



OJSC "Gomel Chemical Plant"

SAFETY DATA SHEET

prepared in accordance with Regulation (EU) 830/2015

Version: 3.1/EN

Revision date: 24.05.2017

COMPLEX NITROGEN PHOSPHOROUS POTASSIUM FERTILIZERS

1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier	<u>Trade name:</u> Complex nitrogen-phosphorous-potassium fertilizers <u>Chemical name:</u> not available <u>Chemical formula:</u> not available <u>Synonyms:</u> NPK fertilizers
1.2 Relevant identified uses of the substance or mixture	Granulated nitrogen-phosphorous- potassium fertilizer. Agricultural use for cultivation of cereal, fruit, vegetable, small-fruit and decorative crops in unprotected and protected areas.
1.3 Details of the supplier of the safety data sheet	Company name: OJSC «Gomel Chemical Plant» Legal address: 5 Khimzavodskaya str., Gomel, 246026, Republic of Belarus Telephone: +375 (232) 49-24-26 Fax: +375 (232) 23-12-42 e-mail: market@himzavod.by web site: www.belfert.by Exclusive representative in the territory of EC: AB „Lifosa”, Juodkiskio 50 LT-57502, Kedainiai tel.: + 370 (347) 66-483 fax: + 370 (347) 66-166 e-mail: info@lifosa.com
1.4 Emergency telephone number	+375 (232) 23-12-35 (around the clock)

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance	Product has not been classified according to Regulation (EC) No. 1272/2008
2.2 Label elements	In accordance with Regulation (EC) No. 1272/2008 labeling is not required
2.3 Other hazards	NPK fertilizers are not classified as PBT or vPvB. Product dust may cause air pollution. When released in water entities, the product may cause water pollution.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS No	EC No	REACH No	Classification	Percentage
Ammonium dihydrogenorthophosphate $\text{NH}_4\text{H}_2\text{PO}_4$	7722-76-1	231-764-5	01-2119488166-29-0014	–	16 – 45 %
Diammonium hydrogenorthophosphate $(\text{NH}_4)_2\text{HPO}_4$	7783-28-0	231-987-8	01-2119490974-22-0015	–	0,5 – 26 %
Ammonium sulfate $(\text{NH}_4)_2\text{SO}_4$	7783-20-2	231-984-1	01-2119455044-46-0035	–	5 – 19 %
Urea $\text{CO}(\text{NH}_2)_2$	57-13-6	200-315-5	01-2119463277-33-0039	–	0 – 14 %

Potassium chloride KCl	7447-40-7	231-211-8	no compulsory listing required	–	9 - 60 %
Potassium sulfate K ₂ SO ₄	7778-80-5	231-915-5	01-2119489441-34-0004	–	5-20 %
Calcium sulfate CaSO ₄	7778-18-9	231-900-3	01-2119444918-26-0051	–	3 – 18 %
Ammonium chloride NH ₄ Cl	12125-02-9	235-186-4	01-2119489385-24-0004	CLP: Acute Tox. 4, Eye Irrit. 2, H302, H319.	1 – 3 %
Ammonium silicofluoride (NH ₄) ₂ SiF ₆	16919-19-0	240-968-3		CLP: Acute Tox. 3, H301, H331, H311	0,5-1 %

4 FIRST AID MEASURES

4.1 Description of first aid measures

General recommendations	(To provide) rest, warmth, comfortable position (of body), access of fresh air.
Inhalation	Provide access of fresh air, give some water to drink. If there are persistent symptoms (or when feeling unwell), get medical attention.
Skin contact	Wash out with stream water until the product totally removed. Use soap if possible. If symptoms persist or when feeling unwell, get medical attention.
Eye contact	Flush eyes with plenty of stream water for at least 10-15 minutes. If possible, remove contact lens. If symptoms of an affect are experienced (pain, itchi-ness/"sandpaper" in the eyes, visual loop), get medical attention.
Swallowing	Rinse mouth. Give plenty of water to drink. If symptoms persist or when feeling unwell, get medical attention. Do NOT induce vomiting unless directed by medical personnel

4.2 Most (important) typical symptoms and effects, both acute and delayed

Prolonged skin contact may result in skin irritation and redness. Prolonged eye contact may cause itchiness and lacrimation

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Data about acute intoxication are not available.

