AGROPOLYCHIM

extended MATERIAL SAFETY DATA SHEET
In accordance with Regulation (EC) 1907/2006 (REACH), Annex II amended by Regulation (EC) 2020/878

TRIPLE SUPERPHOSHPATE (TSP)

Version 8, Updated April 2022

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Product identifier	
Trade name:	Triple superphosphate
Other names:	Superphosphate, concentrated
Chemical name:	Multiconsituent substance. Reaction mass between Calcium di hydrogen orthophosphate and calcium sulphate
ID number as listed in Annex VI / CLP:	Not classified under Appendix VI / CLP
ID number of the C&L inventory:	Not classified.
CAS number:	65996-95-4
EINECS number:	266-030-3
REACH registration no(s):	01-2119493057-33-0001
1.2 Relevant identified uses of the substance or mixture and uses advised against	
Uses:	Uses by workers in industrial settings: 1: Production of the substance, including sampling, loading, filling, transferring, unloading, bagging of the substance (filling / emptying) of non-specialized / specialized equipment. Industrial environment. 2: Formulation of fertilizer products, incl. mixing granulation, prilling, greasing and processing. Use according to the Fertilizer Use Card: **FE_F_001_v1.** 3: Formulation by incorporation into matrices - industrial treatment of growth substrates, seeds with fertilizers or granules of a fertilizer product with lubricating agents, resulting in a slow release matrix. Use according to the Fertilizer Use Card: **FE_F_002_v1.** 4: Mixing of patches in batch processes with significant exposures. 5: Use as a raw material for the synthesis of other fertilizer products. Use according to the Fertilizer Use Card: **FE_F_001_v1.** 6: Use as an excipient in the fertilizer industry - pH corrector, stabilizer. Use according to the Fertilizer Use Card: **FE_F_002_v1**. 7: Use as a monomer in the lubrication of fertilizers with polymers. Use according to the Fertilizer Use Card**: FE_F_003_v1**. Uses by professional workers: 8: Professional use, incl. mixing, loading of liquid or solid fertilizers, use by farmers. Use according to the Fertilizer Use Card: **FE_PW_001_v1.** 9: Professional use of gypsum containing TSP. 10. Professional use - enrichment of sewage sludge. 11: Use as a nutrient for specific bacteria used to treat contaminated soils. Uses by consumers: 12: Consumer use of fertilizer products. Use according to the Fertilizer Use Card: **FE_C_001_v1.** 13: Consumer use of gypsum containing TSP.
Uses advised against:	None
1.3 Details of the supplier of the safety data sheet	

TRIPLE SUPERPHOSHPATE (TSP)

Version 8, Updated April 2022

Manufacturer/Importer/Supplier:	AGROPOLYCHIM JSC BULGARIA Industrial zone 9160, DEVNYA Tel: +359 / 519 97 419 URL website: www.agropolychim.bg
Person responsible for the Safety Data Sheet (with e-mail address)	Miroslava Tsvetkova, eng. Chemical processes AGROPOLYCHIM JSC BULGARIA Industrial zone 9160, DEVNYA Tel.: +359 / 519 97 419, 553 Email: vasileva@agropolychim.bg
1.4 Emergency telephone number	
Emergency phone number in the company: Emergency phone number in Bulgaria – Toxicology Clinique "Pirogov" Medical Institute: International emergency phone number	Tel: + 359 / 519 97 530 (24 hours / day) on the production site +359 2 9154 233; +359 2 9154 409 (24 hours / day) Toxicology Clinique, Pirogov National Institute, Sofia 112

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance		
Classification in accordance with Regulation 1272/2008 (CLP)		
Hazard statement(s):	H318	Cat.1 - Causes serious eye damage.
2.2 Label elements		
Labelling in accordance with Regulation 1272/2008 (CLP)		
Hazard pictogram(s):		 GHS05: corrosion
Signal word		Danger
Hazard statement(s):	H318	Cat.1 - Causes serious eye damage

