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

1.1. Product identifier

Product Identity Crystal Green®

Alternate Names Chemical Name: Struvite, Magnesium Ammonium Phosphate

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

Intended use Slow release fertilizer.

Application Method See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name Ostara Europe (UK) Limited

10 John Street

London, United Kingdom

WC1N 2EB

Emergency

24 hour Emergency Telephone No. 001 604 408 6697 **Customer Service: Ostara Nutrient Recovery** 001 604 408 6697

Technologies Inc. Email: abritton@ostara.com

2. Hazard identification of the product

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Skin Irrit. 2;H315 Causes skin irritation.

Eye Irrit. 2;H319 Causes serious eye irritation. STOT SE 3;H335 May cause respiratory irritation.

2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

According to Regulation (EC) No 1272/2008



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H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

[Prevention]:

P261 Avoid breathing dust / fume / gas / mist / vapors / spray.

P264 Wash thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves / eye protection / face protection.

[Response]:

P302+352 IF ON SKIN: Wash with plenty of soap and water.

P304+312 IF INHALED: Call a POISON CENTER or doctor / physician if you feel unwell.

P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

P321 Specific treatment (see information on this label).

P332+313 If skin irritation occurs: Get medical advice / attention.

P337+313 If eye irritation persists: Get medical advice / attention.

P340 Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P362 Take off contaminated clothing and wash before reuse.

[Storage]:

P403+233 Store in a well ventilated place. Keep container tightly closed.

P405 Store locked up.

[Disposal]:

P501 Dispose of contents / container in accordance with local / national regulations.

See Technical Data Sheet.

2.3. Other hazards

This product contains no PBT/vPvB chemicals.

3. Composition/information on ingredients

If the product contains substances that present a health hazard within the meaning of the Dangerous Substances Directive 67/548/EC, or have occupational exposure limits detailed in EH40, these substances are listed below.

Ingredient/Chemical Designations	Weight %	EC No. 1272/2008 Classification*	Notes
Phosphoric acid, ammonium magnesium salt CAS Number: 0013478-16-5 EC No. Index No.:	75 - 100	Skin Irrit. 2;H315 Eye Irrit. 2;H319 STOT SE 3;H335	[1]

[^]CLP 31 Reference EC No. 1272/2008 1.1.3.1. Notes relating to the identification, classification and labelling of substances (Table 3.1).

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In accordance with paragraph (i) of §1910.1200, the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

- [1] Substance classified with a health or environmental hazard.
- [2] Substance with a workplace exposure limit.
- [3] PBT-substance or vPvB-substance.

*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention.

Never give anything by mouth to an unconscious person.

Inhalation Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give

artificial respiration. If unconscious place in the recovery position and obtain immediate

medical attention. Give nothing by mouth.

Eye Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and

seek medical attention.

Skin Remove contaminated clothing. Wash skin thoroughly with soap and water or use a

recognized skin cleanser.

Ingestion If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

Overview Dust may have irritant effect on skin, eyes and air passages.

See section 2 for further details.

InhalationMay cause respiratory irritation.EyeCauses serious eye irritation.

Skin Causes skin irritation.

5. Fire-fighting measures

5.1. Extinguishing media

As appropriate for surrounding fire.

5.2. Special hazards arising from the substance or mixture

Ensure adequate ventilation. Ensure suitable personal protection during removal of spillages. Avoid generation of dust. Avoid breathing dust.

Hazardous decomposition: Decomposition products: Nitrogen oxides, Magnesium oxides, Phosphorus oxides. Avoid breathing dust / fume / gas / mist / vapors / spray.

5.3. Advice for fire-fighters

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Toxic fumes may be produced in a fire.

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire.

ERG Guide No. ----

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

Ensure adequate ventilation. Ensure suitable personal protection during removal of spillages. Avoid generation of dust. Avoid breathing dust.

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up

Ensure adequate ventilation. Ensure suitable personal protection during removal of spillages. Avoid generation of dust. Avoid breathing dust.

Sweep spilled substances into containers if appropriate moisten first to prevent dusting. Use vacuum equipment for collecting spilt materials, where practicable. Transfer to a container for disposal

7. Handling and storage

7.1. Precautions for safe handling

Provide adequate ventilation. Avoid generation of dust. Avoid breathing dust. Wear suitable gloves. Wash hands thoroughly after handling.

See section 2 for further details. - [Prevention]:

7.2. Conditions for safe storage, including any incompatibilities

Handle containers carefully to prevent damage and spillage.

Keep container tightly closed and in a well-ventilated place. Keep away from heat and direct sunlight.

Storage temperature <55°C

Stable under normal conditions.

Incompatible materials: Strong oxidizing materials.

See section 2 for further details. - [Storage]:

7.3. Specific end use(s)

No data available.

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8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0013478-16-5	0013478-16-5 Phosphoric acid, ammonium magnesium salt	OSHA	No Established Limit
		ACGIH	No Established Limit
	NIOSH	No Established Limit	

The exposure limits for nuisance dust are: OSHA PEL: 15 mg/m3 (50 mppcf*) TWA, ACGIH 10 mg/m3.

