



Because everyone
in the world needs food

Product
catalogue

URALCHEMGROUP.COM



ABOUT URALCHEM GROUP

Uralchem Group

A global leader

in the production of mineral fertilisers
and chemical products

Qualified
personnel

38 000+ employees

Global
presence



Modern
technologies



High
quality
products

Flexible
business model

Large-scale
investment
programme



Products of the Group meet international quality standards

Quality control is in place at every step of the supply chain:



The quality of the Group's products was confirmed by the largest independent international quality inspectors



Head office
Moscow



Uralkali
Berezniki, Solikamsk,
Perm Region



TOAZ
Togliatti,
Samara Region



KCKK Branch
Kirovo-Chepetsk,
Kirov Region



PMU Branch
Perm,
Perm Region



Azot Branch
Berezniki,
Perm Region



VMU Branch
Voskresensk,
Moscow Region



GEO NPK LLC
Chernyakhovsk,
Kaliningrad Region



MINERAL FERTILISERS FOR AGRICULTURE 9



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Products:

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MINERAL FERTILISERS FOR AGRICULTURE



MINERAL FERTILISERS FOR AGRICULTURE

N/NP/NS	Nitrogen
Ammonium nitrate (AN) N 34.4	13
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NPK/NPKS	Granular complex
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NPK/NPKS	Granular complex
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RM	Raw materials
Urea microprilled	40

WS	Water-soluble
Calcium nitrate concentrated (CN) 17N+33CaO	42
Calcium nitrate concentrated with boron (CN with B) 17N+32CaO+B	43
Calcium nitrate concentrated with magnesium (CN with Mg) 17N+32CaO+Mg	44
Potassium nitrate (NOP) NK 13.7:46.2	45
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Monopotassium phosphate (MKP) PK 52:34	47
Complex	
SOLAR NPK micro Starter	
11:40:11+2MgO+TE	
13:40:13+TE	48
15:30:15+2MgO+TE	
SOLAR NPK micro Universal	
18:18:18+3MgO+TE	
19:19:19+TE	49
20:20:20+TE	
SOLAR NPK micro Finisher	
3:11:38+M᠑, 3:11:38+4MgO+TE	
12:6:36+2.5MgO+TE	50
15:7:30+3MgO+TE	

WS	Water-soluble
Complex +Stim	
SOLAR NPK micro	
Starter 13:40:13+TE+Stim	
Universal 20:20:20+TE+Stim	
Finisher 12:6:36+2.5MgO+TE+Stim	51
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F	Feed grade products
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LEGEND



Suitable for greenhouse applications



Suitable for foliar application



Embedding into the soil is required



Products do not contain sodium, chlorine or heavy metals



Can be used in fertiliser blends



Can be used in irrigation systems



Suitable for first half of the growing season



Suitable for soil application



Seed treatment



Improved physical and chemical properties to ensure even distribution of fertilisers across the entire spreading width



Suitable for basal application



Low carbon footprint



Suitable for Agro-industrial UAVs application



Recommended to conduct preliminary testing for compatibility of tank mixture



Conformance to GOST R 58658-2019 – Fertiliser with Improved Characteristics



N/NP/NS

Nitrogen fertilisers

Ammonium nitrate (AN)

N 34.4

Versatile highly concentrated nitrogen fertiliser containing ammonium and nitrate forms of nitrogen in equal amounts for extended plant nutrition.

Suitable for direct application to the soil and in fertiliser blends. Excellent physical and chemical characteristics to facilitate storage and application.

Fully water-soluble.

Most effective in the early stages of plant development. Recommended to apply before flowering

Packaging and storage:



bags

big bags

in bulk



Upon request, ammonium nitrate can be treated with an anti-caking agent (not suitable for greenhouse application).

Store in a dry insulated place, away from moisture and direct sunlight.

Appearance	white or slightly coloured granules
Mass fraction of total nitrogen (N), % including mass fraction of:	34.4
– ammonium nitrogen	17.2
– nitrate nitrogen	17.2
Particle size distribution, %	
Mass fraction of granules:	
– sized under 1 mm, max	3
– sized 1-4 mm, min	95
– sized over 6 mm	0
Friability, %	100

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MINERAL FERTILISERS FOR AGRICULTURE

N/NP/NS

Nitrogen

Stabilised ammonium nitrate (SAN)

NP 33:3

Versatile highly concentrated nitrogen fertiliser containing a small amount of the mobile phosphorus to support the initial stages of plant growth and development.

Contains ammonium and nitrate forms of nitrogen in equal amounts for extended plant nutrition. Contains phosphates in a water-soluble and readily available form.

