

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II / Regulation (EU) No. 2015/830.
- United Kingdom (UK)

Date of issue/ Date of revision : 22.01.2021
Date of previous issue : 05.11.2018
Version : 7.0



SAFETY DATA SHEET

PG-mix 12-14-24+2

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

1.1 Product identifier

Product name : PG-mix 12-14-24+2
Product code : PF712K
Product type : Solid

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

Identified uses
Industrial distribution. Industrial USE to formulate chemical product mixtures. Professional formulation of fertiliser products. Professional USE as fertiliser at Farm - loading and spreading. Professional USE as fertiliser in Greenhouse. Professional USE as liquid fertiliser in open field. Professional USE as fertiliser - maintenance of equipment.

Uses advised against	: Other non-specified industry
Reason	: Due to lack of related experience or data, the supplier cannot approve this use.

1.3 Details of the supplier of the safety data sheet

Address : Yara UK Limited
Street : Harvest House, Europarc
Postal code : DN37 9TZ
City : Grimsby, North East Lincolnshire
Country : United Kingdom
Telephone number : +44 (0) 1472 889250
Fax no. : +44 (0) 1472 889251
e-mail address of person responsible for this SDS : yarauk.hesq@yara.com

1.4 Emergency telephone number

National advisory body/Poison Center : Not available.

Supplier

Emergency telephone number (with hours of operation) : National Chemical Emergency Centre
+44 (0) 1865 407333 (24h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture.

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification : Aquatic Chronic 3, H412

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Signal word : No signal word.

Hazard statements : H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention : P273 Avoid release to the environment.

EU Regulation (EC) No. 1907/2006 (REACH) Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Applicable, Table 65.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : None known.

Additional information : Product forms slippery surface when combined with water.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

: Mixture

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
potassium nitrate	RRN: 01-2119488224-35 EC: 231-818-8 CAS : 7757-79-1	>= 50 - <= 65	Ox. Sol. 3, H272	[1]
copper sulphate penta-hydrate	RRN: 01-2119520566-40 EC: 231-847-6 CAS : 7758-99-8 Index: 029-004-00-0	>= 0.3 - < 1	Acute Tox. 4, H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 M-factor: 10 - AQUATIC HAZARD (ACUTE),	[1]
boric acid	RRN: 01-2119486683-25 EC: 233-139-2 CAS : 10043-35-3 Index: 005-007-00-2	>= 0.1 - <= 0.2	Repr. 1B, H360	[1]
zinc sulphate (monohydrate)	RRN: 01-2119474684-27 EC: 231-793-3 CAS : 7446-19-7 Index: 030-006-00-9	>= 0.1 - <= 0.2	Acute Tox. 4, H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]

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

See Section 16 for the full text of the H statements declared above.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

- Remarks** : This product contains Boron (see section 7 and 11).
The content is below the level required for classification of the product as toxic to reproduction.

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Rinse with plenty of running water. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Inhalation** : If inhaled, remove to fresh air. In case of inhalation of decomposition products in a fire, symptoms may be delayed. Get medical attention if you feel unwell. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Wash with soap and water. Get medical attention if irritation develops.
- Ingestion** : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if you feel unwell.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use flooding quantities of water for extinction.
- Unsuitable extinguishing media** : Do NOT use chemical extinguisher or foam or attempt to smother the fire with steam or sand.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous combustion products** : Decomposition products may include the following materials: nitrogen oxides, sulfur oxides, phosphorus oxides, metal oxide/oxides, ammonia, Avoid breathing dusts, vapors or fumes from burning materials., In case of inhalation of decomposition products in a fire, symptoms may be delayed.

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and materials for containment and cleaning up

- Small spill** : Move containers from spill area. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep.

Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.

- 6.4 Reference to other sections** :
- See Section 1 for emergency contact information.
 - See Section 8 for information on appropriate personal protective equipment.
 - See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Not for human or animal consumption.

