



Extended Safety Data Sheet

Conforms to REGULATION (EU) No 453/2010

Version:	Revision B
Issue date:	17/06/2016

GROUP 9

NITROGEN FREE P & PK, (CONTAINING ≥10% SUPERPHOSPHATES).

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

1.1 Product identifier

Product/Trade name	Nitrogen free P & PK fertilizers, (containing ≥10% superphosphates). As indicated on packaging by PSDS Group 9 marking and nutrient inclusion.
Common chemical name	P & PK, compound/blended fertilizer, complex fertilizer, (containing ≥10% superphosphates).
Synonyms	N/A Mixture
Chemical formula	N/A Mixture
EU index number	N/A Mixture
EC No	N/A Mixture
CAS No.	N/A Mixture
REACH Registration Number	N/A Mixture
National Product Registration Number, where appropriate.	N/A

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

Use of the substance/mixture	Fertilizer.
Title	Use Descriptors.
Manufacturer of substances, ES Ref: 1	PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 28, ERC 1, ERC 8b, ERC 8e, PC12, SU1, SU3, SU10.
Professional Use, ES Ref: 2	PROC 8a, PROC 8b, PROC 9, PROC19, PROC 28, ERC 8b, ERC 8e, PC12, SU1, SU22.
Full text of use descriptors see Annex to the Extended Safety Data Sheet.	
Uses advised against	All non-agricultural fertilizer use.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Importer/Supplier	Manufacturer
	Company name: Origin Fertilisers (UK) Limited.
	Full address: 1-3 Freeman Court, Jarman Way, Royston, Hertfordshire, SG8 5HW.
	Tel: 01763 255500
Email address of the person responsible for SDS	Email address; andy.bell@originfertilisers.co.uk
Emergency telephone number	Tel; 01763 255500 Out of hours; 07715 801875

2 Hazards identification

2.1 Classification of the substance or mixture

Classification in accordance with Regulation 1272/2008 (CLP)	Eye Dam./Irrit. 1, H318
Hazard statement(s)	H318 Causes serious eye damage.
Classification in accordance with Directive 67/548 (DSD)	Xi; R41
Risk phrase(s)	R41 Risk of serious damage to eyes.
Label elements	Labelling in accordance with Regulation 1272/2008 (CLP)
Hazard pictogram(s)	
Signal word	Danger
Hazard statement(s)	H318 Causes serious eye damage.
Precautionary statement(s)	P280 Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P310 Immediately call a POISON CENTRE or doctor/physician.

2.3 Other hazards

PBT/vPvB criteria	None. Not applicable.
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Other hazards which do not result in classification	
Physical and chemical hazards	Fertilizers are basically harmless products when handled correctly. However, the following points should be noted for heating and fire. The fertilizer is not itself combustible. On heating or fire, toxic fumes containing phosphorous oxides, (e.g. P2O5), sulphur oxides, (SOx), hydrogen chloride gas and danger of toxic flourine based pyrolosis products may be present.
Health hazards	The fertilizers are basically harmless products when handled correctly. However, most important symptoms and effects both acute and delayed is eye irritation. Prolonged or repeated contact with skin may cause discomfort; ingestion of large quantities may give rise to gastro-intestinal disorders and inhalation of dust at high concentrations may cause irritation of the nose and upper respiratory tract with symptoms such as sore throat and coughing.
Environmental hazards	Heavy spillage may cause adverse environmental impact such as eutrophication in confined surface waters or nitrate contamination. See Section 12.

3 Composition/information on ingredients

Substance:						
Hazardous ingredients						
Chemical name	CAS no.	EC no.	Generic REACH Reg No.)	Classification Regulation (EC) No. 1272/2008	Classification Directive 67/548/EEC	% (w/w)
Triple superphosphate	65996-95-4	266-030-3	01-2119493057-33	Eye Dam./Irrit. H318	Xi; R41	≥10%
Other ingredients						
Potassium Chloride	7447-40-7	231-211-8				Variable
Limestone	1317-65-3	215-279-6				Variable
<i>EC no. means EINECS or ELINCS number.</i>						

4 First aid measures

4.1 Description of first aid measures	
General	In some cases medical attention necessary (see below).
Inhalation	Remove from source of exposure to dusts to fresh air. Obtain medical attention if ill effects occur.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Rinse mouth and then give plenty of water to drink. Obtain medical attention immediately. NOTE; never give an unconscious person anything to drink.
Skin contact	Wash the affected area with water and soap and rinse thoroughly. If skin irritation continues, consult a doctor.
Eye contact	Flush/irrigate eyes including under eyelids with copious amounts of water for at least 15 minutes. Remove contact lenses if present and easy to do so. Continue rinsing. Obtain medical attention immediately.
4.2 Most important symptoms and effects, both acute and delayed	
Acute effects	Corrosive to eyes; causes serious eye damage.
Delayed effects	
4.3 Indication of any immediate medical attention and special treatment needed	
Note to physician	Treat symptomatically. Contact poison centre specialist immediately if large quantities have been ingested or inhaled.

