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

1.1 Product identifier

Trade name : COMPLEX SOP 12/12/17 +2MgO+12SO3+B+Zn

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

Use of the Substance/Mixture : Fertilizers

1.3 Details of the supplier of the safety data sheet

Supplier : Borealis L.A.T GmbH
St.-Peter-Strasse 25, 4021 Linz, Austria
Telephone: +43 732 6915-0

E-mail address : sds@borealisgroup.com

1.4 Emergency telephone number

+44 (0) 1235 239 670 (NCEC Carechem 24)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Supplemental Hazard Statements : EUH210 Safety data sheet available on request.

2.3 Other hazards

Results of PBT and vPvB assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Ammonium nitrate	6484-52-2 229-347-8 01-2119490981-27	Ox. Sol. 3; H272 Eye Irrit. 2; H319	>= 20 - < 30
Colemanite	1318-33-8	Repr. 2; H361	>= 0,1 - < 1
Substances with a workplace exposure limit :			
calcium fluoride	7789-75-5 232-188-7 01-2119491248-30		>= 1 - < 10

Remarks : Mixtures are not classified as irritating to eyes (OECD 405 and OECD 437 studies done on similar mixtures).
REACH Registration Numbers:
www.borealisgroup.com , Company - REACH - Registered substances

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

If inhaled : Move to fresh air in case of accidental inhalation of dust.
Keep patient warm and at rest.
Give oxygen or artificial respiration if needed.
Seek medical advice.

In case of skin contact : Wash off with plenty of water.
Get medical attention if irritation develops and persists.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 5 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention if irritation develops and persists.

If swallowed : Clean mouth with water and drink afterwards plenty of water.

Never give anything by mouth to an unconscious person.
Do NOT induce vomiting.
Get medical advice/ attention if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Ingestion may provoke the following symptoms:
Gastrointestinal disturbance
The absorption of this product into the body may lead to the formation of methaemoglobine that, in sufficient concentration, causes cyanosis.

Effects of repeated or prolonged skin contacts may include:
Discomfort

Inhalation of decomposition fumes may provoke the following symptoms:
Risk of delayed pulmonary oedema.

Eye contact:
May irritate eyes.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Keep under medical supervision for at least 48 hours.

Treat symptomatically.
There is no specific antidote available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : High volume water jet

Unsuitable extinguishing media : Dry chemical
Carbon dioxide (CO2)
Foam
Do not smother with steam or sand.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Potential explosion hazard when heated under strong confinement (e.g. tubes and drains) especially if contaminated with incompatible material.
See chapter 10.

Hazardous decomposition products formed under fire conditions.
Nitrogen oxides (NOx)
Ammonia
Chlorine
Hydrogen chloride

5.3 Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus. Complete suit protecting against chemicals
Further information	:	Prevent fire extinguishing water from contaminating surface water or the ground water system. Contact the proper local authorities. Ensure doors and windows are opened. Avoid inhalation of decomposition fumes.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Sweep up to prevent slipping hazard.
Avoid dust formation.
Use personal protective equipment.

6.2 Environmental precautions

Do not flush into surface water or sanitary sewer system.
Inform the responsible authorities in case of entry into waterways or drains.

6.3 Methods and material for containment and cleaning up

Sweep up or vacuum up spillage and collect in suitable container for disposal.
Do not mix with sawdust, combustible or organic material.
Keep the container open.
After cleaning, flush away traces with water.

6.4 Reference to other sections

For personal protection see section 8.
For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	Avoid dust formation. Ensure adequate ventilation. Keep away from incompatible materials. Use only clean equipment.
Advice on protection against fire and explosion	:	Keep away from heat and sources of ignition. Keep away from combustible material.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Regular cleaning of equipment, work area and clothing. When using do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep in a dry, cool and well-ventilated place. Restrict stack size (according to local regulations) and keep at least 1m distance around the stacks of bagged products. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Suitable materials for containers: Plastics Stainless steel Aluminium Unsuitable materials for containers: Copper Zinc
Further information on storage conditions	:	Avoid unprotected outdoor storage. Protect from moisture.
Advice on common storage	:	Do not store near combustible materials. Keep away from incompatible materials. See chapter 10. Keep away from food, drink and animal feedingstuffs. On farm, ensure that the fertilizer is not stored near hay, straw, grain, diesel oil, etc.

