and chield if aplaching in page	sible, in case of using liquid (aqueous)		
	mixtures of the subst		ace silleru il spiasi il igis pos	sible, in case of using liquid (aqueous)		
Other conditions affecting		ancej				
Place of use:	workers exposure	Indoor				
Skin surface potentially expo	acad:		ds (960 cm ²)			
1.2.7. Worker contributing s containers at dedicated fac		of substa	ance or preparation (charging	ng/discharging) from/to vessels/large		
Product (article) characteris	stics					
Concentration of substance	in mixture:			≤ 100% (solid or liquid)		
Concentration of substance	(used for exposure est	imates):		Substance as such		
Dustiness of material:				Low		
Amount used (or contained	in articles), frequenc	y and dur	ration of use/exposure			
Duration of activity:				< 8 hours		
Technical and organisation	al conditions and me	asures				
General ventilation:		E	Basic general ventilation (1-3	air changes per hour)		
Containment:		S	Semi-closed process with occ	asional controlled exposure		
 Local exhaust ventilation: 						
Occupational Health and Sa	ifety Management Syst	em: A	Advanced			
Conditions and measures r	elated to personal pro	otection, h	hygiene and health evaluati	ion		
• General:	Work under a high st	andard of	personal hygiene. Wash han	ds and face before breaks. When using the		
	product, do not eat, c	lrink or sm	noke.			
Dermal Protection:	Yes (long sleeved ov training) [Effectivenes			rming to EN374 with basic employee		
Respiratory Protection:	No [Effectiveness Inh		1			
Eye Protection:		-	ace shield if splashing is pos	sible, in case of using liquid (aqueous)		
	mixtures of the subst					
Other conditions affecting workers exposure						
Place of use:		Indoor				
	Skin surface potentially exposed: Two hands (960 cm ²)					
1.2.8. Worker contributing scenario (7): Transfer of substance or preparation into small containers (dedicated filling line,						
including weighing) (PROC Product (article) characteris						
Concentration of substance				≤ 100% (solid or liquid)		
Concentration of substance in mixture. Substance (used for exposure estimates): Substance as such						
				Low		
Amount used (or contained in articles), frequency and duration of use/exposure						
Duration of activity: <pre> </pre> < 8 hours						
Technical and organisational conditions and measures						



 General ventilation: 	General ventilation:			Basic general ventilation (1-3 air changes per hour)		
Containment:		Semi-closed process with occasional controlled exposure				
Local exhaust ventilation:		no [Effectiveness Inhal: 0%]				
Occupational Health and Sa	fety Management System:		Advanced			
Conditions and measures related to personal protection, hygiene and health evaluation				on		
• General:	Work under a high standa product, do not eat, drink			ds and face before breaks. When using the		
Dermal Protection:				rming to EN374 with basic employee		
	training) [Effectiveness De			<u> </u>		
Respiratory Protection:	No [Effectiveness Inhal: 0	%]				
Eye Protection:	Yes (chemical goggles, o mixtures of the substance		Il face shield if splashing is pos	sible, in case of using liquid (aqueous)		
Other conditions affecting	vorkers exposure	,				
Place of use:	Ind	oor				
Skin surface potentially expo	osed: Tw	o ha	ands face (480 cm ²)			
1.2.9. Worker contributing s	cenario (8) Treatment of	arti	cles by dipping and pouring	(PROC 13)		
Product (article) characteris						
Concentration of substance				≤ 100% (solid or liquid)		
Concentration of substance		es)	:	Substance as such		
Dustiness of material:	х I	,		Low		
Amount used (or contained	in articles), frequency an	d d	luration of use/exposure			
Duration of activity:			•	< 8 hours		
Technical and organisation	al conditions and measur	es				
General ventilation:			Basic general ventilation (1-3	air changes per hour)		
Containment:			No			
Local exhaust ventilation:			no [Effectiveness Inhal: 0%]			
Occupational Health and Sa	fety Management System:		Advanced			
		tior	n, hygiene and health evaluat	on		
• General:	Work under a high standa product, do not eat, drink			ds and face before breaks. When using the		
Dermal Protection:	Yes (long sleeved overall	; ch	emically resistant gloves confo	ming to EN374 with basic employee		
. Despireter / Drotestien	training) [Effectiveness De		iai: 90%]			
Respiratory Protection:	No [Effectiveness Inhal: 0	_	I fees shield if enlaching is not	the increase of using liquid (squasus)		
Eye Protection:	mixtures of the substance		in face shield if splashing is pos	sible, in case of using liquid (aqueous)		
Other conditions affecting v	vorkers exposure					
Place of use:	Ind	oor				
 Skin surface potentially exposed 	osed: Tw	o ha	ands face (480 cm ²)			
1.2.10. Worker contributing scenario (9): Production of preparations or articles by tabletting, compression, extrusion, palletisation (PROC 14)						
Product (article) characteris	stics					
Concentration of substance in mixture:				≤ 100% (solid or liquid)		
Concentration of substance	(used for exposure estimat	es)	:	Substance as such		
Dustiness of material:			Low			
Amount used (or contained in articles), frequency and duration of use/exposure						
Duration of activity: < 8 hours						
Technical and organisational conditions and measures						
General ventilation: Basic general ventilation (1-3 air changes per hour)				air changes per hour)		
Containment:			No	No		
Local exhaust ventilation:			no [Effectiveness Inhal: 0%]			
Occupational Health and Sa	· · ·		Advanced			
Conditions and measures related to personal protection, hygiene and health evaluation						



