MATERIAL SAFETY DATA SHEET

Date of issue: 12/02/2014	Date of revision: 15/06/2020	Lima MSDS N°6
According to: Regulation (EC) N° 1907/2006 (REACH) Regulation (EC) N° 830/2015 Regulation (EC) N° 1272/2008 (CLP)		UFI Code:

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

1.1 Product identifier:

Designation:	NPK (CaO)(MgO) fertilizer suspension with micronutrients
Trade name:	GROGREEN FIVE Multi
EINECS name/number:	Mixture – therefore not relevant
IUPAC name:	Mixture – therefore note relevant
Molecular formula:	Mixture – therefore note relevant

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

Relevant identified uses:	Product is used to supply nutrients to the soil or directly to the plant
Uses advised against:	Not identified

1.3 Details of the supplier of the safety data sheet:

Produced and distributed by:

Lima Europe NV
Doelhaagstraat 77/1
2840 Rumst – Belgium
Tel: +32 3 203 55 50
info@lima-europe.com

1.4 Emergency telephone number:

Lima Europe NV:	+32 3 203 55 50
National Poison Center (BE):	+32 70 245 245

2. Hazards identification

2.1 Classification of the substance or mixture:

Product description: Mixture

Classification: **Eye Dam. 1. – H318: Causes serious eye damage**
Classification according to Regulation (EC) No. 1272/2008

2.2 Label elements:

Hazard pictogram:

Signal word:	Danger
Hazard statements:	H318: Causes serious eye damage
Precautionary statements:	P280: Wear eye protection/face protection. P305+351+338: 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 center or doctor/physician.
Additional label elements:	Not applicable.
Packaging requirements:	Not applicable.

2.3 Other hazards:

Substance complies with criteria For PBT according to regulation (EC) nr. 1907/2006, annex XIII:	Not applicable.
Substance complies with criteria For vPvB according to regulation (EC) nr. 1907/2006, annex XIII:	Not applicable.
Other hazard that do not require Classification:	In combination with water the product can cause a slippery surface.

3. Composition/information on ingredients

Substance name	Identification	%	Classification according to regulation (EC) nr. 1272/2008 (CLP)	Type
Potassium Nitrate	RPN: 01-2119488224-35 EC: 231-818-8 CAS: 7757-79-1	< 30	Ox. Sol. 3 – H272	[1]
Phosphoric Acid	RPN: 01-2119485924 EC: 231-633-2 CAS: 7664-38-2	< 35	Skin Corr. 1B – H314 Met. Corr. 1 – H290	[1]
Calcium Nitrate	RPN: 01-2119493947-16 EC: 239-289-5 CAS: 15245-12-2	< 20	Acute Tox. 4 – H302 Eye Dam. 1 – H318	[1]

Type:

[1] Substance is classified as a physical, health or environmental hazard.
[2] Substance with a workplace exposure limit
[3] Substance complies with criteria for PBT according to regulation (EC) nr. 1907/2006, annex XIII
[4] Substance complies with criteria for vPvB according to regulation (EC) nr. 1907/2006, annex XIII

Full text of Hazard and Precautionary statements mentioned above: see section 16

4. First aid measures

4.1 Description of first aid measures:

After skin contact: Wash hands immediately with an abundance of water and soap. If skin irritation persists, seek medical advice and attention.

After eye contact: Immediately flush eyes with plenty of water (> 15 min), occasionally lifting the upper and lower eyelids. Remove contact lenses if present and easy to do. Continue rinsing.

After ingestion: DO NOT induce vomiting unless directed to do so by medical personnel. Give lots of water/milk to drink. Seek medical attention if large amounts were ingested.

After inhalation: Remove to fresh air and keep at rest in a comfortable position. If respiratory problems occur: seek medical attention.

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

After skin contact: Significant effects or critical dangers are unknown.

After inhalation: Exposure to decomposition products can lead to health problems. After exposure, serious effects can have a delayed occurrence. Treat symptomatically.

After eye contact: Significant effects or critical dangers are unknown.

After ingestion: Significant effects or critical dangers are unknown.