5 FIRE FIGHTING MEASURES

5.1 Extinguishing media

5.1.1 Suitable extinguishing media	Use extinguishing media suitable for extinguishing fire caught by packing materials.
5.1.2 Unsuitable extinguishing media	Minimize use of water to avoid contamination of environment.

5.2 Special hazards arising from the substance or mixture

Fire-flame-proof substance. Dangerous decomposition product is ammonia

5.3 Advice for fire fighters

The product is incombustible, but due to high temperatures as result of fire, ammonia can be released. In fire conditions, one should wear protective clothing and self-contained breathing apparatus as prescribed by NIOSH.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel	Use individual protective equipment as per Section 8 of the given safety data sheet. Do not touch nor tread upon spilled material
6.1.2 For emergency responders	Use individual protective equipment as per Section 8 of the given safety data sheet. Evacuate from spillage zone all the personnel not involved in accidental release measures. Provide ventilation of spillage zone. While collecting spillage, minimize dust generation.

6.2 Environmental precautions

Avoid dust generation to prevent contamination of the atmosphere. Avoid ingress of product in surface water and ground water.

6.3 Methods and material for containment and cleaning up

Collect spilled but clean product in container or other suitable reservoirs/receptacles for further identified use. Handle impure product and waste generated in accordance with section 13 of the given safety data sheet.

6.4 Reference to other sections

Information about individual precautions is set out in Section 8 of the given safety data sheet.

Information on disposal consideration and that on impure product disposal are set out in Section 13 of the given safety data sheet.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Precautions	While handling the product, use personal protective equipment in accordance with Section 8 of the given safety data sheet. Avoid uncontrolled release of the product into environment.
7.1.2 Advice on general hygiene	Use local suction-and-exhaust ventilation. When handling the product, do not eat, drink or smoke. After handling the product, wash clothing contaminated with fines of product. Before entering eating areas, remove protective clothing.

7.2 Conditions of safe storage, including any incompatibilities

Store in dry enclosed warehouse rooms providing protection from moisture and dirt, away from food and fodder. The product packed in plastic big bags may be kept on open hard standing space with shelter (fore-roof) capable to protect the product from precipitation (rain, snow) and ground water. Do not store with incompatible materials-see Section 10 of the given safety data sheet.

7.3 Specific end use(s)

Not available

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Ingredient name	EC #	Exposure form	Occupational exposure limits
Ammonium dihydrogenphosphate $\text{NH}_4\text{H}_2\text{PO}_4$	231-764-5	Aerosol	ELV, single exposure = 6,0 mg/m ³
Ammonium sulfate $(\text{NH}_4)_2\text{SO}_4$	231-984-1	Aerosol	ELV, single exposure = 10,0 mg/m ³
Calcium sulfate CaSO_4	231-900-3	Aerosol	ELV, single exposure = 2,0 mg/m ³

DNELs (Derived No-Effect Level) for workers:

Ammonium dihydrogenorthophosphate:

Long-term – systemic effects, Dermal DNEL: 42.667 mg/kg bw/day

Long-term – systemic effects, Inhalation DNEL: 11.167 mg/m³

Ammonium sulfate:

Long-term – systemic effects, Dermal DNEL: 34.7 mg/kg bw/day

Long-term – systemic effects, Inhalation DNEL: 6.1 mg/m³

Calcium sulfate:

Acute - systemic effects, Inhalation DNEL: 5082 mg/m³

Long-term – systemic effects, Inhalation DNEL: 21.17 mg/m³

Ammonium chloride:

Long-term – systemic effects, Inhalation DNEL: 33,5 mg/m³

DNELs (Derived No-Effect Level) for workers:

Ammonium dihydrogenorthophosphate:

Long-term – systemic effects, Dermal DNEL: 20.8 mg/kg bw/day

Long-term – systemic effects, Inhalation DNEL: 1.8 mg/m³

Long-term – systemic effects, Oral DNEL: 2.1 mg/kg bw/day

Ammonium sulfate:

Long-term – systemic effects, Dermal DNEL: 12.8 mg/kg bw/day

Long-term – systemic effects, Inhalation DNEL: 1.667 mg/m³

Long-term – systemic effects, Oral DNEL: 6.4 mg/kg bw/day

Calcium sulfate:

Acute - systemic effects, Inhalation DNEL: 3811 mg/m³

Acute - systemic effects, Oral DNEL: 11.4 mg/kg bw/day

Long-term – systemic effects, Inhalation DNEL: 5.29 mg/m³

Ammonium chloride:

Long-term – systemic effects, Dermal DNEL: 114 mg/kg of body weight per day

Long-term – systemic effects, Inhalation DNEL: 9.9 mg/m³

Long-term – systemic effects, Oral DNEL: 11.4 mg/kg of body weight per day

PNEC (Predicted No-Effect Concentration):

Ammonium dihydrogenorthophosphate:

PNEC aqua- freshwater 1.7 mg/l

PNEC aqua – marine water 0.17 mg/l

<p>PNEC intermittent release 17 mg/l</p> <p>Ammonium sulfate:</p> <p>PNEC aqua- freshwater 0.312 mg/l</p> <p>PNEC aqua – marine water 0.0312 mg/L</p> <p>PNEC intermittent release 0.53 mg/L</p> <p>PNEC sediment (freshwater): 0.063 mg/kg</p> <p>Ammonium chloride:</p> <p>PNEC aqua- freshwater 1.2 mg/L</p> <p>PNEC aqua – marine water 11.2 mg/L</p> <p>PNEC intermittent release 1.2 mg/L</p>

8.2 EXPOSURE CONTROL

8.2.1 Appropriate engineering controls	General suction-and-exhaust ventilation, sealing of processing equipment.
8.2.2 Individual protection measures, such as personal protective equipment	<p>8.2.2.1 <u>Eye/face protection:</u></p> <p>Dustproof glasses as per EN 166.</p> <p>8.2.2.2 <u>Skin/hands protection:</u></p> <p>protective suit, safety shoes as per EN 344 and safety gloves as per EN 374.</p> <p>8.2.2.3 <u>Respiratory protection:</u></p> <p>Respirator, as per EN 149, equipped with dust filter as per EN 143.</p>
8.2.3 Environmental exposure controls	While in environment, the product doesn't emit toxic compounds.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance: granulated material;

Physical state: solid;

Colour: light grey to reddish;

Odour: faint ammoniac;

Hydrogen index pH: 4,5 – 6,5 (depending on fertilizer grade);

Melting temperature: temperature above 150° C results in urea decomposition;

Boiling temperature: decomposition before boiling;

Oxidizing properties: not available;

Ignition temperature: incombustible;

Bulk density: 0,9-1,1 g/cm³;

Viscosity: not applicable;

Water solubility: soluble in water.

9.2 Other information

Not available

10 STABILITY AND REACTIVITY

10.1 Reactivity

Oxidizing and reducing properties are not available.

10.2 Chemical stability

The product is stable under normal conditions (T = 273,15 K, P = 101,3 KPa) and recommended conditions of handling and storage.

10.3 Possibility of hazardous reactions

Possibility of hazardous reactions is not expected

10.4 Conditions to avoid

The product reacts with acids and alkalies. Temperatures above 70 °C.

10.5 Incompatible materials

Acids and alkalies

10.6 Hazardous decomposition products

Ammonia

11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Accumulation	While in body, the product dissociates into ammonia ions (NH ₄ ⁺), potassium ions (K ⁺), sulfate ions (SO ₄ ²⁻) and phosphate ions (PO ₄ ³⁻). Phosphates are absorbed from the gastrointestinal tract and excreted into and with the urine. Ammonium ions are absorbed from intestinal tract and then are converted to urea by the liver, and subsequently excreted in and with urine.
Acute toxicity	LD50 (oral): >2000 mg/kg;

	LD50 (dermal): >5000 mg/kg; LC50 (inhalation): >5000 mg/m ³ of air; It has no cumulative properties causing death (cumulation factor > 5)
Corrosion/irritation	The fertilizer has no irritating effect on skin and has no percutaneous action at single exposure. Long-lasting effect on skin may cause irritation. Long-lasting effect on eyes may cause lacrimation and itchiness.
Sensitization	None
Repeated dose toxicity - oral	Ammonium dihydrogenorthophosphate: NOAEL: ≥1500 mg/kg per day (chronic; rats) Ammonium sulfate: NOAEL: 256 mg/kg per day (chronic; rats)
Repeated dose toxicity - inhalation	Ammonium dihydrogenorthophosphate: No information available Ammonium sulfate: NOAEC: 300 mg/m ³ (subchronic; rats)
Mutagenicity	None
Carcinogenicity	No information available
Toxicity for reproduction	No information available