Excellent physical and chemical characteristics to facilitate storage and application.

Suitable for all soils and crops. Most effective at the first, earliest top-dressing of winter crops.

Packaging and storage:

 big bags in bulk

Store in a dry insulated place, away from moisture and direct sunlight.

Appearance	white granules
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Mass fraction of total nitrogen (N), %	33
--	----

including mass fraction of:	
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– ammonium nitrogen	16.5
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– nitrate nitrogen	16.5
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– digestible phosphates in terms of P ₂ O ₅ , %	3
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Particle size distribution, %	
-------------------------------	--

Mass fraction of granules:	
----------------------------	--

– sized under 1 mm, max	3
-------------------------	---

– sized 1-4 mm, min	95
---------------------	----

– sized over 6 mm	0
-------------------	---

Friability, %	100
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MINERAL FERTILISERS FOR AGRICULTURE

N/NP/NS

Nitrogen

Sulphonitrate

NS 30:7

Nitrogen fertiliser with optimally balanced N:S ratio. Effective for most crops on all soil types.

Contains sulphur in a water-soluble sulphate form to improve the quality of agricultural products (increases oil content in oilseeds and protein content in cereals) and promote nitrogen absorption.

The 18% to 12% ratio of ammonium and nitrate forms of nitrogen reduces leaching losses and extends nutrition effect. The granular form allows even distribution of the fertiliser across soil surface during application up to 36 metres.

Improves absorption of phosphorus by the plant and supports extraction of phosphates accumulated in the soil. Improved physical and chemical characteristics (no caking and no dusting).

Packaging and storage:

 big bags in bulk

Store in a dry insulated place, away from moisture and direct sunlight.

Appearance	white or yellowish-gray granules
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Mass fraction of total nitrogen (N), %	30
--	----

including mass fraction of:	
-----------------------------	--

– ammonium nitrogen	18
---------------------	----

– nitrate nitrogen	12
--------------------	----

– sulphate sulphur in terms of S, min, %	7
--	---

Particle size distribution, %	
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Mass fraction of granules with size, mm	
---	--

– sized under 1 mm, max	3
-------------------------	---

– sized 1-5 mm, min	90
---------------------	----

– sized over 6.3 mm	0
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Friability, %	100
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MINERAL FERTILISERS FOR AGRICULTURE

Packaging and storage:



big bags

in bulk

Store in a dry insulated place, away from moisture and direct sunlight.

N/NP/NS

Nitrogen

Calcium ammonium nitrate (CAN)

27N+11CaO

Physiologically neutral nitrogen fertiliser.**A safety benchmark for nitrogen-rich fertilisers.**

Contains equal amounts of ammonium and nitrate forms of nitrogen for extended plant nutrition. The presence of calcium carbonate prevents soil acidification. Calcium contributes to the development of the root system and increases disease and pest resistance.

Excellent physical and chemical characteristics to facilitate storage and application.

Recommended for all types of soils at pH less than 6.5.

Used for all crops, especially for roots and tubers, fruits and berries.

Appearance	white-grey granules
Mass fraction of total nitrogen (N), % including mass fraction of:	27
– ammonium nitrogen	13.5
– nitrate nitrogen	13.5
– calcium in terms of CaCO ₃ , %	11
– calcium nitrate, %, max	1
Particle size distribution, %	
Mass fraction of granules with size, mm	
– sized under 1 mm, max	3
– sized 1-5 mm, min	90
– sized over 6.3 mm	0
Friability, %	100

MINERAL FERTILISERS FOR AGRICULTURE

N/NP/NS

Nitrogen

Calcium ammonium nitrate with sulphur (CNS)

NS 27:4+8CaO

Highly effective calcium-containing nitrogen fertiliser with sulphur.

Contains ammonium and nitrate forms of nitrogen for extended plant nutrition. Contains sulphur in a water-soluble sulphate form to improve the quality of agricultural products (increases oil content in oilseeds and protein content in cereals and grain legumes).

Calcium contributes to the development of the root system and increases disease and pest resistance.

Excellent physical and chemical characteristics to facilitate storage and application.

Suitable for all soils and crops (requires embedding into the soil). Most effective as supplementary fertiliser for oilseeds, cereals, fodder crops, and root crops.

Packaging and storage:



big bags

in bulk

Store in a dry insulated place, away from moisture and direct sunlight.