8.2. Exposure controls

Respiratory If workers are exposed to concentrations above the exposure limit they must use the

appropriate, certified dust mask or dust respirator.

Eyes Wear protective eyewear (goggles, face shield, or safety glasses).

Skin Wear suitable gloves if prolonged skin contact is likely.

Engineering Controls Provide adequate ventilation. Where reasonably practicable this should be achieved by the

use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits

suitable respiratory protection must be worn.

using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details. - [Prevention]:

9. Physical and chemical properties

Appearance Powder/ Pellets (up to 5mm diameter).

Odor Musty/Ammonia(when damp or heated above 55 °C)

Odor threshold

PH

Not Measured

Not Measured

Not Measured

Not Measured

Initial boiling point and boiling range

Flash Point

Not Measured

Not Measured

Not Measured

Not Measured

Flammability (solid, gas)

Not Applicable

Upper/lower flammability or explosive limits Lower Explosive Limit: Not Measured

Upper Explosive Limit: Not Measured

Vapor pressure (Pa)Not MeasuredVapor DensityNot MeasuredSpecific GravityNot MeasuredSolubility in WaterInsoluble

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Partition coefficient n-octanol/water (Log Kow) Not Measured
Auto-ignition temperature Not Measured

Decomposition temperature >55 c

Viscosity (cSt) Not Measured

Relative Density 1.7
Bulk Density 1 g/ml

9.2. Other information

Molecular weight: 245 Atomic Mass Units

10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

Heat and direct sunlight.

10.5. Incompatible materials

Strong oxidizing materials.

10.6. Hazardous decomposition products

Decomposition products: Nitrogen oxides, Magnesium oxides, Phosphorus oxides.

11. Toxicological information

Acute toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapour LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Phosphoric acid, ammonium magnesium salt - (13478-16-5)	No data available	No data available	No data available	No data available	No data available

Carcinogen Data

CAS No.	Ingredient	Source	Value
0013478-16-5		OSHA	Select Carcinogen: No

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Phosphoric acid, ammonium magnesium salt	NTP	Known: No; Suspected: No
	IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

Classification	Category	Hazard Description
Acute toxicity (oral)		Not Applicable
Acute toxicity (dermal)		Not Applicable
Acute toxicity (inhalation)		Not Applicable
Skin corrosion/irritation	2	Causes skin irritation.
Serious eye damage/irritation	2	Causes serious eye irritation.
Respiratory sensitization		Not Applicable
Skin sensitization		Not Applicable
Germ cell mutagenicity		Not Applicable
Carcinogenicity		Not Applicable
Reproductive toxicity		Not Applicable
STOT-single exposure	3	May cause respiratory irritation.
STOT-repeated exposure		Not Applicable
Aspiration hazard		Not Applicable

12. Ecological information

12.1. Toxicity

Low toxicity to aquatic organisms.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish,	48 hr EC50 crustacea,	ErC50 algae,
	mg/l	mg/l	mg/l
Phosphoric acid, ammonium magnesium salt - (13478-16-5)	Not Available	Not Available	Not Available

12.2. Persistence and degradability

There is evidence of degradation in soil. Not persistent.

12.3. Bioaccumulative potential

Not Measured

12.4. Mobility in soil

Insoluble in water, the substance is expected to have low mobility in soil.

12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

No data available.

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13. Disposal considerations

13.1. Waste treatment methods

Observe all federal, state and local regulations when disposing of this substance.

14. Transport information

DOT (Domestic Surface IMO / IMDG (Ocean ICAO/IATA

Transportation) Transportation)

14.1. UN number Not Applicable Not Regulated Not Regulated Not Regulated Not Regulated Not Regulated Not Regulated

14.2. UN proper shipping Not Regulated Not Regulated Not Regulated name

14.3. Transport hazard DOT Hazard Class: Not **IMDG:** Not Applicable **Air class:** Not Applicable

class(es) Applicable Sub Class: Not Applicable

14.4. Packing group Not Applicable Not Applicable Not Applicable

14.5. Environmental hazards

IMDG Marine Pollutant: No;

14.6. Special precautions for user

No further information

15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture EU Legislation

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

National Legislation

None noted.

16. Other information

The conditions, methods and factors affecting the handling, storage, application, use and disposal of the product are not under the control and knowledge of the manufacturer. Therefore, the manufacturer does not assume

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responsibility for any adverse events which may occur in the handling, storage, application, use, misuse or disposal of the product and, so far as permitted by applicable law, the manufacturer expressly disclaims liability for any and all loss, damages and/or expenses arising out of or in any way connected to the storage, handling, use or disposal of the product. Safe handling, storage, use and disposal are the responsibility of the users. Users must comply with all applicable health and safety laws.

The full text of the phrases appearing in section 3 is:

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

The information contained herein is furnished without warranty of any kind. The above information is believed to be correct but does not purport to be all inclusive and should be used only as a guide. Users should make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

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