Precautionary statement(s):	P280 P305+P351+P338 P310	Wash hands thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician
2.3 Other hazards		
PBT/vPvB criteria:		According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been conducted since this substance is inorganic.
Endocrine disrupting properties:		This substance does not have endocrine disrupting properties in relation to non-target organisms, as it does not meet the criteria set out in Section B of Regulation (EC) № 2017/2100.
Nanoforms:		This product does not contain nanoforms or nanoform-containing substances.
Other hazards:		None known

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance: **According to the REACH Regulation the product is a multi-constituent, inorganic substance, derived from reaction between natural phosphate rock with sulphuric acid.**

Chemical name / formula	CAS no.	EC no.	IUPAC name	% content
Calcium dy hydrogen orthophosphate $Ca(H_2PO_4)2*H_2O$	7758-23-8	231-837-1	Calcium dy hydrogen orthophosphate	~ 87 %
Calcium sulphate, $CaSO_4*0,5H_2O$	7778-18-9	231-900-3	Calcium sulphate	~ 4.5 %
Phosphorite Ca5(PO4)3OH	65996-94-3	266-029-8	Phosphorite	~ 3.71 %
Phosphoric acid H3PO4	7664-38-2	231-633-2	Orthophosphoric acid	~ 3.17 %

4. FIRST-AID MEASURES

4.1 Description of first aid measures

Eye contact:	Immediately wash eyes with plenty of running water for at least 10 minutes, occasionally lifting the upper and lower eyelids. Remove contact lenses if present and easy to do. Seek medical advice if irritation develops and persists.
Skin contact:	Wash the affected area thoroughly with soap and water. If necessary, remove clothing and wash the affected area thoroughly. If irritation persists, seek medical attention.

Ingestion:	If swallowed in large quantities, seek medical advice immediately. If possible, do not leave the victim unattended.
Inhalation:	Get away from the source of dust exposure. In case of illness, seek medical attention.

4.2 Most important symptoms and effects

Acute effects	Eye irritation
Delayed effects	None known

4.3 Indication of any immediate medical attention and special treatment needed

Note to physician: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable:	If the fertilizer product is not directly involved in the fire - use the best available fire extinguishers. If the fertilizer product is involved directly in the fire - use plenty of water, dry chemical, CO2, alcohol-resistant foam.
Not suitable:	None known

5.2 Special hazards arising from the substance or mixture

Heating up to high temperatures (above 200 ^{0}C) leads to toxic fumes evaporating. Dangerous and flammable products from decomposition: sulphuric and phosphoric oxides.

5.3 Advice for firefighters

No special measures required. In the event of fire, wear a self-contained breathing apparatus and a chemical protective suit.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures

Avoid walking on spilled product and exposure to dust. Avoid contact with eyes. Use appropriate protective equipment. Keep away from heat.

6.2 Environmental precautions

Prevent the material from contact with soil, entering 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

Any spillage of fertilizer product should be cleaned immediately, swept and collected in clean and labeled open containers for safe disposal, avoid dusting.

6.4 Reference to other sections

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

7. HANDLING AND STORAGE

7.1 Precautions for safe handling	
Technical measures/ Precautions:	Avoid excessive dust generation. Avoid unnecessary exposure to the atmosphere to prevent the absorption of moisture. Avoid contamination with combustible (eg. diesel) and lubricants) and / or other incompatible materials. When carrying out loading and unloading activities for a longer period of time, use protective equipment such as gloves and respiratory protection. Carefully clean the equipment and facilities before handing them in for repair and / or inspection.
General occupation hygiene:	Do not eat, drink or smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.
7.2 Conditions for safe storage, including any incompatibilities	
Technical measures/ Storage conditions:	Store in accordance with national and local regulations. Keep away from heat and flame. Keep away from combustible materials and substances listed in point 10. In the field - make sure that fertilizers are not stored near hay, grain, straw, diesel fuel, etc. When stored loosely, take the necessary measures to avoid mixing it with other fertilizers. Ensure high standards of storage in warehouses Do not allow smoking and the use of open lights in storage areas. Recommend limiting the size of the piles and to keep at least 1 m distance around the piles and packaged products. Any building used for storage must be dry and well ventilated.
Packaging materials:	Synthetic plastic materials - PP / PPE bags and packaging. Avoid using copper.
RECOMMENDATIONS FOR USERS	Minimum time for a person to stay in storage!
Incompatible products:	Alkalise, strong acids, copper and its alloys.
8. EXPOSURE CONTROLS / PERSONAL PROTECTION	
8.1 Control parameters	
Regulated occupational exposure limit values:	None
Recommended occupational and consumer exposure limit values (following from the performed CSA):	

