

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP-Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

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

1.1 Product identifier

Trade name : COMPLEX (12/12/17 +2MgO+12SO₃; 12/12/17 +2MgO+15SO₃; 14/10/20 +10SO₃; 15/15/15; 15/15/15 +7SO₃; 15/5/18 +2,5MgO+25SO₃; 20/20 +7SO₃;; 20/8/8 +3MgO+10SO₃; 26/10 +10SO₃), .
., VARIO (6/12/26 +16SO₃; 6/21/21; 7/8/14 +19SO₃; 10/20/20 +10SO₃; 13/7/22 +11SO₃; 14/10/18 +12SO₃; 14/16/10 +17SO₃; 14/7/22 +10SO₃;; 15/14/14 +16SO₃; 15/22 +20SO₃; 16/10/18 +13SO₃; 18/11/11 +5SO₃; 18/17 +15SO₃; 20/7/7; 20/7/7 +17SO₃; 20/8/8 +10SO₃; 21/6/6 +12SO₃;; 21/7/7; 22/15 +15SO₃; 22/5/5; 22/5/5 +12SO₃; 23 N +25SO₃; 23/18; 24 N +27SO₃; 26/16 +15SO₃)

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 (24h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

2.3 Other hazards

None known.

Results of PBT and vPvB assessment : PBT and vPvB assessment: Not applicable (inorganic)

SECTION 3: Composition/information on ingredients

Multi-nutrient fertilizer containing ammonium nitrate with trace-nutrients of B, Cu, Mg, S and Zn in variation of the composition depending on formulation. These products comply with European regulation 2003/2003 "EC FERTILISER"

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration (% w/w)
Ammonium nitrate	6484-52-2 229-347-8 01-2119490981-27	Ox. Sol. 3; H272 Eye Irrit. 2; H319	<= 70
Superphosphates	8011-76-5 232-379-5 01-2119488967-11	Eye Dam. 1; H318	< 20
ammonium chloride	12125-02-9 235-186-4 01-2119489385-24	Acute Tox. 4; H302 Eye Irrit. 2; H319	< 3
calcium dihydrogen phosphate	7758-23-8 231-837-1 01-2119490065-39	Eye Dam. 1; H318	< 3

Substances with a workplace exposure limit :

calcium fluoride	7789-75-5 232-188-7 01-2119491248-30		>= 1 - < 10
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Remarks : REACH Registration Numbers:
www.borealisgroup.com , Company - REACH - Registered

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

substances

Mixtures containing less than 80% ammonium nitrate are not classified as irritating to eyes (OECD 405 and OECD 437 studies done on similar mixtures).

Mixtures containing SSP neutralized by ammonia or MgO are not classified as damaging/irritating to eyes (OECD 405 and OECD 437 studies lead on similar mixtures)

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 15 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

4.3 Indication of any immediate medical attention and special treatment needed

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

Treat symptomatically.
There is no specific antidote available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water

Unsuitable extinguishing media : Dry chemical
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 (NO_x)
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.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

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.

Wash hands after handling.
Keep away from food, drink and animal feedingstuffs.
When using do not eat, drink or smoke.

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

Unsuitable materials for containers: Copper Zinc

Further information on storage conditions : Protect from sunlight. Do not expose to temperatures exceeding 32 °C. 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.

On farm, ensure that the fertilizer is not stored near hay, straw, grain, diesel oil, etc.
When stored loose, take particular care to avoid mixing with other fertilizers.

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

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
calcium fluoride	7789-75-5	TWA	2,5 mg/m ³ (Fluorine)	2000/39/EC
Further information	Indicative			

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

Hand protection

Remarks : For prolonged or repeated contact use protective gloves.
Rubber or plastic gloves Leather gloves
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

EN 374 derived from it. 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

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 : Varies depending on the formulation:
colourless, yellowish-white

Odour : odourless

Odour Threshold : Not applicable

pH : 4,5 - 8

Melting range : 120 - 180 °C

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

Vapour pressure	:	Not applicable
Density	:	900 - 1.100 kg/m ³
Bulk density	:	900 - 1.100 kg/m ³
Solubility(ies)	:	
Water solubility	:	partly soluble 1.870 g/l (Ammonium nitrate) (20 °C)
Partition coefficient: n-octanol/water	:	Not applicable (inorganic)
Auto-ignition temperature	:	does not ignite
Decomposition temperature	:	130 - 210 °C
Viscosity	:	
Viscosity, dynamic	:	Not applicable (solid)
Explosive properties	:	Not explosive Potential explosion hazard when heated under strong confinement (e.g. tubes and drains) especially if contaminated with incompatible material.
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.