5 Fire-fighting measures

5.1 Extinguishing media	
Suitable extinguishing media	If fertilizer is not directly involved in the fire Use the best means available to extinguish the fire. If fertilizer is involved in the fire The product is not flammable. Use plenty of water.
Unsuitable extinguishing media	Do not use chemical extinguishers or foams or attempt to smother the fire with steam or sand.
5.2 Special hazards arising from the substance or mixture	
Specific hazards	No specific fire or explosion hazard.
Hazardous thermal decomposition and combustion products	Phosphorous oxides, (e.g. P2O5), sulphur oxides, (SOx), and danger of toxic flourine based pyrolysis products; Phosphates, (P inclusion), and, Hydrogen chloride gas; Potassium Chloride (K inclusion).
5.3 Advice for firefighters	
Special fire fighting procedures	Open doors and windows of the store to give maximum ventilation. Avoid breathing the fumes (toxic); stand up-wind of the fire. In case of inhalation of any decomposition products in a fire, symptoms may be delayed.
Special protective equipment for fire-fighters	Use a self-contained breathing apparatus if fumes are being entered.

6 Accidental release measures																												
6.1	<p>Personal precautions, protective equipment and emergency procedures</p> <p>Avoid walking through spilled product and exposure to dust.</p>																											
6.2	<p>Environmental precautions</p> <p>Take care to avoid the contamination of watercourses and drains and inform the appropriate authority in case of accidental contamination of watercourses.</p>																											
6.3	<p>Methods and material for containment and cleaning up</p> <p>Any spillage of fertilizer should be cleaned up promptly, swept up and placed in a clean labelled open container for safe disposal, avoiding dusty conditions.</p> <p>Do not mix with sawdust and other combustible or organic substances.</p> <p>Dilute any contaminated or fine grained fertilizer with inert materials such as limestone/dolomite, mineral phosphate, gypsum, sand or dissolve in water.</p>																											
6.4	<p>Reference to other sections</p> <p>See section 1 for emergency contact information, section 8 for personal protective equipment and section 13 for waste disposal.</p>																											
7 Handling and storage																												
The information in this section contains generic advice and guidance. The list of identified uses given in section 1 should be considered for any use-specific information provided in the Exposure Scenario(s).																												
7.1	<p>Precautions for safe handling</p> <p>Avoid excessive generation of dust.</p> <p>Avoid contamination by combustible (e.g. diesel oil, grease, etc.) and/or other incompatible materials.</p> <p>Avoid unnecessary exposure to the atmosphere to prevent moisture pick-up.</p> <p>When handling the product over long periods use appropriate personal protective equipment, e.g. gloves.</p> <p>Carefully clean all equipment prior to maintenance and repair.</p>																											
7.2	<p>Conditions for safe storage, including any incompatibilities</p> <p>Store in compliance with national and local regulations.</p> <p>Locate away from the sources of heat or fire.</p> <p>Keep away from combustible materials and substances mentioned under Section 10.</p> <p>On farm, ensure that the fertilizer is not stored near hay, straw, grain, diesel oil, etc.</p> <p>When stored loose, take particular care to avoid mixing with other fertilizers.</p> <p>Ensure high standard of housekeeping in the storage area.</p> <p>Do not permit smoking and use of naked lights in the storage areas.</p> <p>Restrict stack size (according to local regulations) and keep at least 1m distance around the stacks of bagged products.</p> <p>Any building used for the storage should be dry and well ventilated.</p> <p>Where the nature of the bagged product and climatic conditions so require, store under conditions that will avoid product breakdown by thermal cycling (wide variation in temperature).</p> <p>The product should not be stored in direct sunlight to avoid physical breakdown due to thermal cycling.</p> <p>Packaging materials: Plastic synthetic materials, steel and aluminum are suitable. Avoid use of copper and zinc.</p>																											
7.3	<p>Specific end use(s)</p> <p>As a fertilizer.</p>																											
8 Exposure controls/personal protection																												
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8.1 Control parameters																												
8.1	<p>Regulated Exposure limit values</p> <p>No specific EU official limit.</p>																											
	<p>Recommended occupational and consumer exposure limit values (following from the performed CSA):</p> <table border="1"> <thead> <tr> <th>Components.</th> <th>Type.</th> <th>Value.</th> <th>Form.</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Limestone (CAS 1317-65-3)</td> <td rowspan="4">TWA, (Time Weighted Average)</td> <td>4mg/m3</td> <td>Respirable</td> </tr> <tr> <td>4mg/m3</td> <td>Respirable Dust</td> </tr> <tr> <td>10mg/m3</td> <td>Inhalable</td> </tr> <tr> <td>10mg/m3</td> <td>Inhalable Dust</td> </tr> </tbody> </table> <p>Exposure pattern Derived No Effect Level (DNEL)</p> <table border="1"> <thead> <tr> <th></th> <th>Workers</th> <th>General population</th> </tr> </thead> <tbody> <tr> <td>Oral</td> <td>Not given.</td> <td>Not given</td> </tr> <tr> <td>Dermal</td> <td>17.4 mg/kg bw/day</td> <td>Not given</td> </tr> <tr> <td>Inhalation</td> <td>3.1 mg/m3</td> <td>Not given</td> </tr> </tbody> </table> <p>The long-term DNEL is considered sufficient to ensure that effects from acute exposure to the substance do not occur.</p>	Components.	Type.	Value.	Form.	Limestone (CAS 1317-65-3)	TWA, (Time Weighted Average)	4mg/m3	Respirable	4mg/m3	Respirable Dust	10mg/m3	Inhalable	10mg/m3	Inhalable Dust		Workers	General population	Oral	Not given.	Not given	Dermal	17.4 mg/kg bw/day	Not given	Inhalation	3.1 mg/m3	Not given	
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Limestone	Not given	Not given	Not given	Not given	Not given	Not given																						
<p>Appropriate engineering measures</p> <p>Avoid high dust concentration and provide ventilation where necessary. Risk of inhalation must be minimised as much as possible.</p>																												
<p>Hygienic measures</p> <p>When handling the product do not eat, drink or smoke. Wash hands after handling and before eating, smoking and using the lavatory and at the end of the working period.</p>																												
8.2 Exposure controls																												