Exposure pattern	**Derived No Effect Level (DNEL)**	
	Workers	**General population**
Oral[1]	Not applicable	0.42 mg/kg bw/d
Dermal[1]	4.2 mg/kg bw/day	2.1 mg/kg bw/day
Inhalation[1]	2.9 mg/m^3	0.72 mg/m^3

[1]: As an acute toxicity hazard leading to Classification and Labelling of the substance has not been identified, the long-term DNEL is considered sufficient to

	ensure that effects from acute exposure to the substance do not occur (in accordance with ECHA Guidance on information requirements and chemical safety assessment: Chapter R.8: Characterisation of dose [concentration]-response for human health, May 2008 and Part B: Hazard Assessment, Draft new chapter B.8 Scope of Exposure Assessment, March 2010).
8.2 Exposure controls	
Appropriate engineering controls:	The use of good ventilation is good industrial practice. Avoid high dust concentrations and provide ventilation where necessary so as to maintain dust concentrations in accordance with national legislation.
Environmental exposure controls:	See section 6.
Individual protection measures, such as personal protective equipment	
Respiratory protection:	If dust concentration is high and / or: LEV is not adequate, use appropriate respiratory masks or respiratory equipment with suitable filter for relevant dust concentration (EN 143, 149, filters P2, P3).
Hand protection:	Protective (heat resistant) gloves
Eye protection:	Chemical goggles or face shield (EN 166)
Skin and body protection:	Working clothes
Hygiene measures:	Do not eat, drink or smoke while handling the product. Wash your hands after handling the product and before eating, smoking or using the toilet, as well as at the end of the working day.
RECOMMENDATIONS FOR USERS	Machine fertilization with closed doors and windows of the machine cabin is recommended.
9. PHYSICAL AND CHEMICAL PROPERTIES	
9.1 Information on basic physical and chemical properties	
Appearance:	Solid, grey-brown granules.
Odour:	Odourless
Melting/Freezing temperature:	It loses its water at 100 0C, decomposes at 200 0C. Decomposes before melting.
Boiling temperature:	No boiling point, decomposes > 200 ºC
Flash-point:	Not relevant, as the substance is an inorganic solid.
Flammability:	Non flammable (based on molecular structure).
Explosive properties:	Non explosive due to its chemical composition
Oxidizing properties:	Non oxidizing due to its chemical composition
Vapour pressure:	$8.4x10^{-7}$ Pa
Relative density (D4 (20)):	2.09
Solubility in water:	>100 g/l at 20ºC
Partition coefficient n-octanol/water:	Not relevant as the substance is inorganic, considered to be low (based on high water solubility)

Viscosity:	Not applicable to solids
Specific conductivity:	No data
Auto ignition temperature:	No auto-ignition (based on chemical composition)
Particle size distribution, 1 - 5 mm:	Over 98 %
Surface tension:	Not surface active (based on molecular structure)

9.2 Other information – Inorganic, solid, multicomponent substance. Molecular weight: not determined due to its multicomponent nature.

10. STABILITY AND REACTIVITY

10.1 Reactivity: Corrosivity

It can be corrosive to iron and mild steels, aluminum, zinc and copper.

10.2 Chemical stability

Stable under recommended storage and handling conditions (see section 7, handling and storage).

10.3 Possibility of hazardous reactions

Avoid welding work on equipment that may contain residues of the product before it is cleaned and washed.