Repeated heating and cooling above and below 32°C causes the product to become porous through the change of crystalline structure, coupled with increased dust building and increased volume of prills. This can lead to a breaking of bags and to product withdrawal.

10.3 Possibility of hazardous reactions

Hazardous reactions : Contact with strong bases liberates ammonia.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

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
Alkalis
sulphur
Chlorates
Chromates
Nitrites
permanganates
Powdered metals
Copper
Nickel
Cobalt
Zinc

10.6 Hazardous decomposition products

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

ammonium chloride:

Acute oral toxicity : LD50: 1.410 mg/kg
Method: OECD Test Guideline 401

Skin corrosion/irritation

Product:

No skin irritation
Effects of repeated or prolonged skin contacts may include:
Discomfort

Components:

Ammonium nitrate:

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

Serious eye damage/eye irritation

Product:

Method: OECD Test Guideline 405 & 437
Result: No eye irritation
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

Product:

Method: OECD Test Guideline 429
Result: Does not cause skin sensitisation.
Test substance: several

Components:

Ammonium nitrate:

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

Germ cell mutagenicity

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

Components:

Ammonium nitrate:

Remarks: No significant adverse effects were reported

Reproductive toxicity

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

Components:

Ammonium nitrate:

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

STOT - repeated exposure

Components:

Ammonium nitrate:

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

Components:

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

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

Components:

Ammonium nitrate:

No data available

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 | : EC50: 555 mg/l
Exposure time: 7 d |

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

(Chronic toxicity)

Species: Bullia digitalis (prosobranch gastropod)

12.2 Persistence and degradability

Product:

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

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Bioaccumulation not expected.

Components:

Ammonium nitrate:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

12.4 Mobility in soil

Product:

Mobility : Remarks: Not expected to adsorb on 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 : PBT and vPvB assessment: Not applicable. (inorganic).
Remarks: This mixture contains no substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects

Product:

Additional ecological information : Remarks: Do not allow product to reach ground water, water bodies or sewage system.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

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:
02 01 09 (agrochemical waste other than those mentioned in 02 01 08)
- 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 : 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.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

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)	: Ammonium nitrate Shall not be supplied to non-professional users. See Annex XVII to Regulation (EC) no 1907/2006 for Conditions of restriction
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 Regulation (EU) No 98/2013 of the European Parliament and of the Council of 15 January 2013 on the marketing and use of explosives precursors: Annex II

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.
(Ammonium nitrate)

SECTION 16: Other information

Full text of H-Statements

H272	: May intensify fire; oxidizer.
H302	: Harmful if swallowed.
H318	: Causes serious eye damage.
H319	: Causes serious eye irritation.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Ox. Sol.	: Oxidizing solids

Further information

Other information	: Issued according to Regulation (EC) No 1907/2006, Annex II, and its amendments. Changes since the last version are highlighted in the margin. This version replaces all previous versions.
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SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

NPK-Fertilizer, NP Fertilizer

Version 4.1

Revision Date: 16.05.2018

Print Date 29.11.2018

Issuer : Borealis, Group Product Stewardship / Maarit Vakkala

Sources of key data used to compile the Safety Data Sheet : Chemical Safety Report, Ammonium Nitrate. FARM REACH Consortium, 2015
EFMA / Fertilizers Europe Guidance documents

Disclaimer

To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication; however we do not assume any liability whatsoever for the accuracy and completeness of such information.

Borealis makes no warranties which extend beyond the description contained herein. Nothing herein shall constitute any warranty of merchantability or fitness for a particular purpose.

It is the customer's responsibility to inspect and test our products in order to satisfy itself as to the suitability of the products for the customer's particular purpose. The customer is responsible for the appropriate, safe and legal use, processing and handling of our products.

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