• General:	• General: Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the						
		roduct, do not eat, drink or smoke.					
Dermal Protection:		[long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee ng) [Effectiveness Dermal: 90%]					
Respiratory Protection:	No [Effectiveness Inh	nal: 0%]					
Eye Protection:	Yes (chemical goggle mixtures of the subst		ll face shield if spla	ishing is possi	ble, in case of using lie	quid (aqueous)	
Other conditions affecting w		anooy					
Place of use:		Indoor					
Skin surface potentially expo	ised:		ands face (480 cm	²)			
				•			
1.2.11. Worker contributing		siapora	tory reagent (PRC	50 15)			
 Product (article) characteris Concentration of substance 					< 100% (polid or liquid	1)	
		timataa)			≤ 100% (solid or liquid)	
Concentration of substance Dustiness of material:	(used for exposure esi	unales).	•		Substance as such		
Amount used (or contained	in articles) frequence	wand d	luration of usology		Low		
Duration of activity:	in anticles), nequenc	y anu u	iuration of use/ex		< 8 hours		
Technical and organisation	al conditions and ma	2611706					
General ventilation:	a conultions and me	asures	Basic general ver	otilation (1-3 a	ir changes per hour)		
Containment:			No		ir changes per nour		
Local exhaust ventilation:			no [Effectiveness	Inhal: 0%]			
Occupational Health and Sa	fety Management Syst	tem:	Advanced	innai. 076j			
Conditions and measures re				alth evaluatio	'n		
General:					s and face before brea	aks. When using the	
Ceneral.	product, do not eat, c			c. wash hand		ato. When doing the	
Dermal Protection:	-	(long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee					
	training) [Effectivenes			5	0		
Respiratory Protection:	No [Effectiveness Inh	Effectiveness Inhal: 0%]					
Eye Protection:	Yes (chemical goggle	(chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous)					
	mixtures of the subst	ance)					
Other conditions affecting w	vorkers exposure						
Place of use:		Indoor					
Skin surface potentially expo	osed:	One ha	and face only (240) cm²)			
1.3. Exposure estimation an	d reference to its so	urce					
1.3.1. Exposure concentrati	ons and risks for wo	rkers: U	se in closed, con	tinuous proc	ess with occasional	controlled	
exposure (PROC 2)							
Exposure concentrations and	risks for workers					1	
Route of exposure and typ	e of Exposure conce	entratio	n	Risk chara	cterisation		
effects							
Inhalation, systemic, long-ter	m 0.01 mg/m³ (TR)	A Worke	ers 3.0)	RCR < 0.01			
Dermal, systemic, long-term	0.137 mg/kg bw	/day (TF	RA Workers 3.0)	RCR = 0.027			
Dermal, local, long-term				Qualitative*			
Eye, local				Qualitative*			
Combined routes, systemic,		RCR = 0.027					
long-term							
*Conclusion on risk characterisation (qualitative)							
Dermal, local, long-term							
As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is							
considered to be controlled.							
Eye, local							

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.



1.3.2. Exposure concentrations	and risks for workers: Use in closed batcl	h process (synthesis or formulati	on) (PROC 3)	
Exposure concentrations and risks	s for workers			
Route of exposure and type of effects	Exposure concentration	Risk characterisation		
Inhalation, systemic, long-term	0.1 mg/m³ (TRA Workers 3.0)	RCR < 0.01		
Dermal, systemic, long-term	0.069 mg/kg bw/day (TRA Workers 3.0)	RCR = 0.013		
Dermal, local, long-term		Qualitative*		
Eye, local		Qualitative*		
Combined routes, systemic,		RCR = 0.016		
long-term				
considered to be controlled. Eye, local	nically resistant gloves are worn, the risk of o of causing ocular effects is considered to be		ermal exposure is	
	and risks for workers: Use in batch and o	other process (synthesis) where o	pportunity for	
exposure arises (PROC 4) Exposure concentrations and risks	s for workers			
Route of exposure and type of		Risk characterisation		
effects		Nisk enalueiensation		
Inhalation, systemic, long-term	0.5 mg/m³ (TRA Workers 3.0)	RCR = 0.014		
Dermal, systemic, long-term	0.686 mg/kg bw/day (TRA Workers 3.0)	RCR = 0.134		
Dermal, local, long-term		Qualitative*		
Eye, local		Qualitative*		
Combined routes, systemic,		RCR = 0.148		
long-term				
*Conclusion on risk characterisa	ation (qualitative)			
Dermal, local, long-term As a long sleeved overall and cher	nically resistant gloves are worn, the risk of o	causing local effects via long-term d	ermal exposure is	
considered to be controlled.				
Eye, local				
	of causing ocular effects is considered to be and risks for workers: Mixing or blending		on of preparations	
and articles (multistage and/or s				
Exposure concentrations and risks	s for workers			
Route of exposure and type of effects	Exposure concentration	Risk characterisation		
Inhalation, systemic, long-term	0.5 mg/m³ (TRA Workers 3.0)	RCR = 0.014		
Dermal, systemic, long-term	1.371 mg/kg bw/day (TRA Workers 3.0)	RCR = 0.268		
Dermal, local, long-term		Qualitative*		
Eye, local		Qualitative*		
Combined routes, systemic, long- term		RCR = 0.282		
*Conclusion on risk characterisa	ation (qualitative)			
<u>Dermal, local, long-term</u> As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.				

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.



	nd risks for workers: Transfer of substan	ce or preparation (charging/disc	harging) from/to				
vessels/large containers at non-dedicated facilities (PROC 8a) Exposure concentrations and risks for workers							
Route of exposure and type of	Exposure concentration	Risk characterisation					
effects							
Inhalation, systemic, long-term	0.5 mg/m ³ (TRA Workers 3.0)	RCR = 0.014					
Dermal, systemic, long-term	1.371 mg/kg bw/day (TRA Workers 3.0)	RCR = 0.268					
Dermal, local, long-term		Qualitative*					
Eye, local		Qualitative*					
Combined routes, systemic, long-		RCR = 0.282					
term							
*Conclusion on risk characterisat	ion (qualitative)						
Dermal, local, long-term							
	cally resistant gloves are worn, the risk of c	causing local effects via long-term d	ermal exposure is				
considered to be controlled. Eve, local							
	causing ocular effects is considered to be	controlled.					
1.3.6. Exposure concentrations ar	nd risks for workers: Transfer of substan		harging) from/to				
vessels/large containers at dedicated Exposure concentrations and risks							
Route of exposure and type of	Exposure concentration	Risk characterisation					
effects	Exposure concentration						
Inhalation, systemic, long-term	0.1 mg/m ³ (TRA Workers 3.0)	RCR < 0.01					
Dermal, systemic, long-term	1.371 mg/kg bw/day (TRA Workers 3.0) RCR = 0.268					
Dermal, local, long-term		Qualitative*					
Eye, local		Qualitative*					
Combined routes, systemic, long-		RCR = 0.271					
term							
*Conclusion on risk characterisation (qualitative)							
Dermal, local, long-term							
As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is							
considered to be controlled. Eve, local							
As eye protection is worn, the risk of causing ocular effects is considered to be controlled.							
1.3.7. Exposure concentrations ar filling line, including weighing) (P	nd risks for workers: Transfer of substan	ice or preparation into small cont	ainers (dedicated				
Exposure concentrations and risks							
	Exposure concentration	Risk characterisation					
effects							
Inhalation, systemic, long-term	0.1 mg/m ³ (TRA Workers 3.0)	RCR < 0.01					
Dermal, systemic, long-term	0.686 mg/kg bw/day (TRA Workers 3.0)	RCR = 0.134					
Dermal, local, long-term		Qualitative*					
Eye, local	Qualitative*						
Combined routes, systemic, long-		RCR = 0.137					
term							
*Conclusion on risk characterisat	ion (qualitative)	·					
Dermal, local, long-term		· · · · · · · · · · · · · · · · · · ·					
As a long sleeved overall and chemi considered to be controlled.	cally resistant gloves are worn, the risk of c	ausing local effects via long-term d	ermal exposure is				
Eve, local							