7.3 Specific end use(s)

Specific use(s)	:	Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Ammonium nitrate	Workers	Skin contact	Long-term, Systemic	5,12 mg/kg bw/day
	Workers	Inhalation	Long-term, Systemic	36 mg/m3
	Consumers	Skin contact	Long-term, Systemic	2,56 mg/kg bw/day
	Consumers	Inhalation	Long-term, Systemic	8,9 mg/m3
	Consumers	Ingestion	Long-term, Systemic	2,56 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Ammonium nitrate	Sewage treatment plant	18 mg/l

8.2 Exposure controls

Engineering measures

Avoid dust formation.
Provide adequate ventilation.
Before working with fire and hot materials on containers and apparatus remains of products must be removed through efficient cleaning with water.

Personal protective equipment

Eye protection : Safety glasses (EN 166)

Hand protection
- Material : Nitrile rubber
- Break through time : >= 480 min
- Glove thickness : >= 0,11 mm
- Directive : Equipment should conform to EN 374

Remarks : For prolonged or repeated contact use protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Respiratory protection : Dust safety masks are recommended when the dust concentration is more than 10 mg/m3.

Respiratory protection complying with EN 143 / EN 149.

Filter type : P1 filter

Protective measures : Appropriate personal protective equipment (PPE) shall be worn in accordance with Regulation (EU) 2016/425.

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system. Inform the responsible authorities in case of entry into waterways or drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	solid
Colour	:	grey, light brown
Odour	:	odourless
Odour Threshold	:	Not applicable
pH	:	4,5 - 5,5, 10 %
Melting point	:	Decomposes before melting.
Boiling point	:	Decomposes below the boiling point.
Flash point	:	Not applicable, (inorganic)
Flammability (solid, gas)	:	The product is not flammable.
Upper explosion limit	:	Not applicable
Lower explosion limit	:	Not applicable
Vapour pressure	:	Not applicable
Density	:	1.100 kg/m³
Solubility(ies)		
Water solubility	:	partly soluble (20 °C)

Partition coefficient: n-octanol/water	:	Not applicable (inorganic)
Decomposition temperature	:	> 130 °C
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Contact with strong bases liberates ammonia.
Contact with strong acids liberates nitrous gases.
Decomposes on heating.

10.4 Conditions to avoid

Conditions to avoid : Temperature > 130 °C
Risk of explosion if heated under confinement.
Keep away from incompatible materials.
Exposure to air or moisture over prolonged periods.

10.5 Incompatible materials

Materials to avoid : Combustible material
Reducing agents
Strong acids and strong bases
sulphur
Chlorates
Chromates
Nitrites
permanganates
Powdered metals

Copper

10.6 Hazardous decomposition products

Nitrogen oxides (NOx), Ammonia, Chlorine, Hydrogen chloride

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:

Acute oral toxicity	:	LD50 (Rat): 2.950 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	:	LC50: > 88,8 mg/l Method: No information available.
Acute dermal toxicity	:	LD50: > 5.000 mg/kg Method: OECD Test Guideline 402

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Product:

Information given is based on tests on mixtures with similar compositions.

Components:

Ammonium nitrate:
Species: Rabbit
Method: OECD Test Guideline 405
Result: Irritating to eyes.

Respiratory or skin sensitisation

Skin sensitisation: Based on available data, the classification criteria are not met.
Respiratory sensitisation: Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:
Species: Mouse
Method: OECD Test Guideline 429
Result: Does not cause skin sensitisation.
Test substance: Calcium ammonium nitrate
Read-across (Analogy)

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:

Genotoxicity in vitro	:	Test Type: Ames test Method: OECD Test Guideline 471 Result: negative Test substance: Ammonium calcium nitrate
	:	Test Type: Chromosome aberration test in vitro Method: OECD Test Guideline 473 Result: negative Test substance: Ammonium calcium nitrate
	:	Test Type: In vitro gene mutation study in mammalian cells Method: OECD Test Guideline 476 Result: negative Test substance: Potassium nitrate

Carcinogenicity

Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:
Remarks: No significant adverse effects were reported

Reproductive toxicity

Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:

Effects on fertility	:	Species: Rat

NOAEL: > 1.500 mg/kg,
Method: OECD Test Guideline 422
Test substance: Potassium nitrate

STOT - single exposure

Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:
Assessment: Based on available data, the classification criteria are not met.