10.4 Conditions to avoid

Heating above 200 0C leads to decomposition. Contamination with incompatible materials. Sources of heat and fire nearby.

10.5 Incompatible materials

Strong acids and bases, copper and copper alloys.

10.6 Hazardous decomposition products

For fire situations - see section 5.

Under normal conditions of storage and use, hazardous decomposition products should not be produced. In case of fire sulphuric and phosphoric oxides could be emitted.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

ACUTE TOXICITY	
Acute oral toxicity:	LD_{50}> 2000 mg/kg bw (OECD 425)
Acute dermal toxicity:	LD_{50}: > 5000 mg/kg bw (OECD 402)
Acute inhalation toxicity:	LC_{50}: > 5 mg/l (4 hours, OECD 403, EC B.2 and ERA)
CORROSION / SKIN IRRITATION	
Skin irritation:	Not scientifically justified due to the availability of adequate data from in vivo skin irritation tests. No irritating effects were observed.
Eye irritation:	Irritating effects were observed. Not scientifically justified due to the availability of adequate data from in vivo skin irritation tests.

Respiratory tract:	No data available
RESPIRATORY AND SKIN SENSITIZATION	
Skin sensitization:	Not scientifically justified due to the availability of adequate data from in vivo skin sensitization tests. No adverse effects were observed. It is not a sensitizing substance.
Respiratory sensitization:	No data available
REPRODUCTIVE TOXICITY	
Effect on fertility:	NOAEL (P and F) ≥ 1,500 mg / kg bw / day,rats reproductive toxicity; Human - oral exposure: no adverse effects were observed; dermal and inhalation exposure - no information available.
Effect on development:	NOAEL (P and F) ≥ 750 mg / kg bw / day, rats reproductive toxicity; Human - oral exposure: no adverse effects were observed; dermal and inhalation exposure - no information available.
TOXICITY - REPEATED DOSE	
Systemic effects:	Oral exposure: NOAEL (systemic, 90 days) = 250 mg / kg bw / day, rats (OECD Guideline 422), with effects on dental plaque at higher exposure levels. Dermal exposure: no studies available. Inhalation exposure: no studies available.
Local effects:	Dermal exposure: no studies available. Inhalation exposure: no studies available.
OTHER ADVERSE EFFECTS	
Mutagenicity:	Negative (OECD 471) in vitro Negative (OECD 476) in vivo
Carcinogenicity:	Not carcinogenic (OECD 453)
12. ECOLOGICAL INFORMATION	
12.1 Toxicity	
Fish (short-term):	LC50: 85.9 mg / l (OECD 203)
Fish (long-term):	No data
Invertebrates (freshwater):	100 mg / l EC50 / LC50
Daphnia magna (long-term):	No data
Algae:	EC10 / LC10 or NOEC for fresh water: 87.6 mg / l
Observed NOEC concentration level:	87.6 mg/l EC10/LC10
12.2 Persistence and degradability	
Biodegradation:	Easily degradable by microorganisms.
Photolysis:	No photolytic

12.3 Bioaccumulative potential	
Octanol-water partition coefficient (K_{ow}):	Not relevant as the substance is inorganic, but considered to be low (based on high water solubility)
Bioconcentration factor (BCF):	Not applicable
12.4 Mobility in soil *Phosphates, nevertheless, water – or acid – soluble, are mobile in the soil only for a short period of time, but they retain after it. In case the fertigration is grounded the phosphates are adsorbed by soil particles. The period for half decomposition is 1 – 2 weeks.*	
Adsorption coefficient: Low adsorption potential (based on the properties of the substance).	
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 TSP is inorganic substance.	
12.6 Endocrine disrupting properties This substance does not have endocrine disrupting properties in relation to non-target organisms, as it does not meet the criteria set out in Section B of Regulation (EC) № 2017/2100.	
13. DISPOSAL CONSIDERATIONS	
Waste from residues:	Depending on the degree and type of pollution, treat either as a fertilizer for agriculture or as a raw material for the production of liquid fertilizer or treat in authorized facilities. Do not dispose of the material in the sewage system, treat the material and its packaging in a safe manner and in accordance with applicable local and national regulations. See points 06 03 and 06 10 of the list of wastes (Commission Decision 2000/532 / EC)
Packing / bags:	Clean the emptied packages as well as possible by shaking them carefully. If permitted by local authorities, empty packages may be reused or returned for recycling.
14. TRANSPORT INFORMATION	
UN Number:	ADR/RID: Non classified ADN/ADNR: Non classified IMDG: Non classified ICAO/IATA: Non classified
Proper shipping name:	Triple superphosphate
Transport hazard classes:	Non classified
IMDG/IMO (MARPOL 73/78); **IATA/CAL; ADR**	Non classified