4.3 Indication of any immediate medical attention and special treatment needed:

Remarks for physician/doctor: Treat symptomatically. Immediately contact a specialist for treatment of poisoning where large amounts were ingested or inhaled. After inhalation of decomposition products produced by a fire, delayed symptoms can occur. Medical surveillance of 48 hours is recommended.

5. Firefighting measures

5.1 Extinguishing media:

Suitable extinguishing media: Extinguish with an abundance of water.

Unsuitable extinguishing media: Do not use extinguishers based on chemicals or foam. Do not put out the fire using steam or sand.

5.2 Special hazards arising from the substance or mixture:

Risks of the substance or mixture: Mixture is not flammable but can maintain combustion, even in the absence of oxygen. When heated, the mixture melts and continuous heating can cause decomposition which releases toxic fumes.

Hazardous decomposition products: Nitrous oxides
Ammonia based compounds
Phosphorous oxides

5.3 Advice for firefighters:

Protection during firefighting:	Firefighters should wear appropriate protective equipment and self-contained breathing apparatus with a full facepiece operated in positive pressure mode. Protective clothing contains: appropriate protective gloves, safety mask, goggles and clothing that provides adequate protection for chemical incidents.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

For other than emergency staff:	Do not attempt to take action when there is a serious personal hazard or in case of insufficient training. Evacuate the building and surrounding areas. Do not touch spilled material. Wear suitable protection.
For emergency responders:	Wear protective gloves, clothing and eye protection. Identify the contaminated area and keep all unprotected persons out.

6.2 Environmental precautions:

Prevent soil and water pollution. Prevent spreading in sewers. Stop leaks if possible.
If product enters drains/sewers or the environment (soil, streams, rivers, air), inform the associated authorities.

6.3 Methods and materials for containment and cleanup:

Remove packaging from the contaminated area.
Any spillage should be cleaned up immediately. Avoid contamination of sewers, streams, soil and contained spaces. Collect as much as possible in a suitable clean container. Removal of collected spills must be done by a competent authority.

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.

7. Handling and storage

7.1 Precautions for safe handling:

Protective precautions:	Avoid contact with eyes, skin and clothing. Do not inhale/ingest. Store in original packaging or in approved alternative of compatible material. Keep product contained when not in use. Do not mix with alkaline products (pH > 7). Keep away from heath or source of fire. Emptied packaging can retain some product and can be hazardous.

Hygiene measures: Do not eat, drink or smoke during use.
Wash hands after handling and using the product.
Remove contaminated clothing before entering an area designated for eating.

7.2 Conditions for safe storage, including any incompatibilities:

Store in original packaging, protected from direct sunlight. Keep in a dry, cool and well-ventilated area.
Keep away from heath sources and open flames.
Keep away from organic materials, oil and grease.
Keep away from combustible materials and materials mentioned in section 10.5.
Store in accordance with regional and national regulations.
Do not eat, drink or smoke in the area where the material is used, stored or processed.
Product remains stable for 3 years if stored according to all provisions.

7.3 Specific end use(s):

No additional information available.

8. Exposure controls/personal protection

8.1 Control parameters:

Exposure limits:

Product name	Exposure limits
Phosphoric Acid	Short term: 15 min STEL (short term exposure limit): 2 mg/m^3 8-hour TWA (time weighted average): 1 mg/m^3

DNEL/DMEL:

Product name	Type	Exposure	Value	Population	Effects
Potassium Nitrate	DNEL	Long-term Dermal	20.8 mg/kg bw/day	Employees	Systemic
Potassium Nitrate	DNEL	Long-term Inhalation	36.7 mg/m³	Employees	Systemic
Potassium Nitrate	DNEL	Long-term Dermal	12.5 mg/kg	End users	Systemic
Potassium Nitrate	DNEL	Long-term Inhalation	10.9 mg/m³	End users	Systemic
Potassium Nitrate	DNEL	Long-term Oral	12.5 mg/kg bw/day	End users	Systemic
Phosphoric Acid	DNEL	Short-term Inhalation	2 mg/m³	Employees	Systemic
Phosphoric Acid	DNEL	Long-term Inhalation	2.92 mg/m³	Employees	Systemic
Phosphoric Acid	DNEL	Long-term Inhalation	0.73 mg/m³	End users	Local
Calcium Nitrate	DNEL	Long-term Dermal	13,9 mg/m^3	Employees	Systemic
Calcium Nitrate	DNEL	Long-term Inhalation	98 mg/m^3	Employees	Systemic