As eve protection is worn, the risk of	f causing ocular effects is considered to be co	ontrolled.				
	nd risks for workers: Treatment of articles					
Exposure concentrations and risks	for workers					
Route of exposure and type of effects	Exposure concentration	Risk characterisation				
Inhalation, systemic, long-term	0.1 mg/m ³ (TRA Workers 3.0)	RCR < 0.01				
Dermal, systemic, long-term	1.371 mg/kg bw/day (TRA Workers 3.0)	RCR = 0.268				
Dermal, local, long-term		Qualitative*				
Eye, local		Qualitative*				
Combined routes, systemic, long- term		RCR = 0.271				
*Conclusion on risk characterisat	ion (qualitative)					
Dermal, local, long-term						
considered to be controlled. <u>Eye, local</u> As eye protection is worn, the risk of 1.3.9. Exposure concentrations and extrusion, pelletisation (PROC 14)		ontrolled.				
Exposure concentrations and risks	for workers					
Route of exposure and type of effects	Exposure concentration	Risk characterisation				
Inhalation, systemic, long-term	0.1 mg/m ³ (TRA Workers 3.0)	RCR < 0.01				
Dermal, systemic, long-term	0.343 mg/kg bw/day (TRA Workers 3.0)	RCR = 0.067				
Dermal, local, long-term		Qualitative*				
Eye, local		Qualitative*				
Combined routes, systemic, long-term		RCR = 0.07				
*Conclusion on risk characterisation (qualitative)						
considered to be controlled. Eve, local As eye protection is worn, the risk of	ically resistant gloves are worn, the risk of ca f causing ocular effects is considered to be ca and risks for workers: Use as laboratory re	ontrolled.				
Exposure concentrations and risks		eageni (PROC 15)				
Route of exposure and type of effects	Exposure concentration	Risk characterisation				
Inhalation, systemic, long-term	0.1 mg/m ³ (TRA Workers 3.0)	RCR < 0.01				
Dermal, systemic, long-term	0.034 mg/kg bw/day (TRA Workers 3.0)	RCR < 0.01				
Dermal, local, long-term		Qualitative*				
Eye, local		Qualitative*				
Combined routes, systemic, long-		RCR < 0.01				
term						
*Conclusion on risk characterisat	ion (qualitative)					
considered to be controlled.	ically resistant gloves are worn, the risk of ca	using local effects via long-te				
Eye, local As eye protection is worn, the risk of	f causing ocular effects is considered to be c	ontrolled.				



1.4. Guidance to DU to evaluate whether he wo			
No additional risk management measures, besides	s those that are mentioned above, are nee	ded to guarantee safe use for workers	
2. Experie cooperio 2: Uso hu professi	ional worker . Use by professional work	ver (outdoor and indoor of reactive	
2. Exposure scenario 2: Use by professi substances in open systems)	ional worker - use by professional work		
2.1. Use by professional worker - Use by pr	ofessional worker (outdoor and indoo	or of reactive substances in ope	
systems)	,	•	
Sector of use / NACE code:			
SU 1, Agriculture, forestry, fishery			
SU 2a, Mining (without offshore industries)			
SU 10, Formulation [mixing] of preparations and/or	re-packaging (excluding allovs)		
SU 19, Building and construction work			
SU 23, Electricity, steam, gas water supply and se	wage treatment		
38.1, Quarrying of stone, sand and clay	wage realment		
Draduat actorson			
Product category:			
PC 11, Explosives PC 12, Fertilisers			
PC 37, Water treatment chemicals			
Environment contributing scenario(s):			
Use by professional worker (outdoor and indoo	r of reactive substances in open systems)	ERC 8e, ERC 8b	
Worker contributing scenario(s):			
Jse in closed process, no likelihood of exposure		PROC 1	
Jse in closed, continuous process with occasional	controlled exposure	PROC 2	
Jse in closed batch process (synthesis or formulat	-	PROC 3	
Mixing or blending in batch processes for formulati	PROC 5		
and/or significant contact)			
Transfer of substance or preparation (charging/dis	PROC 8a		
at non-dedicated facilities			
Transfer of substance or preparation (charging/dis	PROC 8b		
at dedicated facilities			
Fransfer of substance or preparation into small cor	ntainers (dedicated filling line, including	PROC 9	
weighing)			
Non industrial spraying		PROC 11	
Jse as laboratory reagent		PROC 15	
Hand-mixing with intimate contact and only PPE a	vailable	PROC 19	
2.2. Conditions of use affecting exposure			
2.2.1. Environmental contributing scenario (1): open systems) (ERC 8e), (ERC 8b)	Use by professional worker (outdoor a	nd indoor of reactive substances in	
Exposure assessment and risk characterisation are	e either not needed or not required as the	product does not meet the criteria for	
being classified as dangerous for the environment.	-	•	
2.2.2. Worker contributing scenario (1): Use in	closed process, no likelihood of exposi	ure (PROC 1)	
Product (article) characteristics			
Concentration of substance in mixture:		≤ 100% (solid or liquid)	
Concentration of substance (used for exposure e	Substance as such		
Dustiness of material:		Low	
Amount used (or contained in articles), frequer	ncy and duration of use/exposure		
Duration of activity:		< 8 hours	
Fechnical and organisational conditions and m	easures		
General ventilation:	Basic general ventilation (1-3 air chang	· · · · ·	
Containment:	Closed system (minimal contact during routine operations)		
Local exhaust ventilation:	no [Effectiveness Inhal: 0%]		
Occupational Health and Safety Management	Basic		