Packaging group:	Non classified
Special precautions:	No

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture:	Regulation EC 1907/2006 (REACH), European Regulation on fertilizing products
15.2 Chemical safety assessment:	The substance is not classified as dangerous according to the criteria of Regulation 1272/2008/EU on Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) and therefore according to Clause 14 (4)) of the REACH Regulation does not require exposure and chemical safety assessment.

16. OTHER INFORMATION

The information provided in this safety data sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any proceed, unless specified in the text.

Classification in accordance with Regulation 1272/2008, as listed in Annex VI:

- classification for physicochemical properties: not classified, lack of data.
- classification for health hazards - category 1, eye damage, H 318 / Causes serious eye damage.

Version:	08
Revision date	April, 2022
Previous revision date	July, 2020
Release info:	This version replaces all previous documents
Created/Revised by:	“AGROPOLYCHIM” JSC

ANNEX 1

1 Exposure scenario (1) **Manufacturing of the substance**	
Use descriptors related to the life cycle stage	SU3/8 PROC1/2/3 ERC1
Name of contributing environmental scenario (1) and corresponding ERC	1. Manufacturing of substances (ERC1)
List of names of contributing worker scenarios (2) and corresponding PROC	1. Use in closed process, no likelihood of exposure (PROC1) 2. Manufacturing in a closed continuous process, with occasional exposure (PROC2) 3. Use in closed batch process (synthesis or formulation) (PROC3)
2.1 Contributing scenario (1) controlling environmental exposure	
Environmental release during manufacturing ERC1 An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.	
2.2 Contributing scenario (2) controlling worker exposure for manufacturing of the substance	
All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical. PROC1/2/3	
Product characteristic	
Product related conditions, e.g. the concentration of the substance in a mixture, the physical state of that mixture (solid, liquid; if solid: level of dustiness), package design affecting exposure	Solid, low dustiness
Amounts used	
Amounts used at a workplace (per task or per shift); note: sometimes this information is not needed for assessment of worker's exposure	Not applicable.
Frequency and duration of use/exposure	
Duration per task/activity (e.g. hours per shift) and frequency (e.g. single events or repeated) of exposure	More than 4 hours per day
Human factors not influenced by risk management	
Particular conditions of use, e.g. body parts potentially exposed as a result of the nature of the activity	Not applicable
Other given operational conditions affecting workers exposure	
Other given operational conditions: e.g. technology or process techniques determining the initial release of substance from process into workers environment; room volume, whether the work is	Indoors

carried out outdoors/indoors, process conditions related to temperature and pressure.	
Technical conditions and measures at process level (source) to prevent release	
Process design aiming to prevent releases and hence exposure of workers; this in particular includes conditions ensuring rigorous containment; performance of containment to be specified (e.g. by quantification of residual losses or exposure)	Not applicable
Technical conditions and measures to control dispersion from source towards the worker	
Engineering controls, e.g. exhaust ventilation, general ventilation; specify effectiveness of measure	1. Containment as appropriate 2. Good standard of general ventilation
Organisational measures to prevent /limit releases, dispersion and exposure	
Specific organisational measures or measures needed to support the functioning of particular technical measures (e.g. training and supervision). Those measures need to be reported in particular for demonstrating strictly controlled conditions (to justify exposure based waiving).	Not applicable
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection, e.g. wearing of gloves, face protection, full body dermal protection, goggles, respirator; specify effectiveness of measure; specify the suitable material for the PPE (where relevant) and advise how long the protective equipment can be used before replacement (if relevant)	1. Chemical goggles

3 Exposure information and reference to its source

Information for contributing scenario 1

An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.