PNEC:

Product name	Type	Detail compartment	Value	Detail method

Calcium Nitrate	PNEC	Fresh water deposit	0.45 mg/l	Assessment factors
Calcium Nitrate	PNEC	Marine	0.045 mg/l	Assessment factors
Calcium Nitrate	PNEC	Intermittent	4.5 mg/l	Assessment factors
Calcium Nitrate	PNEC	Sewage treatment plant	18 mg/l	Assessment factors
Potassium Nitrate	PNEC	Marine	0.045 mg/l	Assessment factors
Potassium Nitrate	PNEC	Sewage treatment plant	18 mg/l	Assessment factors
Potassium Nitrate	PNEC	Fresh water	0.45 mg/l	Assessment factors

8.2 Exposure controls:

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

Personal protective controls: If risk assessment concluded the need of protection, use appropriate approved protective equipment:
safety glasses, face shield, resistant gloves, protective clothing and impervious footwear, respiratory equipment/gas mask.

Hygiene precautions: Security shower or eyewash stations must be provided at the workplace.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the legislation.

9. Physical and chemical properties

9.1 Information in basic physical and chemical properties:

Physical state:	High density suspension
Odor:	Odorless
Odor threshold:	No data available
pH solution:	2,2 (1% solution)
Melting point:	No data available
Boiling point:	> 210 °C (decomposes)
Flash point:	No data available
Evaporation point:	No data available
Flammability:	Not flammable
Explosive limits:	No data available
Vapor pressure:	No data available
Relative vapor density:	Not data available
Relative density:	1,55 kg/liter

Solubility:	100% soluble in water
n-octanol/water partition coefficient:	No data available
Self-ignition temperature:	No data available
Decomposition temperature:	> 210 °C
Viscosity:	> 3.000 cps
Explosive properties:	None
Oxidizing properties:	No data available

9.2 Other information:

No additional information present.

10. Stability and reactivity

10.1 Reactivity:

Product is stable under normal conditions of handling and storage.

10.2 Chemical stability:

Stable under normal conditions.

10.3 Possibility of hazardous reactions:

Product can react heavily with alkaline substances (pH>7) where temperature increases can occur.
Do not mix with strong acids and strong bases.

10.4 Conditions to avoid:

Avoid contamination with alkaline substances, combustible materials, reducing agents and sulphates.

10.5 Incompatible materials:

Substance reacts/is incompatible with:	Alkaline substances Combustible materials Reducing agents Sulphates

10.6 Hazardous decomposition products:

Under normal conditions of handling and storage, not hazardous components are produced.
With heating or burning: release of toxic and corrosive gases/vapors (Ammonia, Nitrous gases and Phosphorous oxides).

11. Toxicological information

11.1 Information of toxicological effects:

Hazard class	Value	Method

Acute toxicity Oral Potassium Nitrate Phopshoric Acid Calcium Nitrate Dermal Potassium Nitrate Calcium Nitrate Inhalation	 3750 mg/kg 2600 mg/kg 500 mg/kg >5000 mg/kg bw/day > 2000 mg/kg No available data	 Rat OECD Guideline 405 Rat OECD 423 Rat OECD 402 Rat OECD Rat OECD
Skin corrosion/irritation	Not classified as skin irritant	OECD Guideline 437
Serious eye damage/irritation	Mixture causes eye damage	
Respiratory or skin sensitation Germ cell mutagenicity Carcinogenity Reproductive toxicity Specific target organ toxicity (single and repeated exposure) Aspiration hazard	Significant effects or critical values are unknown.	

12. Ecological information

12.1 Toxicity:

Significant effects or critical values are unknown.