System:					
Conditions and measures related to personal protection, hygiene and health evaluation					
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.				
Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]				
Respiratory Protection:		No [Effectiveness Inhal: 0%]			
Eye Protection:	Yes (chemical gogg	gles, or full	face shield if splashing is	possible, in case of using liquid (aqueous)	
-	mixtures of the sub	stance)			
Other conditions affecting	workers exposure				
Place of use:			Indoor		
Skin surface potentially expe	osed:		One hand face only (240	cm2)	
2.2.3. Worker contributing s	scenario (2): Use in	closed, c	ontinuous process with o	occasional controlled	
exposure (PROC 2)					
Product (article) characteris					
Concentration of substance				≤ 100% (solid or liquid)	
Concentration of substance	(used for exposure e	estimates):		Substance as such	
Dustiness of material:				OW	
Amount used (or contained	in articles), freque	ncy and d	uration of use/exposure		
 Duration of activity: 			< 8	3 hours	
Technical and organisation	al conditions and n	neasures			
General ventilation:		Basic gen	eral ventilation (1-3 air cha	nges per hour)	
Containment:				asional controlled exposure	
 Local exhaust ventilation: 		no [Effecti	iveness Inhal: 0%]		
Occupational Health and Sa	fety Management	Basic			
System:					
Conditions and measures r		-			
• General:	Work under a high product, do not eat			hands and face before breaks. When using the	
Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic				
De en instant Ducto etient		-	ness Dermal: 90%]		
Respiratory Protection:	No [Effectiveness Inhal: 0%]				
Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)				
Other conditions affecting workers exposure					
Place of use:	workers exposure		Indoor		
Skin surface potentially expo	osed:		Two hands face (480 cm ²	2)	
			,	,	
2.2.4. Worker contributing s		closed ba	atch process (synthesis c	or formulation) (PROC 3)	
Product (article) characteristics					
Concentration of substance				≤ 100% (solid or liquid)	
Concentration of substance	(used for exposure e	estimates):		Substance as such	
Dustiness of material:				Low	
Amount used (or contained	in articles), freque	ncy and d	uration of use/exposure		
 Duration of activity: 				< 8 hours	
Technical and organisation	al conditions and n				
 General ventilation: 			Basic general ventilation (1-		
Containment:			· · ·	occasional controlled exposure	
Local exhaust ventilation:			no [Effectiveness Inhal: 0%		
Occupational Health and Sa			Basic		
Conditions and measures r		-			
• General:	Work under a high product, do not eat			hands and face before breaks. When using the	



Dermal Protection:	Yes (long sleeved overall: ch	emically resistant gloves c	conforming to EN374 with basic employee	
	training) [Effectiveness Dermal: 90%]			
Respiratory Protection:	No [Effectiveness Inhal: 0%]			
Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)			
Other conditions affecting workers exposure				
Place of use:		Indoor		
Skin surface potentially exp	osed:	One hand face only (240	cm2)	
2.2.5. Worker contributing scenario (4): Mixing or blending in batch processes for formulation of p (multistage and/or significant contact) (PROC 5)			or formulation of preparations and articles	
Product (article) characteristics				
Concentration of substance	in mixture:		≤ 100% (solid or liquid)	
Concentration of substance	(used for exposure estimates)		Substance as such	
 Dustiness of material: 			Low	
Amount used (or contained	d in articles), frequency and d	luration of use/exposure		
 Duration of activity: 			< 8 hours	
Technical and organisation	nal conditions and measures			
 General ventilation: 		Basic general ventilation	(1-3 air changes per hour)	
Containment:		No		
Local exhaust ventilation:		no [Effectiveness Inhal: (0%]	
Occupational Health and Saturation	afety Management System:	Basic		
Conditions and measures	related to personal protection, hygiene and health evaluation		aluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the			
	product, do not eat, drink or smoke.			
Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]			
Respiratory Protection:	No [Effectiveness Inhal: 0%]			
Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)			
Other conditions affecting	/			
Place of use:		Indoor		
Skin surface potentially exp	osed:	Two hands face (480 cm	2)	
2.2.6. Worker contributing scenario (5): Transfer of substance or preparation (charging/discharging) from/to vessels/lai			,	
containers at non-dedicated facilities (PROC 8a)				
Product (article) characteri				
Concentration of substance			≤ 100% (solid or liquid)	
Concentration of substance (used for exposure estimates)			Substance as such	
Dustiness of material:		lunation of use lown course	Low	
	Amount used (or contained in articles), frequency and duration of use/exposure			
	Duration of activity: < 8 hours Technical and organisational conditions and measures			
	ial conditions and measures	Basic general ventilation (1-3 air changes per hour)		
General ventilation:				
		No		
 Local exhaust ventilation: Occupational Health and Safety Management System: 		no [Effectiveness Inhal: 0%] Basic		
	· · · ·		Justian	
General:	related to personal protection			
• General.	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.		fianus and face before breaks. When using the	
Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]			
Respiratory Protection:	No [Effectiveness Inhal: 0%]			
Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous)			



mixtures of the substance)				
Other conditions affecting workers exposure				
Place of use:		Indoor		
Skin surface potentially exposed:		Two hands (960 cm ²)		
2.2.7. Worker contributing scenario (6): Transfer of substance or preparation (charging/discharging) from/to vessels/la containers at dedicated facilities (PROC 8b)				
Product (article) characteristics				
Concentration of substance			≤ 100% (solid or liquid)	
Concentration of substance (used for exposure estimates):		s):	Substance as such	
Dustiness of material:		- /-	Low	
Amount used (or contained	d in articles), frequency and	duration of use/exposure		
Duration of activity:		•	< 8 hours	
	nal conditions and measure	S		
General ventilation:		Basic general ventilation (1-3 air changes per hour)		
Containment:			occasional controlled exposure	
Local exhaust ventilation:		no [Effectiveness Inhal: 0%		
Occupational Health and Sa	afety Management System:	Basic		
	related to personal protection	on, hygiene and health ev	aluation	
General:	Work under a high standard	of personal hygiene. Wash	hands and face before breaks. When using the	
	product, do not eat, drink or	smoke.	_	
Dermal Protection:	Yes (long sleeved overall; cl	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee		
	training) [Effectiveness Dermal: 90%]			
Respiratory Protection:	No [Effectiveness Inhal: 0%]			
Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous)			
mixtures of the substance)				
Other conditions affecting	workers exposure			
Place of use:		Indoor		
 Skin surface potentially exp 	osed:	Two hands (960 cm ²)		
2.2.8. Worker contributing scenario (7): Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC 9)				
Product (article) characteristics				
Concentration of substance	in mixture:		≤ 100% (solid or liquid)	
Concentration of substance (used for exposure estimates		s):	Substance as such	
 Dustiness of material: 			Low	
Amount used (or contained	d in articles), frequency and	duration of use/exposure		
Duration of activity: < 8 hours				
Technical and organisation	nal conditions and measure	s		
General ventilation:		Basic general ventilation (1-3 air changes per hour)		
Containment:		Semi-closed process with occasional controlled exposure		
Local exhaust ventilation:		no [Effectiveness Inhal: 0%]		
Occupational Health and Sa	afety Management System:	Basic		
	related to personal protection			
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.			
Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]			
Respiratory Protection:	No [Effectiveness Inhal: 0%]			
Eye Protection:	-	-	s possible, in case of using liquid (aqueous)	
	mixtures of the substance)			
Other conditions affecting	workers exposure			
Place of use:		Indoor		
Skin surface potentially exposed:		Two hands face (480 cm ²)		