Information for contributing scenario 2

A qualitative approach was used to conclude safe use for workers.

The leading toxicological effect is eye irritation (local endpoint), for which no DNEL can be derived as no dose-response information is available. As minimal systemic effects were only noted at such high levels of substance that humans are normally not exposed to (see DNELs), a quantitative assessment is not considered necessary.

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.

5 Additional good practice advice beyond the REACH CSA

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets. Such as:

- Containment as appropriate;
- Minimise number of staff exposed;
- Segregation of the emitting process;
- Effective contaminant extraction;
- Good standard of general ventilation;
- Minimisation of manual phases;

- Avoidance of contact with contaminated tools and objects;
- Regular cleaning of equipment and work area;
- Management/supervision in place to check that RMMs in place are being used correctly and OCs followed;
- Training staff on good practice;
- Good standard of personal hygiene.

ANNEX 2

1 Exposure scenario (2) **Industrial use for formulation of preparations/articles, intermediate use and end-use in industrial settings.**	
Use descriptors related to the life cycle stage	SU3/10 PC1/11/12/19/37 PROC1/2/3/4/5/8a/8b/9/14 ERC2/3/6a
Name of contributing environmental scenario (1) and corresponding ERC	1. Formulation of preparations (ERC2) 2. Industrial use resulting in manufacture of another substance (use of intermediates) (ERC6a)
List of names of contributing worker scenarios (2) and corresponding PROC	1. Use in closed process, no likelihood of exposure (PROC1) 2. Use in closed, continuous process with occasional controlled exposure (PROC2) 3. Use in closed batch process (synthesis or formulation) (PROC3) 4. Use in batch and other process (synthesis) where opportunity for exposure arises (PROC 4) 5. Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) (PROC5) 6. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC8a) 7. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC8b) 8. Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9) 9. Production of preparations or articles by tabletting, compression, extrusion, pelletisation (PROC 14)
2.1 Contributing scenario (1) controlling environmental exposure	
Formulation of preparations (ERC2) and industrial use resulting in manufacture of another substance (use of intermediates) (ERC6a) An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.	
2.2 Contributing scenario (2) controlling worker exposure for industrial use for formulation of preparations/articles, intermediate use and end-use in industrial settings.	
All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical. PROC1/2/3/4/5/8a/8b/9/14	
Product characteristic	
Product related conditions, e.g. the concentration of the substance in a mixture, the physical state of that mixture (solid, liquid; if solid: level of dustiness), package design affecting exposure	Solid, low dustiness

Amounts used	
Amounts used at a workplace (per task or per shift); note: sometimes this information is not needed for assessment of worker's exposure	Not applicable
Frequency and duration of use/exposure	
Duration per task/activity (e.g. hours per shift) and frequency (e.g. single events or repeated) of exposure	More than 4 hours per day
Human factors not influenced by risk management	
Particular conditions of use, e.g. body parts potentially exposed as a result of the nature of the activity	Not applicable
Other given operational conditions affecting workers exposure	
Other given operational conditions: e.g. technology or process techniques determining the initial release of substance from process into workers environment; room volume, whether the work is carried out outdoors/indoors, process conditions related to temperature and pressure.	Indoors
Technical conditions and measures at process level (source) to prevent release	
Process design aiming to prevent releases and hence exposure of workers; this in particular includes conditions ensuring rigorous containment; performance of containment to be specified (e.g. by quantification of residual losses or exposure)	Not applicable
Technical conditions and measures to control dispersion from source towards the worker	
Engineering controls, e.g. exhaust ventilation, general ventilation; specify effectiveness of measure	1. Containment as appropriate 2. Good standard of general ventilation
Organisational measures to prevent /limit releases, dispersion and exposure	
Specific organisational measures or measures needed to support the functioning of particular technical measures (e.g. training and supervision). Those measures need to be reported in particular for demonstrating strictly controlled conditions (to justify exposure based waiving).	Not applicable
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection, e.g. wearing of gloves, face protection, full body dermal protection, goggles, respirator; specify effectiveness of measure; specify the suitable material for the PPE (where relevant) and advise how long the protective equipment can be used before replacement (if relevant)	1. Chemical goggles
3 Exposure information and reference to its source	
Information for contributing scenario 1	
An environmental assessment has not been performed as the substance does not meet the criteria for being	