- Protective measures** :
- Put on appropriate personal protective equipment (see Section 8). As a precaution, keep exposure as low as possible for pregnant women, children and workers in reproductive age. Avoid dust generation. Do not breathe dust. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** :
- Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Keep away from: organic materials, oil and grease.

7.3 Specific end use(s)

- Recommendations** :
- Do not generate and inhale liquid fertilizer aerosols.
- In addition to overalls, gloves and eye protection, use of efficient respiratory protection (P2/P3 respirators with a tight face seal) during discharge of fertilizer bags and maintenance of equipment is recommended to minimize inhalation exposure and to ensure safe-use during this activity (see section 8).

Risk assessments show safe use during normal spreading of fertilizers containing below 5% of boron by tractor (liquid or granular) and backpack (liquid).

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
copper sulphate penta-hydrate	EH40/2005 WELs (1997-01-01). STEL 2 mg/m ³ (as Cu) Form: Dusts and mists TWA 1 mg/m ³ (as Cu) Form: Dusts and mists

Recommended monitoring procedures

- : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Reference should be made to monitoring standards, such as the following:
- European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy)
 - European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents)
 - European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents)
- Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
copper sulphate penta-hydrate	DNEL	Long term Dermal	137 mg/kg bw/day	Workers	Local
	DNEL	Long term Oral	0.041 mg/kg bw/day	General population [Consumers]	Systemic
boric acid	DNEL	Long term Inhalation	1 mg/m ³	Workers	Local
	DNEL	Long term Dermal	392 mg/kg bw/day	Workers	Systemic
zinc sulphate (monohydrate)	DNEL	Long term Inhalation	1 mg/m ³	Workers	Systemic

	DNEL	Long term Dermal	8.3 mg/kg bw/day	Workers	Systemic
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PNECs

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
potassium nitrate	PNEC	Sewage Treatment Plant	18 mg/l	Assessment Factors
copper sulphate penta-hydrate	PNEC	Fresh water	7.8 µg/l	Not applicable.
	PNEC	Marine water	5.2 µg/l	Not applicable.
	PNEC	Sewage Treatment Plant	230 µg/l	Not applicable.
	PNEC	Fresh water sediment	87 mg/kg	Not applicable.
	PNEC	Marine water sediment	676 mg/kg	Not applicable.
	PNEC	Soil	65 mg/kg	Not applicable.
zinc sulphate (monohydrate)	PNEC	Fresh water	20.6 µg/l	Not applicable.
	PNEC	Marine water	6.1 µg/l	Not applicable.
	PNEC	Fresh water sediment	235.6 mg/kg dwt	Not applicable.
	PNEC	Marine water sediment	113 mg/kg dwt	Not applicable.
	PNEC	Soil	106.8 mg/kg dwt	Not applicable.
	PNEC	Sewage Treatment Plant	52 µg/l	Not applicable.

8.2 Exposure controls

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures


Hygiene measures : A washing facility or water for eye and skin cleaning purposes should be present. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Wash contaminated clothing before reusing.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
Recommended: Tightly-fitting goggles, CEN: EN166,

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. For general applications, we recommend gloves with a thickness typically greater than 0.35 mm. It should be emphasized that glove thickness is

not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material.

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use respiratory protection with more than 94% efficiency (P2, P3 or N95) and a tight face seal, when risk of exposure to dust.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Personal protective equipment (Pictograms)** : 

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Solid
- Color** : Not determined.
- Odor** : Not determined.
- Odor threshold** : Not determined.
- pH** : Not determined
- Melting point/freezing point** : Not determined
- Initial boiling point and boiling range** : Not determined
- Flash point** : Not determined
- Evaporation rate** : Not determined
- Flammability (solid, gas)** : Non-flammable.
- Upper/lower flammability or explosive limits** : **Lower:** Not determined
Upper: Not determined
- Vapor pressure** : Not determined
- Vapor density** : Not determined
- Relative density** : Not determined
- Bulk density** : Not determined
- Partition coefficient: n-octanol/water** : Not determined
- Auto-ignition temperature** : Not determined
- Viscosity** : **Dynamic:** Not determined.
Kinematic: Not determined.
- Explosive properties** : Non-explosive.