2.2.9. Worker contributing scenario (8): Non industrial spraying (PROC 11)					
Product (article) character	Product (article) characteristics				
Concentration of substance in mixture:			≤ 100% (solid or liquid)		
 Concentration of substance (used for exposure estimates): 			Substance as such		
Dustiness of material:			_OW		
Amount used (or contained in articles), frequency and duration of use/exposure					
Duration of activity:			< 8 hours		
Technical and organisational conditions and measures					
 General ventilation: 		Basic general ventilation (1-3 air changes per hour)			
Containment:		No			
Local exhaust ventilation:		no [Effectiveness Inhal: 0%]			
Occupational Health and S	afety Management System:	Basic			
Conditions and measures	related to personal protection	, hygiene and health evalu	lation		
• General:	Work under a high standard of p	personal hygiene. Wash har	ids and face before breaks.		
	When using the product, do no	t eat, drink or smoke.			
	Keep dermal exposure to a min	imum. Wear protective cloth	ing and make sure that skin is not exposed.		
Dermal Protection	Yes (protective clothing (chemic	cal suit) and chemically resis	tant gloves conforming to		
(body and hands):	EN374, providing in total a derr	mal effectiveness of at least	96%). Wearing only gloves is not sufficient.		
Respiratory Protection:	No [Effectiveness Inhal: 0%]				
Eye Protection:	Yes (chemical goggles, or full fa		sible, in case of using		
	liquid (aqueous) mixtures of the	substance)			
Other conditions affecting workers exposure					
Place of use:		Indoor			
Skin surface potentially exposed:		Two hands and upper wris	Two hands and upper wrists (1500 cm ²)		
2.2.10. Worker contributin	g scenario (9): Use as laborato	ory reagent (PROC 15)			
Product (article) characteristics					
Concentration of substance in mixture:			≤ 100% (solid or liquid)		
Concentration of substance (used for exposure estimates)			Substance as such		
Dustiness of material:			Low		
Amount used (or contained in articles), frequency and duration of use/exposure					
Duration of activity:			< 8 hours		
Technical and organisatio	nal conditions and measures				
 General ventilation: 		Basic general ventilation	1-3 air changes per hour)		
Containment:		No			
Local exhaust ventilation:		no [Effectiveness Inhal: 0%]			
Occupational Health and S	Safety Management System:	Basic			
Conditions and measures related to personal protection, hygiene and health evaluation					
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks.				
	When using the product, do not eat, drink or smoke.				
 Dermal Protection: 	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee				
	training) [Effectiveness Derma	al: 90%]			
 Respiratory Protection: 	No [Effectiveness Inhal: 0%]				
Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous)				
	mixtures of the substance)				
Other conditions affecting	workers exposure				
Place of use:		Indoor			
 Skin surface potentially ex 	posed:	One hand face only (240 o	cm ²)		
		with intimate contact and	only PPE available (PROC 19)		
Product (article) character	istics				
Concentration of substance in mixture:			≤ 100% (solid or liquid)		
Concentration of substance (used for exposure estimates)			Substance as such		
 Dustiness of material: 			Low		