classified as dangerous for the environment.

Information for contributing scenario 2

A qualitative approach was used to conclude safe use for workers.

The leading toxicological effect is eye irritation (local endpoint), for which no DNEL can be derived as no dose-response information is available. As minimal systemic effects were only noted at such high levels of substance that humans are normally not exposed to (see DNELs), a quantitative assessment is not considered necessary.

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.

5 Additional good practice advice beyond the REACH CSA

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets. Such as:

- Containment as appropriate;
- Minimise number of staff exposed;
- Segregation of the emitting process;
- Effective contaminant extraction;
- Good standard of general ventilation;
- Minimisation of manual phases;
- Avoidance of contact with contaminated tools and objects;
- Regular cleaning of equipment and work area;
- Management/supervision in place to check that RMMs in place are being used correctly and OCs followed;
- Training staff on good practice;
- Good standard of personal hygiene;

TRIPLE SUPERPHOSHPATE (TSP)

Version 8, Updated April 2022

ANNEX 3

1 Exposure scenario (4) **Professional use as fertilizer and gypsum**	
Use descriptors related to the life cycle stage	SU21 PC 9b/12 ERC8b/8e/ 8f /10a
Name of contributing environmental scenario (1) and corresponding ERC	1. Wide dispersive indoor use of reactive substances in open systems (ERC8b) 2. Extensive outdoor use of reactive substances in open systems (ERC8e) 3. Extensive outdoor use leading to inclusion in or on a matrix (ERC 8f) 4. Extensive outdoor use of long-life goods and low-release materials (ERC10a)
List of names of contributing worker scenarios (2) and corresponding PROC	1. Fillers, bitumastic (PC9b) 2. Fertilizers (PC12)
1.1 Contributing scenario (1) controlling environmental exposure	
Wide dispersive indoor use of reactive substances in open systems (ERC8b) and wide dispersive outdoor use of reactive substances in open systems (ERC8e) and extensive outdoor use of durable and low release materials (ERC10a). An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.	
2.2 Contributing scenario (2) for consumer end use of fertilizers and matches / fireworks	
All product categories are covered by this scenario, as all operating conditions and risk management measures are identical. Consumption of fertilizers may cause eye irritation solutions (PC12). No exposure is expected with the use of fillers and putty (PC9b).	
Product characteristic	
Product related conditions, e.g. the concentration of the substance in a mixture, the physical state of that mixture (solid, liquid; if solid: level of dustiness), package design affecting exposure	Solid, low dustiness
Amounts used	
Quantities used for the individual case	Not applicable
Frequency and duration of use/exposure	
Duration of exposure for the individual case and frequency of events; please note: Usually line 1 of the exposure assessment refers to a case of external exposure, without taking into account the duration and frequency of the event (see Guidance, Chapter R.15);	Not applicable
Human factors not influenced by risk management	
Specific conditions of use, e.g. parts of the body that are potentially exposed; population potentially exposed (adults, children)	Not applicable

Other given operational conditions affecting workers exposure	
Other working conditions, e.g. volume of the room, degree of air exchange, outdoor or indoor use	Indoors or outdoors
Conditions and measures relating to information and advice to consumers on their behavior	
Safety advice to control exposure, e.g. technical instructions, behavior;	Avoid spillage
Conditions and measures related to personal protection and hygiene	
Personal protection, e.g. wearing gloves, face protection, complete protection of the skin on the body, goggles, respirator; determining the effectiveness of the measures; determining the appropriate material for personal protective equipment (where applicable) and advice on how long the protective equipment can be used before it is replaced (if applicable).	Instructions intended for the user by means of product labeling If <10% of ammonium nitrate: no personal protection needed

3 Exposure information and reference to its source

Information for contributing scenario 1

An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.