STOT - repeated exposure

Based on available data, the classification criteria are not met.

Components:

Ammonium nitrate:
Species: Rat
NOAEL: 0,185 mg/l
Application Route: Inhalation
Exposure time: 14 d
Method: OECD Test Guideline 412
Test substance: Ammonium nitrate

Aspiration toxicity

Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity

Components:

Ammonium nitrate:

Toxicity to fish	:	LC50 (Cyprinus carpio (Carp)): 447 mg/l Exposure time: 48 h Test Type: Short term
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 490 mg/l Exposure time: 48 h Test Type: Short term Test substance: Potassium nitrate Remarks: Fresh water
Toxicity to algae	:	EC50 : > 1.700 mg/l Exposure time: 10 d

Test substance: Potassium nitrate
Remarks: Marine water

Toxicity to bacteria : EC50 : > 1.000 mg/l
Exposure time: 180 min
Test Type: Respiration inhibition of activated sludge
Test substance: Sodium nitrate
Method: OECD Test Guideline 209

Toxicity to fish (Chronic toxicity) : Remarks: study scientifically unjustified

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50: 555 mg/l
Exposure time: 7 d
Species: Bullia digitalis (prosobranch gastropod)

12.2 Persistence and degradability

Components:

Ammonium nitrate:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Components:

Ammonium nitrate:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

12.4 Mobility in soil

Components:

Ammonium nitrate:

Mobility : Medium: Water
Remarks: completely soluble

: Medium: Soil
Remarks: (NO3-), Not expected to adsorb on soil.

: Medium: Soil
Remarks: (NH4+), After release, adsorbs onto soil.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered

to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

Product:

Additional ecological information : Remarks: Do not allow product to reach ground water, water bodies or sewage system.
Heavy spillage may cause adverse environmental impact such as eutrophication in confined surface waters.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Can be landfilled or incinerated, when in compliance with local regulations.
Do not allow product to reach ground water, water bodies or sewage system.
Do not dispose of together with household waste.

European waste code:
06 10 99: wastes not otherwise specified

Contaminated packaging : Empty remaining contents.
Dispose of in accordance with local regulations.

SECTION 14: Transport information

14.1 UN number

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Remarks : Ammonium nitrate-based compound/composite fertilisers (compound/composite fertilisers contain ammonium nitrate with phosphate and/or potash) which are capable of self-sustaining decomposition according to the UN Trough Test (see UN Manual of Tests and Criteria, Part III, subsection 38.2)., No specific instructions needed., Not dangerous goods in the meaning of ADR/RID, ADN, IMDG-Code, ICAO/IATA-DGR

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

Remarks : No data is available on the product itself.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Not applicable

Other regulations:

Regulation (EC) No 2003/2003 relating to fertilizers

15.2 Chemical safety assessment

no

SECTION 16: Other information

Full text of H-Statements

H272 : May intensify fire; oxidizer.
H319 : Causes serious eye irritation.
H361 : Suspected of damaging fertility or the unborn child.

Full text of other abbreviations

Eye Irrit.	:	Eye irritation
Ox. Sol.	:	Oxidizing solids
Repr.	:	Reproductive toxicity

Further information

Other information	:	Issued according to Regulation (EC) No 1907/2006, Annex II, and its amendments.
Issuer	:	Borealis, Group Product Stewardship / Steffen Pfeiffer
Sources of key data used to compile the Safety Data Sheet	:	Chemical Safety Report, Ammonium Nitrate. FARM REACH Consortium, 2019 EFMA / Fertilizers Europe Guidance documents

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