Oxidizing properties : None

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : Avoid contamination by any source including metals, dust and organic materials.
- 10.5 Incompatible materials** : alkalis combustible materials, reducing materials, organic materials, Acids
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Method	Species	Result	Exposure	References
potassium nitrate					
	LD50 Oral	Rat	2,000 - 5,000 mg/kg	Not applicable.	CSR
	LD50 Dermal	Rat	> 5,000 mg/kg	Not applicable.	CSR
copper sulphate penta-hydrate					
	OECD 401 LD50 Oral	Rat	> 400 mg/kg	Not applicable.	ECHA
	OECD 402 LD50 Dermal	Rat	> 5,000 mg/kg	Not applicable.	ECHA
boric acid					
	LD50 Oral	Rat	3,450 mg/kg	Not applicable.	IUCLID 5
	LD50 Dermal	Rabbit	> 5,000 mg/kg	Not applicable.	IUCLID
zinc sulphate (monohydrate)					
	OECD 401 LD50 Oral	Rat	926 mg/kg	Not applicable.	ECHA

Conclusion/Summary : No known significant effects or critical hazards.

Acute toxicity estimates

N/A

Irritation/Corrosion

Product/ingredient name	Method	Species	Result	Exposure	References
potassium nitrate					
	OECD 404 Skin	Rabbit	Non-irritating.		IUCLID 5
copper sulphate penta-hydrate					
	OECD 405 Eyes	Rabbit	Severe irritant		ECHA
zinc sulphate (monohydrate)					
	Eyes	Rabbit	Severe irritant		IUCLID 5

Conclusion/Summary

- Skin** : No known significant effects or critical hazards.
Eyes : No known significant effects or critical hazards.
Respiratory : No known significant effects or critical hazards.

Sensitization**Conclusion/Summary**

- Skin** : No known significant effects or critical hazards.
Respiratory : No known significant effects or critical hazards.

Mutagenicity

- Conclusion/Summary** : No known significant effects or critical hazards.

Carcinogenicity

- Conclusion/Summary** : No known significant effects or critical hazards.

Reproductive toxicity

Product/ingredient name	Method	Species	Result	Exposure	References
boric acid					
	Oral	Rat	Fertility effects- Positive NOEL	3 weeks Repeated dose;	IUCLID 5

- Conclusion/Summary** : Contains boron which may harm fertility, based on animal data. Contains boron which may harm the unborn child, based on animal data.

- Information on the likely routes of exposure:** : Not available.

Potential acute health effects

- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

- Ingestion** : No known significant effects or critical hazards.

- Skin contact** : No known significant effects or critical hazards.

Eye contact : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation : No specific data.

Ingestion : No specific data.

Skin contact : No specific data.

Eye contact : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : No known significant effects or critical hazards.

Potential delayed effects : No known significant effects or critical hazards.

Long term exposure

Potential immediate effects : No known significant effects or critical hazards.

Potential delayed effects : No known significant effects or critical hazards.

Potential chronic health effects

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Fertility effects : Contains boron which may harm fertility, based on animal data.

Developmental effects : Contains boron which may harm the unborn child, based on animal data.

Effects on or via lactation : No known significant effects or critical hazards.

Other effects : No known significant effects or critical hazards.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Method	Species	Result	Exposure	References
potassium nitrate					
	OECD 203 Acute LC50 Fresh water	Fish	> 100 mg/l	96 h	CSR
	Acute EC50 Fresh water	Daphnia	490 mg/l	48 h	CSR
	Acute EC50 Fresh water	Algae	> 1,700 mg/l	240 h	CSR
copper sulphate penta-hydrate					
	Acute LC50 Fresh water	Fish	0.032 mg/l	96 h	ECHA
	Acute NOEC Fresh water	Daphnia	0.029 mg/l	Not applicable.	ECHA