Individual protection	
Respiratory system	If dust concentration is high and/or ventilation is inadequate, use suitable dust mask or respirator with an appropriate filter; EN 136, EN 140, EN143, EN149, Filters P2
Skin and body	Working clothes.
Hands	Wear suitable gloves (e.g. plastic, rubber or leather) when handling the product over long periods.
Eyes	Recommended: safety glasses with side shields (EN 166). Wear tightly fitting safety goggles, (EN166).
Environmental exposure controls	Avoid the contamination of watercourses and drains and inform the appropriate authority in case of accidental contamination of watercourses. Do not flush into surface water or sanitary sewer system.

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Solid, granular, brown or grey and red or cream and light grey granules unless deliberately coloured during manufacture.
Odour	May be acrid with superphosphate inclusion.
Odour threshold	Not determined.
pH	> 3.6 aqueous solution.
Melting point/freezing point	Not determined.
Initial boiling point and boiling range	Superphosphate decomposes > 200 °C.
Flash point	Not determined.
Evaporation rate	Not determined.
Flammability (solid, gas)	Not determined.
Upper/lower flammability or explosive limits	Not determined.
Explosive properties	Not determined.
Auto-ignition temperature	Not determined.
Decomposition temperature	Superphosphate starts to decompose above approx. 200°C
Minimum ignition energy	Not determined.
Oxidising properties	Not oxidising.
Critical temperature	Not applicable
Relative density	Not applicable.
Density	Not determined.
Loose bulk density	Normally between 1000-1200 kg/m ³ .
Vapour pressure at 20°C	Not determined.
Vapour density	Not applicable
Partition coefficient (n-octanol/water)	Not applicable
Viscosity	Not applicable to solids
Mean particle size	2-4mm
Water solubility	>100 g/l at 20°C. Hygroscopic - readily picks up moisture from the air.
Surface tension	Not surface active (based on molecular structure)
9.2 Other information	
Miscibility	Not applicable
Fat solubility	No available
Gas group	Not applicable
Remarks	No further information available.

10 Stability and reactivity

10.1 Reactivity	Stable under recommended storage and handling conditions (see section 7, handling and storage).
10.2 Chemical stability	Stable under recommended storage and handling conditions (see section 7, handling and storage).
10.3 Possibility of hazardous reactions	When heated, superphosphates can decompose.
10.4 Conditions to avoid	Heating above 200°C (decomposes to gases). Contamination by incompatible materials. Unnecessary exposure to the atmosphere. Sources of heat or fire close to the product. Heating under confinement. Welding or hot work on equipment or plant which may have contained fertilizer without first washing thoroughly to remove all fertilizer.
10.5 Incompatible materials	Superphosphates may react or be incompatible with alkalis and is incompatible with Urea.
10.6 Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced. For fire situation: see section 5. When strongly heated, decomposition products are produced releasing toxic fumes including Phosphorous oxides, (e.g. P2O5), sulphur oxides, (SOx), and danger of toxic flourine based pyrolysis products; Phosphates, and, Hydrogen chloride gas; Potassium Chloride. See also Sections 2 and 9.