Containment: No Local exhaust ventilation: Local exhaust ventilation: Local exhaust ventilation: Local exhaust ventilation: Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection; hygiene and health evaluation Conditions and measures related to personal protection; hygiene and health evaluation Permal Protection: Ves (Chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance) Other conditions affecting workers exposure Place of use: Indoor Skin surface potentially exposed: Two hands and forearms face (1980240 cm ²) Exposure concentrations and risks for workers: Use in closed process, no likelihood of exposure (PROC 1) Exposure concentrations and risks for workers: Route of exposure and type of Exposure concentration flabalation, systemic, long-term 0.01 mg/m² (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term Qualitative* Conbined routes, systemic, long-term Qualitative* Conditioned routes, systemic, long-term Qualitative* Conducter on risk characterisation (qualitative) Combined routes, systemic, long-term Qualitative* Conducter on risk characterisation (qualitative) Combined routes, systemic,	Amount used (or contained	Amount used (or contained in articles), frequency and duration of use/exposure				
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Containment: No Concupational Health and Safety Management System: Deasic Concupational Health and Safety Management System: Deasic Concupational Health and Safety Management System: Deasic Conditions and measures related to personal protection, hygiene and health evaluation General: When using the product, do not eat, drink or smoke. Parmal Protection: Yes (Dorg sleaved overall, chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Inhai: 0%] * (Eventuelling) (Conteneess Demail: 90%) Prespiratory Protection: No [Effectiveness Inhai: 0%] * (Eventuelling) (Conteneess Demail: 90%) Prespiratory Protection: No [Effectiveness Inhai: 0%] * (Eventuelling) (Conteneess Demail: 90%) * (Eventuelling) (Conteneess Demail: 90%) Prespiratory Protection: No [Effectiveness Inhai: 0%] * (Eventuelling) (Conteneess Demail: 90%) * (E	Technical and organisation	al co	nditions and measures			
Local exhaust ventilation: no [Effectiveness Inhal: 0%] Occupational Health and Safety Management System: Basic Conditions and measures related to personal protection, hygiene and health evaluation - General: Work under a high standard of personal hygiene. Wash hands and face before breaks. - Dermal Protection: Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Inhal: 0%] - Respiratory Protection: No [Effectiveness Inhal: 0%] - Type Conditions affecting workers exposure Indoor Place of use: Indoor - Skin surface potentially exposed: Two hands and forearms face (1980240 cm²) 23.1 Exposure concentrations and risks for workers: Use in closed process, no likelihood of exposure (PROC 1) Exposure concentrations and risks for workers: Risk characterisation Route of exposure and type of effects 0.01 mg/m² (TRA Workers 3.0) RCR < 0.01			Basic general vent	Basic general ventilation (1-3 air changes per hour)		
• Occupational Health and Safety Management System: Basic Conditions and measures related to personal protection, hygiene and health evaluation • Ceneral: Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke. • Dermal Protection: Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Inhal: 0%] • Respiratory Protection: No [Effectiveness Inhal: 0%] • Respiratory Protection: No [Effectiveness Inhal: 0%] • Respiratory Protection: No [Effectiveness Inhal: 0%] • Respiratory Effectiveness Inhal: 0%] • Respiratory Effectiveness Inhal: 0%] • Respiratory estimation and reference to its source 2.3.1. Exposure concentrations and risks for workers Route of exposure and type of Exposure concentration effects Inhalation, systemic, long-term 0.01 mg/m² (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.03 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.03 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 2.3. Exposure concentrations and risks for workers Kender outles, systemic, long-term 0.03 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.03 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.03 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.03 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.03 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.04 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.04 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.04 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.04 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.04 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.04 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term 0.04 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01 Dermal, local, long-term			-			
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• General: Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke. • Dermal Protection: Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%] • Espiratory Protection: Yes (chemicall gogles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance) Other conditions affecting workers exposure Indoor • Skin surface potentially exposed: Indoor • Skin surface potentially exposed: Two hands and forearms face (1980240 cm?) 2.3. Exposure concentrations and risks for workers: Use in close exposure (PROC 1) Exposure concentrations and risks for workers Risk characterisation riffects 0.01 mg/m² (TRA Workers 3.0) RCR < 0.01						
When using the product, do not eat, drink or smoke. • Dermal Protection: Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) (Effectiveness Dermal: 90%) • Respiratory Protection: No (Effectiveness Inhai: 0%) • Eye Protection: Yes (chemical oggoles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance) Other conditions affecting workers exposure • Indoor • Skin surface potentially exposed: Indoor 2.3.1 Exposure concentrations and risks for workers: Indoor 2.3.1 Exposure concentrations and risks for workers Risk characterisation Route of exposure and type of [Exposure concentration Risk characterisation Bernal, local, long-term 0.01 mg/m² (TRA Workers 3.0) RCR < 0.01						
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Irraining) [Effectiveness Dermal: 90%] • Respiratory Protection: No [Effectiveness Inhal: 0%] • Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance) Other conditions affecting workers exposure • Place of use: Indoor • Skin surface potentially exposed: Two hands and forearms face (1980240 cm²) 2.3. Exposure estimation and reference to its source 2.3. 2.3. Exposure concentrations and risks for workers: Use in closed process, no likelihood of exposure (PROC 1) Exposure concentrations and risks for workers Route of exposure and type of exposure concentration Route of exposure and type of effects 0.03 mg/kg bw/day (TRA Workers 3.0) RCR < 0.01	Dormal Protoction:					sic omployed
• Respiratory Protection: No [Effectiveness Inhal: 0%] • Eye Protection: Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) • Place of use: Indoor • Place of use: Indoor • Skin surface potentially exposed: Two hands and forearms face (1980240 cm²) 2.3. Exposure estimation and reference to its source 2.3.1. Exposure concentrations and risks for workers: Route of exposure and type of Exposure concentration Risk characterisation effects Inhalation, systemic, long-term Inhalation, systemic, long-term 0.01 mg/m³ (TRA Workers 3.0) RCR < 0.01					res comorning to EN374 with bas	sic employee
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Iong-term *Conclusion on risk characterisation (qualitative) Dermal, local, long-term As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled. Eye, local As eye protection is worn, the risk of causing ocular effects is considered to be controlled. 2.3.2. Exposure concentrations and risks for workers: Use in closed, continuous process with occasional controlled exposure (PROC 2) Exposure concentrations and risks for workers Route of exposure and type of effects Inhalation, systemic, long-term 0.01 mg/m³ (TRA Workers 3.0) Permal, local, long-term 0.137 mg/kg bw/day (TRA Workers 3.0) Permal, local, long-term Qualitative* Eye, local Qualitative* Combined routes, systemic, long-term 0.137 mg/kg bw/day (TRA Workers 3.0) RCR = 0.027 modelitative* Eye, local Qualitative* Combined routes, systemic, long-term RCR = 0.027 Vermal, local, long-term RCR = 0.027 Vermal, local, long-term RCR = 0.027	Eye, local				Qualitative*	
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2.3.2. Exposure concentrations and risks for workers: Use in closed, continuous process with occasional controlled exposure (PROC 2) Exposure concentrations and risks for workers Route of exposure and type of effects Exposure concentration Inhalation, systemic, long-term 0.01 mg/m³ (TRA Workers 3.0) RCR < 0.01	Eye, local					
exposure (PROC 2) Exposure concentrations and risks for workers Route of exposure and type of effects Exposure concentration Risk characterisation Inhalation, systemic, long-term 0.01 mg/m³ (TRA Workers 3.0) RCR < 0.01		risk	of causing ocular effects is	s considered to be co	ontrolled.	
Exposure concentrations and risks for workers Route of exposure and type of effects Exposure concentration Risk characterisation Inhalation, systemic, long-term 0.01 mg/m³ (TRA Workers 3.0) RCR < 0.01	2.3.2. Exposure concentrations and risks for workers: Use in closed, continuous process with occasional controlled					
Route of exposure and type of effectsExposure concentrationRisk characterisationInhalation, systemic, long-term0.01 mg/m³ (TRA Workers 3.0)RCR < 0.01						
effectsImage: Construction of the system of the				1		
Dermal, systemic, long-term 0.137 mg/kg bw/day (TRA Workers 3.0) RCR = 0.027 Dermal, local, long-term Qualitative* Eye, local Qualitative* Combined routes, systemic, long-term RCR = 0.027 *Conclusion on risk characterisation (qualitative)		e of	Exposure concentration	ו	Risk characterisation	
Dermal, local, long-term Qualitative* Eye, local Qualitative* Combined routes, systemic, long-term RCR = 0.027 *Conclusion on risk characterisation (qualitative)	Inhalation, systemic, long-te	rm	0.01 mg/m ³ (TRA Worker	rs 3.0)	RCR < 0.01	
Eye, local Qualitative* Combined routes, systemic, RCR = 0.027 long-term *Conclusion on risk characterisation (qualitative)	Dermal, systemic, long-term				RCR = 0.027	
Combined routes, systemic, long-term RCR = 0.027 *Conclusion on risk characterisation (qualitative)	Dermal, local, long-term	-		(Qualitative*	
long-term *Conclusion on risk characterisation (qualitative)	Eye, local			(Qualitative*	
*Conclusion on risk characterisation (qualitative)					RCR = 0.027	
Dermal, local, long-term						
As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is						



considered to be controlled. Eye, local				
	of causing ocular effects is considered to be	controlled.		
	and risks for workers: Use in closed batch		on) (PROC 3)	
Exposure concentrations and risk	s for workers			
Route of exposure and type of	Exposure concentration	Risk characterisation		
effects				
Inhalation, systemic, long-term	0.1 mg/m ³ (TRA Workers 3.0)	RCR < 0.01		
Dermal, systemic, long-term	0.069 mg/kg bw/day (TRA Workers 3.0)	RCR = 0.013		
Dermal, local, long-term		Qualitative*		
Eye, local		Qualitative*		
Combined routes, systemic,		RCR = 0.016		
long-term				
*Conclusion on risk characteris	ation (qualitative)			
<u>Dermal, local, long-term</u>				
As a long sleeved overall and che	mically resistant gloves are worn, the risk of c	ausing local effects via long-term o	lermal exposure is	
considered to be controlled.				
<u>Eye, local</u>				
	of causing ocular effects is considered to be			
	and risks for workers: Use in closed batcl	h process (synthesis or formulat	ion) (PROC 3)	
Exposure concentrations and risk			1	
Route of exposure and type of effects	Exposure concentration	Risk characterisation		
Inhalation, systemic, long-term	0.1 mg/m ³ (TRA Workers 3.0)	RCR = 0.028		
Dermal, systemic, long-term	1.371 mg/kg bw/day (TRA Workers 3.0)	RCR = 0.268		
Dermal, local, long-term		Qualitative*		
Eye, local		Qualitative*		
Combined routes, systemic, long-term		RCR = 0.296		
*Conclusion on risk characteris	ation (qualitative)			
Dermal, local, long-term				
As a long sleeved overall and che	mically resistant gloves are worn, the risk of c	ausing local effects via long-term c	lermal exposure is	
considered to be controlled.				
<u>Eye, local</u>				
As eye protection is worn, the risk of causing ocular effects is considered to be controlled. 2.3.5. Exposure concentrations and risks for workers: Mixing or blending in batch processes for formulation of preparations				
		in batch processes for formulation	on of preparation	
and articles (multistage and/or significant contact) (PROC 5) Exposure concentrations and risks for workers				
Route of exposure and type of		Risk characterisation	1	
effects				
Inhalation, systemic, long-term	0.5 mg/m ³ (TRA Workers 3.0)	RCR = 0.014		
Dermal, systemic, long-term	1.371 mg/kg bw/day (TRA Workers 3.0)	RCR = 0.268		
Dermal, local, long-term		Qualitative*		
Eye, local		Qualitative*		
Combined routes, systemic,		RCR = 0.282		
long-term				
*Conclusion on risk characterisation (qualitative)				
Dermal, local, long-term				
As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.				