	Chronic NOEC Fresh water	Daphnia	0.029 mg/l	Not applicable.	
boric acid					
	Acute LC50 Fresh water	Fish	> 100 mg/l	4 d	IUCLID
	Acute EC50 Fresh water	Daphnia	> 100 mg/l	2 d	IUCLID
zinc sulphate (monohydrate)					
	Acute LC50 Fresh water	Fish	0.1 - 1 mg/l	96 h	ECHA
	Acute EC50 Fresh water	Daphnia	0.1 - 1 mg/l	48 h	ECHA

Conclusion/Summary : Harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability

Conclusion/Summary : No known significant effects or critical hazards.

12.3 Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
boric acid	0.175-1.09	Not applicable.	low

Conclusion/Summary : No known significant effects or critical hazards.

12.4 Mobility in soil

Soil/water partition coefficient (KOC) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

European waste catalogue (EWC)

Waste code	Waste designation
06 10 02*	wastes containing hazardous substances

Packaging**Methods of disposal**

- : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Empty the bag by shaking to remove as much as possible of its contents. Empty bags may be disposed of as non-hazardous material or returned for recycling.

Special precautions

- : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information**Regulation: ADR/RID**

14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.
Additional information	

Regulation: ADN

14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.
Additional information	
<u>Danger code</u>	: N2

Regulation: IMDG

14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.

Additional information**Marine pollutant** : No.**Regulation: IATA**

14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.

Additional information**Marine pollutant** : No.

14.6 Special precautions for user : Transport within user's premises: Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to IMO instruments : Not applicable.

14.8 IMSBC

Bulk cargo shipping name : PG-mix 12-14-24+2
Class : Not applicable.
Group : C
Marpol V : Non-HME

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****EU Regulation (EC) No. 1907/2006 (REACH)****Annex XIV - List of substances subject to authorization****Annex XIV****Substances of very high concern****EU Regulation (EC) No. 1907/2006 (REACH) Annex XVII** : Applicable, Table 65.**- Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles****Other EU regulations****Europe inventory** : All components are listed or exempted.**Ozone depleting substances (1005/2009/EU)**

None of the components are listed.

Prior Informed Consent (PIC) (649/2012/EU)

None of the components are listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

Other regulations : This product is regulated by Regulation (EU) 2019/1148: all suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point. Please see https://ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/policies/crisis-and-terrorism/explosives/explosives-precursors/docs/list_of_competent_authorities_and_national_contact_points_en.pdf.

National regulations

Biocidal products regulation : Not applicable.

Notes : To our knowledge no other country or state specific regulations are applicable.

15.2 Chemical Safety Assessment : Complete.

SECTION 16: Other information

Abbreviations and acronyms :

- ATE = Acute Toxicity Estimate
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DNEL = Derived No Effect Level
- DMEL = Derived Minimal Effect Level
- EUH statement = CLP-specific Hazard statement
- N/A = Not available
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number
- SGG = Segregation Group
- PBT = Persistent, Bioaccumulative and Toxic
- vPvB = Very Persistent and Very Bioaccumulative
- bw = Body weight

Key data sources :

- EU REACH ECHA/IUCLID5 CSR.
- National Institute for Occupational Safety and Health, U.S. Dept. of Health, Education, and Welfare, Reports and Memoranda Registry of Toxic Effects of Chemical Substances.
- Sphera Solutions Inc., 4777 Levy Street, St Laurent, Quebec HAR 2P9, Canada.
- Regulation (EC) No 1272/2008 Annex VI.

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Aquatic Chronic 3, H412	Calculation method

Full text of abbreviated H statements

H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H318	Causes serious eye damage.
H360	May damage fertility or the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Ox. Sol. 3	OXIDIZING SOLIDS - Category 3
Acute Tox. 4	ACUTE TOXICITY oral - Category 4
Eye Dam. 1	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
Repr. 1B	TOXIC TO REPRODUCTION - Category 1B
Aquatic Acute 1	AQUATIC HAZARD (ACUTE) - Category 1
Aquatic Chronic 1	AQUATIC HAZARD (LONG-TERM) - Category 1
Aquatic Chronic 3	AQUATIC HAZARD (LONG-TERM) - Category 3

Revision comments : The following sections contain new and updated information: 15.