11 Toxicological information			
11.1 Information on toxicological effects			
Toxicokinetics, metabolism and distribution	Not available		
Acute toxicity	Ingredients		
Acute oral toxicity	Triple superphosphate LD50: >2000 mg/kg bw, (rat; male, female, exposure time 4 hours).		
Acute dermal toxicity	Triple superphosphate LD50: > 5000 mg/kg bw, (rat; male, female, exposure time 4 hours).		
Acute inhalation toxicity	Triple superphosphate LC50: > 5 g/m3, (rat; male, female, exposure time 4 hours).		
Acute oral toxicity	Potassium chloride LD50: 3020 mg/kg, rat.		
Local effects			
Skin irritation	Product Not irritating (OECD 404)		
Eye irritation	Product Irritating (OECD 405)		
Skin sensitisation	Not sensitizing (OECD 429, with triple superphosphate, and, potassium chloride - information derived from practical experience). Prolonged contact may cause irritation and dryness from Limestone.		
Other			
Sub-acute toxicity	Oral 90-day Sub-chronic NOAEL ≥ 250 mg/kg bw/day tested on rat, (OECD 422, with triple superphosphate) Inhalation; No specific data.		
Mutagenicity	No known significant effects or critical hazards.		
Reproductive toxicity	No known significant effects or critical hazards.		
Carcinogenicity	No known significant effects or critical hazards.		
Remarks	Adverse health effects are considered unlikely when the product is handled and used correctly. If large quantities are ingested may give rise to gastro-intestinal disorders. Superphosphates will cause serious eye damage therefore suitable eye protection must be worn to prevent eye contact. Prolonged inhalation may cause respiratory irritation with apparent adverse symptoms such as coughing, wheezing and breathing difficulties. Limestone dust if inhaled over a prolonged or extended period can, by respirable dust, lead to respiratory system damage and disease. Crystalline silica is present in limestone at around 2% by content, (Ref; HSE INDG 463), respirable crystalline silica has been associated with the lung disease silicosis.		
12 Ecological information			
12.1 Toxicity			
Triple superphosphate	Toxicity to fish	96-h Acute LC50: >85.9 mg/l, freshwater, (OECD 203).	
	Toxicity to daphnia and other aquatic invertebrates.	72-h Acute LC50: 1.790 mg/l, aquatic invertebrates - Water flea.	
	Toxicity to algae	72-h Acute EC50: > 87.6 mg/l, aquatic plants - Algae.	
	Inhibition of microbial activity	No data.	
	Potassium Chloride	Toxicity to fish.	LC50: 880 mg/l, species Pimephales Promelas, (fathead minnow), 96 hour period, OECD Test Guideline 203.
		Toxicity to daphnia and other aquatic invertebrates.	EC50: 440 - 880 mg/l, species Daphnia Magna, (water flea), 48 hour period, OECD Test Guideline 202.
		Toxicity to algae.	EC50: >100 mg/l, species Desmodesmus Subspicatus, (green algae), 72 hour period, OECD Test Guideline 201.
		Toxicity to bacteria.	EC50: >1000mg/l, activated sludge, 3 hour period, OECD Test Guideline 209.
Toxicity to fish, (chronic toxicity)	No observed effect concentration: 500 mg/l, 7 day period, OECD Test Guideline 210.		
12.2 Persistence and degradability			
	Ingredient name.	Triple superphosphate.	
Biodegradation	Superphosphates are readily biodegradeable in plants and soils and does not show any bioaccumulation phenomena.		
Hydrolysis	Not applicable.		
	Ingredient name.	Potassium chloride.	
	Biodegradation	Not applicable	
	Hydrolysis	Not applicable.	
	Ingredient name.	Limestone.	
Biodegradation	Limestone is non-volatile and inert, it is resistant to degradation and will persist in the environment.		
	Hydrolysis	Not applicable.	
12.3 Bioaccumulative potential			
	Octanol-water partition coefficient (Kow)	Not applicable.	
	Bioconcentration factor (BCF)	Low potential for bioaccumulation (based on substance properties).	
12.4 Mobility in soil		Low potential for adsorption (based on substance properties). resistant to degradation and will persist in the environment.	
		Limestone is	
12.5 Results of PBT and vPvB assessment		Not considered to be persistent, bioaccumulating or toxic PBT or vPvB. applicable.	
		Limestone - not	
12.6 Other adverse effects		No known effects or significant hazards.	

13 Disposal considerations					
13.1	Waste treatment methods	In accordance with local and national regulations, disposed by landfill or incineration. Controlled biodegradation in waste water treatment is possible.			
	Container	Containers should be cleaned by appropriate method and then re-used or disposed by landfill or incineration as appropriate, in accordance with local and national regulations. Do not remove label until container is thoroughly cleaned.			
	Methods of disposal	Depending on degree and nature of contamination dispose of by use as fertilizer on farm, as raw material for liquid fertilizer, or to an authorised waste facility. Do not empty into drains; dispose of this material and its container in a safe way and in accordance with all applicable local and national regulations. See chapters 06 03 and 06 10 of the list of wastes (Commission decision 2000/532/EC)			
	Package waste disposal	Empty the bag by shaking to remove as much as possible of its contents. If approved by local authorities, empty bags may be disposed of as non-hazardous material or returned for recycling.			
<i>Note: see section 7 for safe handling and storage</i>					
14 Transport information					
		ADR/RID	ADN/ADNR	IMDG	ICAO/IATA
14.1	UN Number	Not classified.			
14.2	UN Proper shipping name	Not applicable.	Not applicable.	Not applicable.	Not applicable.
14.3	Transport hazard class(es)	Not classified.			
14.4	Packing group	Not applicable.			
	Label	Not applicable.			
14.5	Environmental hazards	Not applicable.			
14.6	Special precautions for user	None.			
14.7	Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable			
15 Regulatory information					
15.1	Safety, health and environmental regulation/legislation specific for the substance or mixture				
	Other regulations	Regulation EC 1907/2006 (REACH), EC 2003/2003, 96/82 EC. Decision No 1348/2008/EC of the European Parliament & of the Council and Commission Regulation (EC) No 552/2009.			
15.2	Chemical safety assessment	In accordance with REACH Article 14, a Chemical Safety Assessment has been carried out for the substance Triple superphosphate.			
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:	None.			
	Classification in accordance with Regulation 1272/2008, by self-classification based on the performed CSA	Eye Dam. Irrit. 1, H318 - causes serious eye damage.			
	Risk phrases	R41 Risk of serious damage to eyes.			
	Symbols	Xi irritant			
	Abbreviations and acronyms	<i>Eye Dam. Irrit. 1 (Eye Irrit. 1)</i> Causes serious eye irritation (H318) CLP - Classification, Labelling and Packaging Regulation, (Regulation EC No. 1272/2008). CAS Number - Chemical Abstracts Number, substance registration number. EC No. - European Commission substance identification number. % w/w - Percentage weight for weight; percentage by weight of solute in total weight of solution. PBT - Persistent, bioaccumulative, toxic. vPvB - Very persistent, very bioaccumulative. DNEL - Derived no effect level. PNEL - Prescribed no effect level. LC50 - Lethal concentration for 50% of subjects. LD50 - Lethal dose for 50% of subjects. OECD - Organisation for Economic Co-operation and Development. LOAEL - Lowest observed adverse effect level. NOAEL - No observed adverse effect level. EC50 - Effective Concentration for 50% of subjects. NOEC - No observed effect concentration.			