Information for contributing scenario 2

A qualitative approach was used to conclude safe use for workers.

The leading toxicological effect is eye irritation (local endpoint), for which no DNEL can be derived as no dose-response information is available. As minimal systemic effects were only noted at such high levels of substance that humans are normally not exposed to (see DNELs), a quantitative assessment is not considered necessary.

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.

ANNEX 4

2 Exposure scenario (4) **Consumer use as fertilizer and gypsum**	
Use descriptors related to the life cycle stage	SU21 PC 9b/12 ERC 8a/8b/8e/ 8d/8f
Name of contributing environmental scenario (1) and corresponding ERC	1 Wide dispersive indoor use of reactive substances in open systems (ERC8b) 2 Extensive outdoor use of reactive substances in open systems (ERC8e) 3 Extensive outdoor use leading to inclusion in or on a matrix (ERC 8f) 4 Extensive outdoor use of long-life goods and low-release materials (ERC10a)
List of names of contributing worker scenarios (2) and corresponding PROC	1 Fillers, bitumastic (PC9b) 2 Fertilizers (PC12)
1.1 Contributing scenario (1) controlling environmental exposure	
Wide dispersive indoor use of reactive substances in open systems (ERC8b) and wide dispersive outdoor use of reactive substances in open systems (ERC8e) and extensive outdoor use of durable and low release materials (ERC10a). An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.	
2.2 Contributing scenario (2) for consumer end use of fertilizers and matches / fireworks	
All product categories are covered by this scenario, as all operating conditions and risk management measures are identical. Consumption of fertilizers may cause eye irritation solutions (PC12). No exposure is expected with the use of fillers and putty (PC9b).	
Product characteristic	
Product related conditions, e.g. the concentration of the substance in a mixture, the physical state of that mixture (solid, liquid; if solid: level of dustiness), package design affecting exposure	Solid, low dustiness
Amounts used	
Quantities used for the individual case	Not applicable
Frequency and duration of use/exposure	
Duration of exposure for the individual case and frequency of events; please note: Usually line 1 of the exposure assessment refers to a case of external exposure, without taking into account the duration and frequency of the event (see Guidance, Chapter R.15);	Not applicable
Human factors not influenced by risk management	
Specific conditions of use, e.g. parts of the body that are potentially exposed; population potentially exposed (adults, children)	Not applicable
Other given operational conditions affecting workers exposure	

Other working conditions, e.g. volume of the room, degree of air exchange, outdoor or indoor use	Indoors or outdoors
Conditions and measures relating to information and advice to consumers on their behavior	
Safety advice to control exposure, e.g. technical instructions, behavior;	Avoid spillage
Conditions and measures related to personal protection and hygiene	
Personal protection, e.g. wearing gloves, face protection, complete protection of the skin on the body, goggles, respirator; determining the effectiveness of the measures; determining the appropriate material for personal protective equipment (where applicable) and advice on how long the protective equipment can be used before it is replaced (if applicable).	Instructions intended for the user by means of product labeling If <10% of ammonium nitrate: no personal protection needed

3 Exposure information and reference to its source

Information for contributing scenario 1

An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.

Information for contributing scenario 2

A qualitative approach was used to conclude safe use for workers.

The leading toxicological effect is eye irritation (local endpoint), for which no DNEL can be derived as no dose-response information is available. As minimal systemic effects were only noted at such high levels of substance that humans are normally not exposed to (see DNELs), a quantitative assessment is not considered necessary.

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.