Date of printing : 05.02.2021
Date of issue/ Date of revision : 22.01.2021
Date of previous issue : 05.11.2018
Version : 7.0
Prepared by : Yara Chemical Compliance (YCC).

|| Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information provided in this Safety Data Sheet is accurate as at the date of its issue. The information it contains is being given for safety guidance purposes and relates only to the specific material and uses described in it. This information does not necessarily apply to that material when combined with other material(s) or when used otherwise than as described herein, since all materials may represent unknown hazards and should be used with caution. Final determination of the suitability of any material is the sole responsibility of the user.



**Annex to the extended Safety Data Sheet (eSDS) -
Exposure Scenario/Safe Use Information:**

Identification of the substance or mixture

Product definition : Mixture

Product name : PG-mix 12-14-24+2

Exposure Scenario/Safe Use Information : For each hazard resulting in classification relevant Exposure Scenarios are attached.



Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Section 1 – Title

Short title of the exposure scenario : Yara - copper sulphate pentahydrate - Distribution, Formulation

Identified use name : Industrial distribution.
Industrial USE to formulate chemical product mixtures.
Industrial USE to formulate fertilisers product mixtures.

Substance supplied to that use in form of : In a mixture

List of use descriptors

Process Category : PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15

Environmental Release Category : ERC02

Sector of end use : SU03

Subsequent service life relevant for that use : No.

Number of the ES : 06370-1/2017-05-03

Section 2 – Exposure controls

Contributing scenario controlling environmental exposure for:

Product characteristics : Solid
In aqueous preparations

Amounts used	: Annual site tonnage < 17
Frequency and duration of use	: Continuous release
Environment factors not influenced by risk management	: Flow rate of receiving surface water (m3/d): 18,000 Local freshwater dilution factor 10 Local marine water dilution factor 100
Other conditions affecting environmental exposure	: Indoor use Residues which cannot be recycled are disposed off as chemical waste.
Emission days	220
Release fraction to air from process (initial release prior to RMM)	ERC02: 0.4 %
Release fraction to wastewater from process (initial release prior to RMM)	ERC02: 2 %
Release fraction to soil from process (initial release prior to RMM)	ERC02: 0 %
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: Specific measures are required.
Risk management measures - Air	: Treat air emission to provide a typical removal efficiency of, > 90%, Fabric filter, Wet scrubber - particle removal
Risk management measures - Water	: Typical on-site wastewater treatment technology provides removal efficiency of, > 90%, Chemical precipitation or sedimentation or filtration or electrolysis or reverse osmosis or ion exchange

Contributing scenario controlling worker exposure for:

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Physical state	:	Solid Powder. Aqueous solution
Dust	:	Solid, medium dustiness
Frequency and duration of use	:	Covers daily exposures up to 8 hours
Other conditions affecting workers exposure	:	Assumes a good basic standard of occupational hygiene is implemented
Area of use:	:	Indoor
Ventilation control measures	:	Provide a good standard of general ventilation.
Organizational measures to prevent/limit releases, dispersion and exposure	:	Ensure operatives are trained to minimise exposures.
Conditions and measures related to personal protection and hygiene		
Personal protection	:	Wear protective gloves/clothing and eye/face protection. See Section 8 of the safety data sheet (personal protective equipment).