	<p>LTEL - Long term exposure limit. STEL - Short term exposure limit TWA - Time weighted average. mg/kg/bw/day - mg/kg of body weight per day. mg/kg/dw - mg/kg of dry weight.</p>
Training advice	Operators should be provided with information, instruction, training and supervision relative to this Safety Data Sheet and any subsequent COSHH assessment produced by his/her employer.
Date of previous SDS	08/07/2010
Modifications in this version	
References	EFMA/Fertilizers Europe Guidance documents, TFI HPV data; NOTOX gap analysis

Disclaimer
 The information in this Safety Data Sheet is given in good faith and belief in its accuracy based on our knowledge of the substance/preparation concerned at the date of publication. It does not imply the acceptance of any legal liability or responsibility whatsoever by Origin Fertilisers for the consequences of its use or misuse in any particular circumstances.

ANNEX TO THE EXTENDED SAFETY DATA SHEET.

Identification of the substance or mixture:

Product definition.	Substance and/or mixtures.
Product name.	Nitrogen free P & PK fertilizers, (containing $\geq 10\%$ Superphosphates). As indicated on packaging by PSDS Group 9 marking and nutrient inclusion.

Applicable text of H and EUH statements.

	Eye Irrit. 1	Serious eye damage/eye irritation, Category 1.
	R41	Risk of serious damage to eyes.
	H318	Causes serious eye irritation
	ERC 1	Manufacturer of substances.
	ERC 8b	Wide dispersive indoor use of reactive substances in open systems.
	ERC 8e	Wide dispersive outdoor use of reactive substances in open systems.
	PC12	Fertilizers.
	PROC 5	Mixing or blending in batch processes for formulation of preparations and articles, (multi-stage and/or significant contact).
	PROC 8a	Transfer of substance or preparation, (charging/discharging), from/to vessels/large containers at non-dedicated facilities.
	PROC 8b	Transfer of substance or preparation, (charging/discharging), from/to vessels/large containers at dedicated facilities.
	PROC 9	Transfer of substance or preparation into small containers, (dedicated filling line, including weighing).
	PROC 19	Hand mixing with intimate contact and only PPE available.
	PROC 28	Manual maintenance, (cleaning and repair), of machinery.
	SU1	Agriculture, forestry, fishery.
	SU3	Industrial uses; e.g. blending operations at factory level.
	SU10	Formulation, (mixing) of preparations and/or re-packaging, (excluding alloys).
	SU22	Professional uses; e.g. by farmers, green houses, co-operatives, distributors.

SDS EU (REACH Annex II) - This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Product exposure scenario(s).

ES Type	ES Title
Worker	ES 1: Manufacture/dry blending of substances.
Worker	ES 2: Professional use.

1.1 EXPOSURE SCENARIO 1

MANUFACTURE/DRY BLENDING OF SUBSTANCES	ES Ref: 1	
	ES Type: Worker	
Use Descriptors.	PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 28, ERC 1, ERC 8b, ERC 8e, PC12, SU1, SU3, SU10.	
Processes, tasks, activities covered.	Manufacture/dry blending of substances for use as an agricultural fertilizer. Includes re-cycling, recovery, material transfers, storage, maintenance and loading/unloading, (includes marine vessel/barge, road/rail car and containers).	
Assessment method.		

2.1 OPERATIONAL CONDITIONS AND RISK MANAGEMENT METHODS.

2.1.1 Contributing scenario controlling worker exposure, PROC. 5.

PROC.5	Use in dry blending where opportunity for exposure arises.	
Product characteristics.		
Concentration of substance in product.	Triple superphosphate; 1. 100% as a straight P fertilizer. 2. $\geq 10\%$ in a P or P & K blended fertilizer mixture, ($\geq 10\%$ superphosphates).	
Dustiness.	Solid, low dustiness.	
Operational conditions.		
Frequency and duration of use.	Covers daily exposures up to 8 hours, (unless stated differently).	
Other given operational conditions affecting worker exposure.	Indoor	
	Exposed skin surface assumed.	Two hands and face - 480cm ²
Risk management measures.		
Technical conditions and measures at process level, (source), to prevent release.	Semi-closed process with occasional controlled exposure.	
Technical conditions and measures to control dispersion from source towards the worker.	General ventilation. Containment of product. Building design - physical barriers. Plant design. Selection and suitability of mobile plant.	

Organisational measures to prevent/limit releases, dispersion and exposure.	Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls.	
Conditions and measures related to personal protection, hygiene and health evaluation.	Powered full face respirator or dust mask FFP2 Filter.	
	Powered full face respirator or tightly fitting safety goggles.	
	A washing facility for washing eyes and skin should be present. Eye wash stations should also be provided.	
	Wear suitable gloves tested to EN 374.	Efficacy 90%