Product name	Result	Species	Exposure
Calcium Nitrate	Acute EC50: > 100 Fresh water OECD 202	Other aquatic organisms: Daphnia magna	48 h
Calcium Nitrate	Acute LC50: 447 mg/l	Fish	48 h
Calcium Nitrate	Acute LC50 < 100mg/l Fresh water OECD 201	Aquatic plants: Heterosigma akashiwo	72 h
Calcium Nitrate	Acute EC50 > 1000 mg/l Activated sludge OECD 209	Micro-organism	3 h
Potassium Nitrate	Acute LC50: 1.378 mg/l fresh water OECD 203	pisces	96 h
Potassium Nitrate	Acute EC50: 490 mg/l fresh water	Other aquatic organisms. Daphnia	48 h
Potassium Nitrate	Acute EC50: >1.700 mg/ fresh water	Other aquatic organisms: Algae	240 h

Phosphoric Acid	Acute EC50: >100 mg/l	Other aquatic organisms: Daphnia	48 h
Phosphoric Acid	Acute EC50: > 100 mg/l	Other aquatic organisms: Algae	72 h

12.2 Persistence and degradability:

Product is biologically degradable in plants and soil.

12.3 Bio accumulative potential:

Significant effects or critical values are unknown.

12.4 Mobility in soil:

Nitrate ions are mobile and ammonium ions are absorbed by soil particles. Phosphate is merely transported over short distances in the soil and are afterwards immobilized. The mobility of potassium ions is low due to absorption by soil particles. Dissolved magnesium ions are absorbed by clay particles in the soil. Leaching of nutrients into the soil occurs in the abscence of clay particles.

12.5 Results of PBT and vPvB assessment:

Not applicable.

12.6 other adverse effects:

Significant effects or critical values are unknown.

13. Disposal considerations

Waste production should be avoided and minimized as much as possible.
Big quantities of restproducts can not be disposed through the sewers and need to be processed by an appropriate authority.
Remove waste in accordance with local and/or national regulations.

14. Transport information

14.1 UN-number:

Non-dangerous goods according to 'United Nations Recommendations on the Transportation of Dangerous Goods' (UN Orange Book) and according to international transport codes RID (railroad), ADR (road) and IMDG (sea).

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:

See section 12.

14.6 Special precautions for user:

Necessary caution needs to be taken into account when transporting non-hazardous chemicals.

14.7 Transport in bulk according to annex II of MARPOL 73/78 and the IBC Code:

Not applicable.

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

15.1.1 EU regulations:

Regulation (EC) Nr. 2003/2003 of the European Parliament and of the Council of 13 October 2003 relating to fertilizers.
Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 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

15.1.2 National regulations:

Royal Decree of 28/01/2013 regarding the introduction into the market and the use of fertilizers, soil-improving agents and substrates.

15.2 Chemical safety assessment:

No chemical safety assessment has been executed.

16. Other information

16.1 Cause of revision:

Compliance to regulation (EC) N° 830/2015.

16.2 Full list of abbreviations and acronyms:

BW	Body Weight
CLP	Regulation on classification, labeling and packaging (CLP) of substances and mixtures (Regulation (EC) N° 1272/2008)
GHS	Global regulation for classification and labeling of chemical substances
DNEL	Derived No-Effect Level
DMEL	Derived Minimal Effect Level
EC50	Concentration which induces a response halfway between the baseline and maximum after a specified exposure time
Eye dam .1	Eye damage category 1
Ox. Sol.3	Oxidizing solid category 3
Skin corr. 1b	Skin corrosive category 1B
Met corr. 1B	Metal corrosivity category 1B
H272	May intensify fire, oxidizer
H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
LC50	Lethal concentration where 50% of the sample population are killed after a single exposure
PBT	Persistent, Bioaccumulative and Toxic
vPvB	Very persistent and very bioaccumulative
PNEC	Predicted No-Effect Concentration

16.3 Important references and data:

Information from suppliers (MSDS and technical data sheets of raw materials).
Bovine Corneal Opacity and Permeability (BCOP) test according to OECD guideline 437 by:
VITO-ABS, Industriezone Vlasmeer 7, B-2400 Mol, Belgium.

16.4 Procedure used to derive the classification according to Regulation (EC) nr. 1272/2008 CLP/GHS.

Classification: Eye Dam. 1, H318.
Justification: assessment by expert.

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication and revision. The information given is designed only as guidance for safe handling, use, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information should be used in accordance with the technical information. 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 process, unless specified in the text.
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