Section 3 – Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment:

Exposure assessment (environment):	:	EUSES
Exposure estimation and reference to its source	:	See Section 8 in SDS, PNEC. Predicted exposures are not expected to exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Contributing scenario	Annual site tonnage	Release rate	Protection target	Exposure estimate (PEC)	RCR	Remark
ERC02	10		Freshwater	5.4 µg/l	0.69	
ERC02	17		Freshwater	3.3 µg/l	0.43	[1]
ERC02	17		Marine water	1.5 µg/l	0.27	
ERC02	10		Freshwater sediment	74,77 mg/kg dwt	0.86	
ERC02	17		Freshwater sediment	12,71 mg/kg dwt	0.15	[1]
ERC02	17		Marine sediment	28,81 mg/kg dwt	0.04	
ERC02	17		Soil	57,85 mg/kg dwt	0.68	[1]
ERC02	10		Soil	44,07 mg/kg dwt	0.90	

[1] Dilution factor 100

Exposure estimation and reference to its source - Workers:

Exposure assessment (human): : MEASE

Exposure estimation and reference to its source : See Section 8 in SDS, DNEL.

Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.

Contributing scenario	General	Conc.	Duration	Protection efficiency (%)			RCR inhal.	RCR Dermal	Remark
				LEV	Respiratory	Dermal			
PROC02	Solids	> 25 %	> 4 h	0	0		0.5		
PROC02	aqueous solution	> 25 %	> 4 h	0	0		0.001		
PROC03	Solids	> 25 %	> 4 h	90	0		0.1		
PROC03	aqueous solution	> 25 %	> 4 h	0	0		0.01		
PROC04	Solids	> 25 %	> 4 h	90	0		0.5		
PROC04	aqueous	> 25 %	> 4 h	0	0		0.05		

	solution								
PROC05	Solids	> 25 %	> 4 h	90	0		0.5		
PROC05	aqueous solution	> 25 %	> 4 h	0	0		0.05		
PROC08a	Solids	> 25 %	> 4 h	90	0		0.5		
PROC08a	aqueous solution	> 25 %	> 4 h	0	0		0.05		
PROC08b	Solids	> 25 %	> 4 h	90	0		0.25		
PROC08b	aqueous solution	> 25 %	> 4 h	0	0		0.01		
PROC09	Solids	> 25 %	> 4 h	90	0		0.5		
PROC09	aqueous solution	> 25 %	> 4 h	0	0		0.01		
PROC15	Solids	> 25 %	> 4 h	0	0		0.5		
PROC15	aqueous solution	> 25 %	> 4 h	0	0		0.01		

Section 4 – Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	: Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. For scaling, see, http://www.arche-consulting.be/metal-CSA-toolbox/du-scaling-tool
Health	: Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool, scalable parameters and RCR is given in section 3. Scalable parameters: Duration, protection efficiency, Conc. RCR should not be exceeded.

Abbreviations and acronyms

Process Category	: PROC02 - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC03 - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
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PROC04 - Chemical production where opportunity for exposure arises
 PROC05 - Mixing or blending in batch processes
 PROC08a - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 PROC08b - Transfer of substance or mixture (charging and discharging) at dedicated facilities
 PROC09 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
 PROC15 - Use as laboratory reagent

Environmental Release Category : ERC02 - Formulation into mixture
Sector of end use : SU03 - Industrial uses



Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Section 1 – Title

Short title of the exposure scenario : Yara - Zinc sulphate - Distribution, Formulation

Identified use name : Industrial distribution.
 Industrial USE to formulate chemical product mixtures.
 Industrial USE to formulate fertilisers product mixtures.

Substance supplied to that use in form of : In a mixture

List of use descriptors

Process Category : PROC02, PROC03, PROC04, PROC05, PROC08b, PROC09, PROC15

Environmental Release Category : ERC02

Market sector by type of : PC12

chemical product

Sector of end use : SU03

Subsequent service life
relevant for that use : No.

Number of the ES : 05645-2/2017-12-01

Section 2 – Exposure controls**Contributing scenario controlling environmental exposure for:**Product characteristics : Liquid.
SolidConcentration of substance
in mixture or article : < 100 %

Amounts used : Annual site tonnage < 5000

Frequency and duration of
use : Continuous releaseEnvironment factors not
influenced by risk
management : Flow rate of receiving surface water (m³/d): 18,000
Local freshwater dilution factor 10
Local marine water dilution factor 100Other conditions affecting
environmental exposure : Indoor use
Residues which cannot be recycled are disposed off as chemical
waste.Technical conditions and
measures at process level
(source) to prevent release : Formulation activity is assumed to be a predominantly enclosed
process. Provide adequate ventilation, especially in closed
rooms. Local exhaust ventilation should be provided. Use
appropriate containment to avoid environmental contamination.Technical on-site
conditions and measures to
reduce or limit discharges,
air emissions and releases
to soil : Specific measures are required.