2.1.2 Contributing scenario controlling worker exposure, PROC. 8a.

PROC. 8a	Transfer of substance, (charging/discharging), from/to vessels/large containers at non dedicated facilities.	
Product characteristics.		
Concentration of substance in product.	Triple superphosphate; 1. 100% as a straight P fertilizer. 2. ≥10% in a P or P & K blended fertilizer mixture, (≥10% superphosphates).	
Dustiness.	Solid, low dustiness.	
Operational conditions.		
Frequency and duration of use.	Covers daily exposures up to 8 hours, (unless stated differently).	
Other given operational conditions affecting worker exposure.	Indoor/outdoor.	
	Exposed skin surface assumed.	Two hands and face - 480cm ²
Risk management measures.		
Technical conditions and measures to control dispersion from source towards the worker.	General ventilation. Containment of product. Selection and suitability of mobile plant.	
Organisational measures to prevent/limit releases, dispersion and exposure.	Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls.	
Conditions and measures related to personal protection, hygiene and health evaluation.	Powered full face respirator or dust mask FFP2 Filter.	
	Powered full face respirator or tightly fitting safety goggles.	
	A washing facility for washing eyes and skin should be present. Eye wash stations should also be provided.	
	Wear suitable gloves tested to EN 374.	Efficacy 90%

2.1.3 Contributing scenario controlling worker exposure, PROC. 8b.

PROC. 8b	Transfer of substance, (charging/discharging), from/to vessels/large containers at dedicated facilities.	
Product characteristics.		
Concentration of substance in product.	Triple superphosphate; 1. 100% as a straight P fertilizer. 2. ≥10% in a P or P & K blended fertilizer mixture, (≥10% superphosphates).	
Dustiness.	Solid, low dustiness.	
Operational conditions.		
Frequency and duration of use.	Covers daily exposures up to 8 hours, (unless stated differently).	
Other given operational conditions affecting worker exposure.	Indoor/outdoor.	
	Exposed skin surface assumed.	Two hands and face - 480cm ²
Risk management measures.		
Technical conditions and measures at process level, (source), to prevent release.	Semi-closed process with occasional controlled exposure.	
Technical conditions and measures to control dispersion from source towards the worker.	General ventilation. Containment of product. Selection and suitability of mobile plant.	

Organisational measures to prevent/limit releases, dispersion and exposure.	Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls.	
Conditions and measures related to personal protection, hygiene and health evaluation.	Powered full face respirator or dust mask FFP2 Filter.	
	Powered full face respirator or tightly fitting safety goggles.	
	A washing facility for washing eyes and skin should be present. Eye wash stations should also be provided.	
	Wear suitable gloves tested to EN 374.	Efficacy 90%

2.1.4 Contributing scenario controlling worker exposure, PROC. 9.

PROC. 9	Transfer of substance into small containers, (dedicated filling/packing including weighing).	
Product characteristics.		
Concentration of substance in product.	Triple superphosphate; 1. 100% as a straight P fertilizer. 2. ≥10% in a P or P & K blended fertilizer mixture, (≥10% superphosphates).	
Dustiness.	Solid, low dustiness.	
Operational conditions.		
Frequency and duration of use.	Covers daily exposures up to 8 hours, (unless stated differently).	
Other given operational conditions affecting worker exposure.	Indoor.	
	Exposed skin surface assumed.	Two hands and face - 480cm ²
Risk management measures.		
Technical conditions and measures at process level, (source), to prevent release.	Semi-closed process with occasional controlled exposure.	
Technical conditions and measures to control dispersion from source towards the worker.	General ventilation. Containment of product. Building design - physical barriers. Plant design. Selection and suitability of mobile plant.	
Organisational measures to prevent/limit releases, dispersion and exposure.	Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls.	
Conditions and measures related to personal protection, hygiene and health evaluation.	Powered full face respirator or dust mask FFP2 Filter.	
	Powered full face respirator or tightly fitting safety goggles.	
	A washing facility for washing eyes and skin should be present. Eye wash stations should also be provided.	
	Wear suitable gloves tested to EN 374.	Efficacy 90%

2.1.5 Contributing scenario controlling worker exposure, PROC. 28.

PROC. 28	Manual maintenance, (cleaning and repair), of machinery.	
Product characteristics.		
Concentration of substance in product.	Triple superphosphate; 1. 100% as a straight P fertilizer. 2. ≥10% in a P or P & K blended fertilizer mixture, (≥10% superphosphates).	
Dustiness.	Solid, low dustiness.	
Operational conditions.		
Frequency and duration of use.	Covers daily exposures up to 8 hours, (unless stated differently).	
Other given operational conditions affecting worker exposure.	Indoor.	
	Exposed skin surface assumed.	Two hands and face - 480cm ²