12 ECOLOGICAL INFORMATION

12.1 Toxicity

Ingredient name	Results of study
Ammonium dihydrogenorthophosphate NH ₄ H ₂ PO ₄	Toxicity, fish : LC50 for freshwater fish: >85.9 mg/l (Oncorhynchus mykiss) Toxicity, invertebrates: EC50/LC50 for freshwater invertebrates: 1790 mg/l (Daphnia carinata) Toxicity, algae: EC50/LC50 for freshwater algae: >100 mg/l (Pseudokirchnerella subcapitata) EC10/LC10 or NOEC for freshwater algae: 100 mg/l
Diammonium hydrogenorthophosphate (NH ₄) ₂ HPO ₄	Toxicity, fish : LC50 for freshwater fish: 1700 mg/l (<i>Cirrhinus mrigala/L. Rohita</i>) Toxicity, invertebrates: EC50/LC50 for freshwater invertebrates: 1790 mg/l (<i>Daphnia carinata</i>) Toxicity, algae: EC50/LC50 for freshwater algae: >100 mg/l EC10/LC10 or NOEC for freshwater algae: 100 mg/l
Ammonium sulfate (NH ₄) ₂ SO ₄	Toxicity, fish : LC50 for freshwater fish: 53 mg/l (Oncorhynchus mykiss)
Urea CO(NH ₂) ₂	Toxicity, fish : LC50 for freshwater fish: 6810 mg/l (Leuciscus idus) Toxicity, invertebrates: EC50/LC50 for freshwater invertebrates: 10000 mg/l (Daphnia magna) Toxicity, algae: EC10/LC10 or NOEC for freshwater algae: 47 mg/l (Microcystis aeruginosa)
Potassium chloride KCl	Toxicity, fish : LC50 for fish: 2010 mg/l (Lepomis macrochirus) Toxicity, invertebrates: EC50/LC50 for freshwater invertebrates: 825 mg/l (Daphnia magna) Toxicity, algae: EC50/LC50 for freshwater algae: 2500 mg/l (Scenedesmus subspicatus)
Potassium sulfate K ₂ SO ₄	Toxicity, fish : LC50 for freshwater fish: 680 mg/l (Pimephales promelas) Toxicity, invertebrates: EC50/LC50 for freshwater invertebrates: 720 mg/l (Daphnia magna) Toxicity, algae: EC50/LC50 for freshwater algae: 2700 mg/l (Chlorella vulgaris) EC10/LC10 or NOEC for freshwater algae: ≥ 100 mg/l
Ammonium chloride NH ₄ Cl	Toxicity, fish : LC50 for freshwater fish: 209 mg/l (Cyprinus caprio)

	<p>LC50 for marine water fish: 174 mg/l EC10/LC10 or NOEC for freshwater fish: 11.8 mg/l EC10/LC10 or NOEC for marine water fish: 8 mg/l</p> <p>Toxicity, invertebrates: EC50/LC50 for freshwater invertebrates: 101 mg/l (Daphnia magna) EC10/LC10 or NOEC for freshwater invertebrates: 14.6 mg/l</p> <p>Toxicity, algae: EC50/LC50 for freshwater algae: 1300 mg/l (Chlorella vulgaris) EC50/LC50 for marine water algae: 90.4 mg/l EC10/LC10 or NOEC for marine water algae: 26.8 mg/l</p>
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12.2 Persistence and degradability

Abiotic degradation: Reliable data regarding the product as a whole are not available, but there exists information that main components dissociate into ions in water solutions.

Biodegradation: Tests have not been made on the ground the product is inorganic one (REACH, Annex VII).

12.3 Bioaccumulative potential

It has the low potential for bioaccumulation due to the fact that in water solutions the main components of fertilizers are represented by ions of ammonia (NH_4^+), ions of potassium (K^+), phosphate ions (PO_4^{3-}), ions of sulfate (SO_4^{2-}) and chloride ions (Cl^-).