ssels/large containers at non-	and risks for workers: Transfer of substar dedicated facilities (PROC 8a)	
Exposure concentrations and risks	for workers	
Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	0.5 mg/m ³ (TRA Workers 3.0)	RCR = 0.014
Dermal, systemic, long-term	1.371 mg/kg bw/day (TRA Workers 3.0)	RCR = 0.268
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic,		RCR = 0.282
long-term		
Conclusion on risk characterisa	tion (qualitative)	
ermal, local, long-term		
-	nically resistant gloves are worn, the risk of o	causing local effects via long-term derm
onsidered to be controlled.		
	of causing ocular effects is considered to be	controlled.
	and risks for workers: Transfer of substar	nce or preparation (charging/dischar
essels/large containers at dedic Exposure concentrations and risks		
Route of exposure and type of	Exposure concentration	Risk characterisation
effects		INSK Characterisation
Inhalation, systemic, long-term	0.1 mg/m ³ (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	1.371 mg/kg bw/day (TRA Workers 3.0) RCR = 0.268
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-		RCR = 0.271
term		
	tion (qualitative)	
Conclusion on risk characterisa	inon (quantanve)	
ermal, local, long-term		nausing local offects via long term derm
<u>)ermal, local, long-term</u> Is a long sleeved overall and cher	nically resistant gloves are worn, the risk of o	causing local effects via long-term derm
ermal, local, long-term		causing local effects via long-term derm
Dermal, local, long-term is a long sleeved overall and cher onsidered to be controlled. <u>ive, local</u> is eye protection is worn, the risk	nically resistant gloves are worn, the risk of o	controlled.
Dermal, local, long-term is a long sleeved overall and cher onsidered to be controlled. <u>ive, local</u> is eye protection is worn, the risk .3.8. Exposure concentrations a	nically resistant gloves are worn, the risk of o of causing ocular effects is considered to be and risks for workers: Transfer of substar	controlled.
Dermal, local, long-term is a long sleeved overall and cher onsidered to be controlled. <u>ive, local</u> is eye protection is worn, the risk	nically resistant gloves are worn, the risk of o of causing ocular effects is considered to be and risks for workers: Transfer of substar PROC 9)	controlled.
Dermal, local, long-term as a long sleeved overall and cher onsidered to be controlled. <u>Eve, local</u> as eye protection is worn, the risk .3.8. Exposure concentrations a illing line, including weighing) (Exposure concentrations and risks	nically resistant gloves are worn, the risk of o of causing ocular effects is considered to be and risks for workers: Transfer of substar PROC 9)	controlled.
Dermal, local, long-term Is a long sleeved overall and cher onsidered to be controlled. Eve, local Is eye protection is worn, the risk .3.8. Exposure concentrations a Illing line, including weighing) (nically resistant gloves are worn, the risk of o of causing ocular effects is considered to be and risks for workers: Transfer of substar PROC 9)	controlled. nce or preparation into small contain
Dermal, local, long-term as a long sleeved overall and cher onsidered to be controlled. Eve. local as eye protection is worn, the risk as.8. Exposure concentrations a illing line, including weighing) (Exposure concentrations and risks Route of exposure and type of	nically resistant gloves are worn, the risk of o of causing ocular effects is considered to be and risks for workers: Transfer of substar PROC 9)	controlled. nce or preparation into small contain
Dermal, local, long-term as a long sleeved overall and cher onsidered to be controlled. <u>Eve, local</u> as eye protection is worn, the risk .3.8. Exposure concentrations a illing line, including weighing) (Exposure concentrations and risks Route of exposure and type of effects	nically resistant gloves are worn, the risk of o of causing ocular effects is considered to be and risks for workers: Transfer of substar PROC 9) of for workers Exposure concentration	controlled. nce or preparation into small contain Risk characterisation
Dermal, local, long-term as a long sleeved overall and cher onsidered to be controlled. Eve, local as eye protection is worn, the risk .3.8. Exposure concentrations a illing line, including weighing) (Exposure concentrations and risks Route of exposure and type of effects Inhalation, systemic, long-term Dermal, systemic, long-term	nically resistant gloves are worn, the risk of o of causing ocular effects is considered to be and risks for workers: Transfer of substar PROC 9) for workers Exposure concentration 0.1 mg/m³ (TRA Workers 3.0)	controlled. The or preparation into small contain Risk characterisation RCR = 0.014 RCR = 0.134
Dermal, local, long-term as a long sleeved overall and cher onsidered to be controlled. Eve, local as eye protection is worn, the risk .3.8. Exposure concentrations a illing line, including weighing) (Exposure concentrations and risks Route of exposure and type of effects Inhalation, systemic, long-term Dermal, systemic, long-term Dermal, local, long-term	nically resistant gloves are worn, the risk of o of causing ocular effects is considered to be and risks for workers: Transfer of substar PROC 9) for workers Exposure concentration 0.1 mg/m³ (TRA Workers 3.0)	controlled. nce or preparation into small contain Risk characterisation RCR = 0.014 RCR = 0.134 Qualitative (see below)
Dermal, local, long-term as a long sleeved overall and cher onsidered to be controlled. Eve, local as eye protection is worn, the risk .3.8. Exposure concentrations a illing line, including weighing) (Exposure concentrations and risks Route of exposure and type of effects Inhalation, systemic, long-term Dermal, systemic, long-term Eye, local	nically resistant gloves are worn, the risk of or of causing ocular effects is considered to be and risks for workers: Transfer of substar PROC 9) for workers Exposure concentration 0.1 mg/m³ (TRA Workers 3.0) 0.686 mg/kg bw/day (TRA Workers 3.0)	controlled. nce or preparation into small contain Risk characterisation RCR = 0.014 RCR = 0.134 Qualitative (see below) Qualitative (see below)
Dermal, local, long-term as a long sleeved overall and cher onsidered to be controlled. Eve, local as eye protection is worn, the risk .3.8. Exposure concentrations a illing line, including weighing) (Exposure concentrations and risks Route of exposure and type of effects Inhalation, systemic, long-term Dermal, systemic, long-term Dermal, local, long-term	nically resistant gloves are worn, the risk of or of causing ocular effects is considered to be and risks for workers: Transfer of substar PROC 9) for workers Exposure concentration 0.1 mg/m³ (TRA Workers 3.0) 0.686 mg/kg bw/day (TRA Workers 3.0)	controlled. nce or preparation into small contain Risk characterisation RCR = 0.014 RCR = 0.134 Qualitative (see below)