Risk management measures.		
Technical conditions and measures at process level, (source), to prevent release.	Semi-closed process with occasional controlled exposure.	
Technical conditions and measures to control dispersion from source towards the worker.	General ventilation. Containment of product. Building design - physical barriers. Plant design. Selection and suitability of mobile plant, tools and equipment.	
Organisational measures to prevent/limit releases, dispersion and exposure.	Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls.	
Conditions and measures related to personal protection, hygiene and health evaluation.	Powered full face respirator or dust mask FFP2 Filter.	
	Powered full face respirator or tightly fitting safety goggles.	
	A washing facility for washing eyes and skin should be present. Eye wash stations should also be provided.	
	Wear suitable gloves tested to EN 374.	Efficacy 90%
3.1 Health.		
Long term - systemic effects.		
DNEL	Inhalation: 3.1mg/m ³ Dermal: 17.4 mg/kg body weight/day.	
CONTRIBUTING SCENARIO.		
PROC. 5; Use in dry blending where opportunity for exposure arises.		
Exposure assessment, (human):	Qualitative approach used to conclude safe use.	
Exposure estimation:	Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management procedures are adopted.	
PROC. 8a; Transfer of substance, (charging/discharging), from/to vessels/large containers at non dedicated facilities.		
Exposure assessment, (human):	Qualitative approach used to conclude safe use.	
Exposure estimation:	Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management procedures are adopted.	
PROC. 8b; Transfer of substance, (charging/discharging), from/to vessels/large containers at dedicated facilities.		
Exposure assessment, (human):	Qualitative approach used to conclude safe use.	
Exposure estimation:	Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management procedures are adopted.	
PROC. 9; Transfer of substance into small containers, (dedicated filling/packing including weighing).		
Exposure assessment, (human):	Qualitative approach used to conclude safe use.	
Exposure estimation:	Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management procedures are adopted.	
PROC. 28; Manual maintenance, (cleaning and repair), of machinery.		
Exposure assessment, (human):	Qualitative approach used to conclude safe use.	
Exposure estimation:	Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management procedures are adopted.	
3.2 Environment.		
4.0 GUIDANCE TO DOWNSTREAM USER TO EVALUATE WHETHER THE PERSON WORKS INSIDE THE BOUNDARIES SET BY THE ES.		
4.1 Health.		
Guidance - Health.	Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management standards and procedures are adopted in full compliance.	
4.2 Environment.		
Guidance - Environment.	Not required.	
Additional good practise advice beyond the REACH CSA.		
Additional good practise advice.	Good standard of personal hygiene. Containment as appropriate. Good standard of housekeeping.	

1.2	EXPOSURE SCENARIO 2		
	PROFESSIONAL USE	ES Ref: 2	
		ES Type: Worker	
	Use Descriptors.	PROC 8a, PROC 8b, PROC 9, PROC 19, PROC 28. ERC 8b, ERC8e, PC12, SU1, SU22.	
	Processes, tasks, activities covered.	Surface spreading or incorporation of solid fertilizers at open field. Fertilization of amenity, (parks, public lawns, sports fields, golf courses. Forest fertilization. Loading and unloading of solid fertilizer in bulk, IBC's or sacks. Management of empty bags and residual material. Cleaning and maintenance of equipment, minor and major scale.	
	Assessment method.		
2.2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT METHODS.		
2.2.1	Contributing scenario controlling worker exposure, PROC 8a;		
	PROC.8a	Transfer of substance, (charging/discharging), from/to vessels/large containers at non dedicated facilities.	
	Product characteristics.		
	Concentration of substance in product.	Triple superphosphate; 1. 100% as a straight P fertilizer. 2. ≥10% in a P or P & K blended fertilizer mixture, (≥10% superphosphates).	
	Dustiness.	Solid, low dustiness.	
	Operational conditions.		
	Frequency and duration of use.	Covers daily exposures up to 8 hours, (unless stated differently).	
	Other given operational conditions affecting worker exposure.	Indoor/outdoor	
		Exposed skin surface assumed.	Two hands and face - 480cm ²
	Risk management measures.		
	Technical conditions and measures at process level, (source), to prevent release.	Not applicable.	
	Technical conditions and measures to control dispersion from source towards the worker.	General ventilation. Containment of product. Building design - physical barriers. Selection and suitability of mobile plant.	
	Organisational measures to prevent/limit releases, dispersion and exposure.	Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls.	
	Conditions and measures related to personal protection, hygiene and health evaluation.	Powered full face respirator or dust mask FFP2 Filter.	
		Powered full face respirator or tightly fitting safety goggles.	
		A washing facility for washing eyes and skin should be present. Eye wash stations should also be provided.	
		Wear suitable gloves tested to EN 374.	Efficacy 90%
2.2.2	Contributing scenario controlling worker exposure, PROC. 8b.		
	PROC. 8b	Transfer of substance, (charging/discharging), from/to vessels/large containers at dedicated facilities.	
	Product characteristics.		
	Concentration of substance in product.	Triple superphosphate; 1. 100% as a straight P fertilizer. 2. ≥10% in a P or P & K blended fertilizer mixture, (≥10% superphosphates).	
	Dustiness.	Solid, low dustiness.	
	Operational conditions.		
	Frequency and duration of use.	Covers daily exposures up to 8 hours, (unless stated differently).	
	Other given operational conditions affecting worker exposure.	Indoor/outdoor.	
		Exposed skin surface assumed.	Two hands and face - 480cm ²
	Risk management measures.		
	Technical conditions and measures at process level, (source), to prevent release.	Not applicable.	
	Technical conditions and measures to control dispersion from source towards the worker.	General ventilation. Containment of product. Selection and suitability of mobile plant.	

Organisational measures to prevent/limit releases, dispersion and exposure.	Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls.	
Conditions and measures related to personal protection, hygiene and health evaluation.	Powered full face respirator or dust mask FFP2 Filter.	
	Powered full face respirator or tightly fitting safety goggles.	
	A washing facility for washing eyes and skin should be present. Eye wash stations should also be provided.	
	Wear suitable gloves tested to EN 374.	Efficacy 90%