Appearance	white-grey granules
Mass fraction of total nitrogen (N), % including mass fraction of:	27
– ammonium nitrogen	13.5
– nitrate nitrogen	13.5
– sulphate sulphur in terms of S, %, min	4
– calcium in terms of CaO, %, min	8
– calcium nitrate, %, max	1
Particle size distribution, %	
Mass fraction of granules with size, mm	
– sized under 1 mm, max	3
– sized 1-5 mm, min	90
– sized over 6.3 mm	0
Friability, %	100





MINERAL FERTILISERS FOR AGRICULTURE

N/NP/NS

Nitrogen

Urea

N 46.2

**The most concentrated nitrogen fertiliser.
Extended nitrogen nutrition for the plant.**

Requires embedding into the soil immediately
after application.

Fully water-soluble. Suitable for irrigation systems
and foliar application.

Suitable for all soils and crops.

Packaging and storage:



bags



big bags



in bulk



Upon request, urea can be treated
with an anti-caking agent

Store in a dry insulated place, away from moisture
and direct sunlight.

Appearance	white granules
Mass fraction of total nitrogen (N), %	46.2
Mass fraction of biuret, %	1

Particle size distribution, %

Mass fraction of granules:

– sized under 1 mm, max	3(5)*
– sized 1-4 mm, min	94
– sized over 6 mm	0

Friability, %	100
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* varies for different production facilities

MINERAL FERTILISERS FOR AGRICULTURE

N/NP/NS

Nitrogen

Anhydrous liquefied ammonia

N 82

**The most concentrated ballast-free nitrogenous
fertiliser.**

Recommended for all soil types and crops.

Applied as a main and at-sowing fertiliser, and is also
used for supplementary feeding during inter-row
tillage.

Applied by special machines to at least 12-15 cm below
ground level.

Creates no health risks if used and handled correctly.

Packaging and storage:



tank cars

The fertiliser is transported in specialised
tank cars and lorries (in line with applicable
hazardous cargo transportation regulations) and
via pipelines. It is stored in above-ground tanks
in accordance with state technical supervision
rules, and safety regulations on liquid ammonia
above-ground storage facilities as per GOST
12.1.004.

Appearance:	clear colourless liquid
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Mass fraction:

– ammonia, %, min	99.6
– nitrogen, %, min	82
– water (evaporation residue), %	0.2 – 0.4



Packaging and storage:



tank cars

The fertiliser is transported in specialised tank cars and lorries (in line with applicable hazardous cargo transportation regulations) and via pipelines. It is stored in above-ground tanks in accordance with state technical supervision rules, and safety regulations on liquid ammonia above-ground storage facilities as per GOST 12.1.004.

N/NP/NS

Nitrogen

Technical grade aqueous ammonia (ammonia water)

N 20,5

A nitrogenous fertiliser – a water solution of ammonia. Contains 20.5% of nitrogen.

Can be used as a main fertiliser. Also applied during sowing and supplementary feeding to the centre of the inter-row space to tilled crops.

Applied only by qualified personnel of specialised organisations using special equipment.

Creates no health risks if used and handled correctly.

Appearance	clear colourless or yellowish liquid
Mass fraction:	
– ammonia, %	25
– nitrogen, %	20.5
Mass concentration:	
– non-volatile residue	not regulated
– carbon dioxide, g/dm ³	8



NP

Phosphate
fertilisers



Packaging and storage:



big bags

in bulk

Store in a dry insulated place, away from moisture and direct sunlight.

NP

Phosphate

Monoammonium phosphate (MAP)

NP 10:46, NP 12:52

Versatile granular highly concentrated nitrate-free nitrogen-phosphorus fertiliser.

Contains phosphates in readily available form.

Suitable for direct application to the soil and in fertiliser blends on all soils and crops. Especially for cereals, root crops, rapeseed, sugarcane, and as top-dressing for fruit and berry crops.

Recommended for at-planting application. Also effective as basic fertiliser on soils with low levels of available phosphorus.

Especially effective on cereals, root crops, rapeseed, sugarcane, and as a top-dressing for fruit and berry crops.

Excellent physical and chemical characteristics to facilitate storage and application.

	10:46	12:52
Appearance	grey granules	
Mass fraction of total nitrogen (N), %, including mass fraction of:	10	12
– ammonium nitrogen, %	10	12
– total phosphates in terms of P ₂ O ₅ , %	46	52
– digestible phosphates in terms P ₂ O ₅ , %	46	50
Particle size distribution, %		
Mass fraction of granules, mm		
– sized under 1 mm, max	3	2
– sized 1-4 mm, min	95	-
– sized 2-5 mm, min	-	90
– sized over 6 mm	0	0
Friability, %	100	100



K

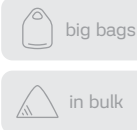
Potash fertilisers





MINERAL FERTILISERS FOR AGRICULTURE

Packaging and storage:



Store in a dry insulated place, away from moisture and direct sunlight.