12.4 Mobility in soil

Due to solubility in soil solutions and dissociation into ions, bioaccumulation is not expected allowing for the fact that aquatic medium is designated medium of the product.

12.5 Results of PBT and vPvB assessment

In accordance with Regulation (EU) No 1907/2006 (REACH) Annex VIII, assessment of PBT and vPvB properties of the product has not been made since the given fertilizers are inorganic substances.

12.6 Other adverse effects

The fertilizer doesn't contain components destroying ozone layer.

13 DISPOSAL CONSIDERATIONS**13.1 Waste treatment**

General information: For safe handling unclean product and package use individual protective means.

Product utilization recommendations: Uncontaminated fertilizer collected in dry receptacles may be used for fertilization of soil. Unclean product shall be handled in accordance with national legislations on waste treatment.

Codes and designation of waste in accordance with EWC/AVV: In accordance with the Commission Decision 2000/532/EC, waste is not classified as hazardous.

Packing utilization recommendations: Do not use water objects for washing tare, machines and equipment contaminated with fertilizer waste.

Emptied containers/packaging shall be handled in accordance with the effective national legislation on waste treatment.

14 TRANSPORT INFORMATION**14.1 UN number**

Not applicable

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not applicable

14.6 Special precautions

Not applicable

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable

14.8 Other information

The cargo isn't classified as dangerous as on international carriage regulations.

The product is shipped/transported in bulk or in pack subject to transport regulation effective for appropriate transportation vehicle.

Bulk product can be transported by:

- rail (RID) in specialized self-unloading railway cars, transportation in covered wagons being admissible;
- by waterways (ADN/ADNR) in ship's holds closed/battened down;
- by road (ADR) in covered trucks.

15 REGULATORY INFORMATION

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

Product has not been classified according to Regulation (EC) No. 1272/2008.

15.2 Chemical safety assessment

Chemical safety assessment has been carried out for the following ingredients:

- ammonium dihydrogenorthophosphate (CSR-PI-5.2.6)
- diammonium hydrogenorthophosphate (CSR-PI-5.2.6)
- ammonium sulfate (CSR-PI-5.2.1)
- calcium sulfate (CSR-PI-5.2.0)
- potassium sulfate (CSR-PI-5.2.6)
- ammonium chloride (CSR-PI-5.2.6)

16 OTHER INFORMATION

16.1 General information

This version of Safety Data Sheet supersedes version 3.0.

16.2 Acronyms

Acute Tox. 3 – acute toxicity, class 3
 Acute Tox. 4 – acute toxicity, class 4
 H301 – toxic if swallowed
 H331 – toxic if inhaled
 H311 – toxic in contact with skin
 PEL – Permissible Exposure Limit
 OEL – Occupational Exposure Limit
 REL – Recommended Exposure Limit
 DNEL – Derived No-Effect Level
 PNEC – Predicted No Effect Concentrations
 LD50 – Lethal Dose resulting in 50% mortality of test species
 LC50 – Lethal concentration resulting in 50% mortality of test species
 EC50 – 50% effect concentration
 NOAEL – no observed adverse effect level.
 NOAEC – no observed adverse effect concentration.
 PBT/vPvB – Persistent Bioaccumulative And Toxic / very persistent very bioaccumulative
 ELV – Exposure Level Value

16.3 Most important sources of information used for compiling the safety data sheet

- Registration dossier and chemical safety reports on ingredients;
- European chemical Substances Information System (ESIS);
- Federation of European Risk Management Associations data (FERMA);
- Databases on hazardous substance GESTIS;
- Technical requirements of the Republic of Belarus №400069905.022-2003 «Complex nitrogen-phosphorus-potassium fertilizers»
- NPK fertilizers Safety Data Sheet issued by OJSC «Gomel Chemical Plant», version 3.0 of 22.05.2015.

Prior to use of product please carefully study the information provided in this Safety Data Sheet.

The data provided in this Safety Data Sheet are based on information and experience available at OJSC «Gomel Chemical Plant» as of the day of Safety Data Sheet compilation.

The information provided in this Safety Data Sheet relates only to the given specific product and may not be valid for such product used in combination with any other substances and materials that affect the product properties. In no event will the manufacturer be responsible for injuries and health problems of any nature whatsoever resulting from the improper use of the product or from non-observance of safety handling, storage and transportation.