2.2.3 Contributing scenario controlling worker exposure, PROC. 9.

PROC. 9	Transfer of substance into small containers, (dedicated filling/packing including weighing).	
Product characteristics.		
Concentration of substance in product.	Triple superphosphate; 1. 100% as a straight P fertilizer. 2. ≥10% in a P or P & K blended fertilizer mixture, (≥10% superphosphates).	
Dustiness.	Solid, low dustiness.	
Operational conditions.		
Frequency and duration of use.	Covers daily exposures up to 8 hours, (unless stated differently).	
Other given operational conditions affecting worker exposure.	Indoor/outdoor.	
	Exposed skin surface assumed.	Two hands and face - 480cm ²
Risk management measures.		
Technical conditions and measures at process level, (source), to prevent release.	Not applicable.	
Technical conditions and measures to control dispersion from source towards the worker.	General ventilation. Containment of product. Building design - physical barriers. Selection and suitability of mobile plant.	
Organisational measures to prevent/limit releases, dispersion and exposure.	Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls.	
Conditions and measures related to personal protection, hygiene and health evaluation.	Powered full face respirator or dust mask FFP2 Filter.	
	Powered full face respirator or tightly fitting safety goggles.	
	A washing facility for washing eyes and skin should be present. Eye wash stations should also be provided.	
	Wear suitable gloves tested to EN 374.	Efficacy 90%

2.2.4 Contributing scenario controlling worker exposure, PROC. 19

PROC. 19	Hand mixing with intimate contact and only PPE available.	
Product characteristics.		
Concentration of substance in product.	Triple superphosphate; 1. 100% as a straight P fertilizer. 2. ≥10% in a P or P & K blended fertilizer mixture, (≥10% superphosphates).	
Dustiness.	Solid, low dustiness.	
Operational conditions.		
Frequency and duration of use.	Covers daily exposures up to 8 hours, (unless stated differently).	
Other given operational conditions affecting worker exposure.	Indoor/outdoor.	
	Exposed skin surface assumed.	Two hands and face - 480cm ²
Risk management measures.		
Technical conditions and measures at process level, (source), to prevent release.	Not applicable.	

Technical conditions and measures to control dispersion from source towards the worker.	General ventilation. Containment of product. Building design - physical barriers. Selection and suitability of mobile plant and equipment.	
Organisational measures to prevent/limit releases, dispersion and exposure.	Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls.	
Conditions and measures related to personal protection, hygiene and health evaluation.	Powered full face respirator or dust mask FFP2 Filter.	
	Powered full face respirator or tightly fitting safety goggles.	
	A washing facility for washing eyes and skin should be present. Eye wash stations should also be provided.	
	Wear suitable gloves tested to EN 374.	Efficacy 90%

2.2.5 Contributing scenario controlling worker exposure, PROC. 28.

PROC. 28	Manual maintenance, (cleaning and repair), of machinery.	
Product characteristics.		
Concentration of substance in product.	Triple superphosphate; 1. 100% as a straight P fertilizer. 2. ≥10% in a P or P & K blended fertilizer mixture, (≥10% superphosphates).	
Dustiness.	Solid, low dustiness.	
Operational conditions.		
Frequency and duration of use.	Covers daily exposures up to 8 hours, (unless stated differently).	
Other given operational conditions affecting worker exposure.	Indoor/outdoor.	
	Exposed skin surface assumed.	Two hands and face - 480cm ²
Risk management measures.		
Technical conditions and measures at process level, (source), to prevent release.	Not applicable.	
Technical conditions and measures to control dispersion from source towards the worker.	General ventilation. Containment of product. Building design - physical barriers. Plant design. Selection and suitability of mobile plant, tools and equipment.	
Organisational measures to prevent/limit releases, dispersion and exposure.	Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls.	
Conditions and measures related to personal protection, hygiene and health evaluation.	Powered full face respirator or dust mask FFP2 Filter.	
	Powered full face respirator or tightly fitting safety goggles.	
	A washing facility for washing eyes and skin should be present. Eye wash stations should also be provided.	
	Wear suitable gloves tested to EN 374.	Efficacy 90%

3.0 EXPOSURE ESTIMATION AND REFERENCE TO IT'S SOURCE.

3.1 Health.		
Long term - systemic effects.		
DNEL	Inhalation: 3.1 mg/m ³ Dermal: 17.4 mg/kg body weight/day.	

CONTRIBUTING SCENARIO.	
PROC. 8a; Transfer of substance, (charging/discharging), from/to vessels/large containers at non dedicated facilities.	
Exposure assessment, (human):	Qualitative approach used to conclude safe use.
Exposure estimation:	Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management procedures are adopted.
PROC. 8b; Transfer of substance, (charging/discharging), from/to vessels/large containers at dedicated facilities.	
Exposure assessment, (human):	Qualitative approach used to conclude safe use.
Exposure estimation:	Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management procedures are adopted.
PROC. 9; Transfer of substance into small containers, (dedicated filling/packing including weighing).	
Exposure assessment, (human):	Qualitative approach used to conclude safe use.
Exposure estimation:	Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management procedures are adopted.
PROC. 19; Hand mixing with intimate contact and only PPE available.	
Exposure assessment, (human):	Qualitative approach used to conclude safe use.
Exposure estimation:	Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management procedures are adopted.
PROC. 28; Manual maintenance, (cleaning and repair), of machinery.	
Exposure assessment, (human):	Qualitative approach used to conclude safe use.
Exposure estimation:	Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management procedures are adopted.
3.2 Environment.	
4.0 GUIDANCE TO DOWNSTREAM USER TO EVALUATE WHETHER THE PERSON WORKS INSIDE THE BOUNDARIES SET BY THE ES.	
4.1 Health.	
Guidance - Health.	Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management standards and procedures are adopted in full compliance.
4.2 Environment.	
Guidance - Environment.	Not required.
Additional good practise advice beyond the REACH CSA.	
Additional good practise advice.	Good standard of personal hygiene. Containment as appropriate. Good standard of housekeeping.