Risk management measures - Air	: Treat air emission to provide a typical removal efficiency of, > 90%, Fabric filter, Wet scrubber - particle removal
Risk management measures - Water	: Typical on-site wastewater treatment technology provides removal efficiency of, > 90%, Chemical precipitation or sedimentation or filtration or electrolysis or reverse osmosis or ion exchange
Organizational measures to prevent/limit release from site	: Activities should only be executed by trained/authorized personnel., Regular inspection/maintenance to prevent fugitive releases/leakage., Regular cleaning of work areas, equipment and floors., Procedures for process control should be implemented to minimise release/exposure.

Contributing scenario controlling worker exposure for:	
Concentration of substance in mixture or article	: < 100 %
Physical state	: Liquid. Solid.
Dust	: Solid, high dustiness, Solid, low dustiness
Frequency and duration of use	: Use duration (h/d): < 8
Area of use:	: Indoor
Technical conditions and measures to control dispersion from source towards the worker	: Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits., Dust capturing and removal techniques are applied on work areas with potential dust generation., Workplace measurements
Ventilation control measures	: Provide extract ventilation to points where emissions occur. Treatment effectiveness > 90 %
Organizational measures to prevent/limit releases, dispersion and exposure	: Ensure operatives are trained to minimise exposures., Regular inspection/maintenance to prevent fugitive releases/leakage., Regular cleaning of work areas, equipment and floors., Procedures for process control should be implemented to minimise release/exposure.

Conditions and measures related to personal protection and hygiene

Personal protection : Causes serious eye damage., Wear protective gloves and eye protection., Do not eat, drink or smoke when using this product., Wash hands thoroughly after handling., See Section 8 of the safety data sheet (personal protective equipment).

Respiratory protection : In case of inadequate ventilation wear respiratory protection.

Section 3 – Exposure estimation and reference to its source**Exposure estimation and reference to its source - Environment:**

Exposure assessment (environment): : measured data, -

Exposure estimation and reference to its source : See Section 8 in SDS, PNEC.
Predicted exposures are not expected to exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Contributing scenario	Annual site tonnage	Release rate	Protection target	Exposure estimate (PEC)	RCR	Remark
ERC02	5000		Water	< 3,4 µg/l	0.16	[1]
ERC02	5000		Sediment	45 mg/kg dwt	0.19	[1]
ERC02	5000		Soil	41 mg/kg dwt	0.39	[1]
ERC02	5000		Sewage treatment plant	0 mg/l	0	[1]

[1] Calculated as Zn

Exposure estimation and reference to its source - Workers:

Exposure assessment (human): : Workplace measurements
Worst case assumption

Exposure estimation and reference to its source : See Section 8 in SDS, DNEL.
Predicted exposures are not expected to exceed the DN(M)EL

when the risk management measures/operational conditions outlined in section 2 are implemented.

Section 4 – Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	: Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., Measure or calculate local exposure to assess risk. See tools on www.reach-zinc.eu/
Health	: Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., Workplace monitoring data may also be used to judge the actual workplace exposure and subsequently can be used to reduce the requirements for respiratory protection provided the exposure levels do not exceed the DNELs.

Abbreviations and acronyms

Process Category	: PROC02 - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC03 - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC04 - Chemical production where opportunity for exposure arises PROC05 - Mixing or blending in batch processes PROC08b - Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC09 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent
Environmental Release Category	: ERC02 - Formulation into mixture
Market sector by type of chemical product	: PC12 - Fertilizers
Sector of end use	: SU03 - Industrial uses