considered to be controlled.				
Eye, local				
As eye protection is worn, the risk of causing ocular effects is considered to be controlled.				
	nd risks for workers: Non industrial spray	ing (PROC 11)		
Exposure concentrations and risks				
Route of exposure and type of effects	Exposure concentration	Risk characterisation		
Inhalation, systemic, long-term	1 mg/m ³ (TRA Workers 3.0)	RCR = 0.028		
Dermal, systemic, long-term	4.284 mg/kg bw/day (TRA Workers 3.0)	RCR = 0.837		
Dermal, local, long-term		Qualitative*		
Eye, local		Qualitative*		
Combined routes, systemic, long-term		RCR = 0.865		
*Conclusion on risk characterisat	ion (qualitative)	·		
considered to be controlled. Eye, local As eye protection is worn, the risk o	ically resistant gloves are worn, the risk of ca f causing ocular effects is considered to be ca and risks for workers: Use as laboratory re	ontrolled.		
Exposure concentrations and risks	for workers			
Route of exposure and type of effects	Exposure concentration	Risk characterisation		
Inhalation, systemic, long-term	0.1 mg/m³ (TRA Workers 3.0)	RCR < 0.01		
Dermal, systemic, long-term	0.034 mg/kg bw/day (TRA Workers 3.0)	RCR < 0.01		
Dermal, local, long-term		Qualitative*		
Eye, local		Qualitative*		
Combined routes, systemic, long-term		RCR < 0.01		
*Conclusion on risk characterisat	ion (qualitative)			
considered to be controlled. <u>Eye, local</u> As eye protection is worn, the risk o 2.3.11. Exposure concentrations a 19)	ically resistant gloves are worn, the risk of ca f causing ocular effects is considered to be co and risks for workers: : Hand-mixing with	ontrolled.		
Exposure concentrations and risks				
Route of exposure and type of effects	Exposure concentration	Risk characterisation		
Inhalation, systemic, long-term	0.1 mg/m ³ (TRA Workers 3.0)	RCR < 0.01		
Dermal, systemic, long-term	2.829 mg/kg bw/day (TRA Workers 3.0)	RCR =0.552		
Dermal, local, long-term		Qualitative*		
Eye, local		Qualitative*		
Combined routes, systemic, long-term		RCR =0.555		
*Conclusion on risk characterisat	ion (qualitative)			
Dermal, local, long-term				
As a long sleeved overall and chem considered to be controlled.	ically resistant gloves are worn, the risk of ca	using local effects via long-term		



Eye, local As eye protection is worn, the risk of causing ocular effects is considered to be controlled.					
2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES					
	No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers				
			s noodod to gaarant		
Exposure scenario 3: Consumer Use - Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches, fertilizer					
3.1 Consumer Use - Consumer Us	e (outdoor and indoor of	reactive substances in	n open systems) as	s part of specialist	
products, pyrotechnics and/or ma					
Product category / UCN code: PC 1, Adhesives, sealants PC 12, Fertilisers S50200, Pyrotechnical products					
Environment contributing scenari					
Consumer Use (outdoor and indoor			RC 8e, ERC 8b		
part of specialist products, pyrotechr	nics and/or matches, fertiliz	er			
Consumer contributing scenario(s	6):				
Consumer Use (outdoor and indoor		pen systems) as part of	specialist	PC 1	
products, pyrotechnics and/or match					
Consumer Use (outdoor and indoor)	•			PC 12	
3.2. Conditions of use affecting ex	•				
-	3.2.1. Environmental contributing scenario (1): Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches, fertilizer (ERC 8e), (ERC 8b)				
Exposure assessment and risk chara				not meet the criteria for	
being classified as dangerous for the					
3.2.2. Consumer contributing scenario 1: Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches (PC 1)					
Product (article) characteristics					
Concentration of substance in mixter	ure:	= 0.3 g/g (default)			
Measures related to information a	nd behavioural advice to	consumers including	personal protectio	n and hygiene	
 Adult/Child assumed: 	Adult				
Use frequency	: Infrequent				
Other conditions affecting consum	ners exposure				
 Body parts potentially exposed: 	Inside hands / one han	d / palm of hands (4	128.8 cm ²)		
Dermal transfer factor:		= 1			
3.2.3. Consumer contributing scen	outdoor and indoor) as	part of fertilizer (P	C 12)		
Product (article) characteristics					
• Concentration of substance in mixture: = 0.5 g/g (default)					
Measures related to information a	nd behavioural advice to	consumers including	personal protection	n and hygiene	
Adult/Child assumed: Adult					
Use frequency : Infrequent					
Other conditions affecting consumers exposure					
 Body parts potentially exposed: 				128.8 cm ²)	
• Dermal transfer factor: = 1					
3.3 Exposure estimation and reference to its source					
3.3.1 Exposure and risk for consumers: Consumer Use (outdoor and indoor of reactive substances in open systems) as part					
of specialist products, pyrotechni	cs and/or matches (PC 1)				
Exposure and risk for consumers					
Route of exposure and type of effects	Exposure concentration		Risk characterisa	tion	



Dermal, systemic, long-term	0.858 mg/kg bw/day (TRA Consumer 3.1)	RCR = 0.335
Combined routes, systemic, long-term		RCR = 0.335
3.3.2 Exposure and risk for cons	umers: Consumer Use (outdoor and indoor) a	as part of fertilizer (PC 12)
Exposure and risk for consumers		
Route of exposure and type of effects	Exposure concentration	Risk characterisation
Dermal, systemic, long-term	1.429 mg/kg bw/day (TRA Consumer 3.1)	RCR = 0.558
Combined routes, systemic, long- term		RCR = 0.558
3.4 Guidance to DU to evaluate w	whether he works inside the boundaries set by	y the ES
No additional risk management me	asures, besides those that are mentioned above	, are needed to guarantee safe use for workers