K

Potash

Pink Granular MOP 60% K₂O

The most concentrated straight potassium fertiliser in granular form.

Ideal source of potassium for all chloride-tolerant crops and soil types.

Suitable for both straight application and bulk blending.

Excellent granulometric characteristics and granule strength.

Appearance	compacted irregularly shaped granules of greyish-white or various shades of red-brown colour
Mass fraction of:	
– potassium chloride, %	95
– water-soluble potassium oxide (on K ₂ O basis), %	60
– sodium chloride (NaCl), %*	3.1
– moisture content, %	0.5
Granulometric composition, %:	
– sized over 4 mm, max	10
– sized under 2 mm, max	10
– sized under 1 mm, max	2
– sized under 0.5 mm, max	0.5

* typical



MINERAL FERTILISERS FOR AGRICULTURE

K

Potash

Pink Standard MOP 60% K₂O

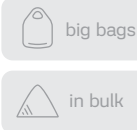
Straight potassium fertiliser for direct application and fertilisers manufacture.

Suitable for all chloride-tolerant crops and soil types.

Suitable for straight application.

Used for production of complex fertilisers.

Packaging and storage:



Store in a dry insulated place, away from moisture and direct sunlight.

Appearance	compacted irregularly shaped powder of greyish-white or various shades of red-brown color or large crystals of greyish-white color
Mass fraction of:	
– potassium chloride, %	95
– water-soluble potassium oxide (on K ₂ O basis), %	60
– sodium chloride (NaCl), %*	2.9
– magnesium (Mg), %*	0.01
– calcium (Ca), %*	0.16
– moisture content, %	0.5
Granulometric composition, %	
– sized over 1.7 mm, max	0 – 5.6
– sized over 1 mm, max	6 – 28
– sized over 0.63 mm, max	28 – 55
– sized over 0.4 mm, max	48 – 74
– sized over 0.25 mm, max	65 – 89
– sized over 0.2 mm, max	73 – 93
– sized over 0.1 mm, max	87 – 99

* typical





Packaging and storage:



big bags

in bulk

Store in a dry insulated place, away from moisture and direct sunlight.

K

Potash

White Standard MOP 60%/62% K₂O

High-purity water-soluble potassium fertiliser for fertilisers manufacture.

Used for production of complex and potassium fertilisers (potassium nitrate, potassium sulphate). Suitable for production of liquid fertilisers.

	60% K ₂ O	62% K ₂ O
Appearance	small crystals of greyish-white color	
Mass fraction of:		
– potassium chloride, %	95	98.2
– water-soluble potassium oxide (on K ₂ O basis), %	60	62
– sodium chloride (NaCl), %*	2.3	1.5
– magnesium (Mg), ppm*	40	40
– calcium (Ca), ppm*	150	150
– moisture content, %	0.5	0.5
– insolubles in water, %*	0.01	0.01
Granulometric composition, %		
– sized over 1.7 mm	0 – 0.1	0 – 0.1
– sized over 1 mm	2 – 7	2 – 7
– sized over 0.63 mm	21 – 38	21 – 38
– sized over 0.4 mm	59 – 82	59 – 82
– sized over 0.2 mm	94 – 99	94 – 99
– sized over 0.1 mm	99 – 100	99 – 100

* typical

K

Potash

White Fine MOP 60%/62% K₂O

High-purity water-soluble potassium fertiliser for fertilisers manufacture.

Used for production of complex and potassium fertilisers (potassium nitrate, potassium sulphate). Suitable for production of liquid fertilisers.

Packaging and storage:



big bags

in bulk

Store in a dry insulated place, away from moisture and direct sunlight.

	60% K ₂ O	62% K ₂ O	
		Grade A	Grade B
Appearance	crumbly crystalline	product white in color	
– potassium chloride, min, %	95	98.2	98.2
– water-soluble potassium oxide (on K ₂ O basis), min, %	60	62	62
– sodium chloride, %	2.7*	1.3 (max)	1.6 (max)
– magnesium (Mg), %*	80	40	40
– calcium (Ca), %*	180	120	120
– sulphate (SO ₄ ²⁻), %*	-	300	300
– moisture content, max, %	1	0.5	0.5
– insolubles in water, %*	0.04	0.04	0.04
Granulometric composition, %			
– sized over 1 mm, max	0 – 1	0 – 1	0 – 1
– sized over 0.63 mm, max	0 – 2	0 – 2	0 – 2
– sized over 0.4 mm, max	3 – 16	3 – 16	3 – 16
– sized over 0.2 mm, max	35 – 70	35 – 70	35 – 70
– sized over 0.1 mm, max	84 – 99	84 – 99	84 – 99
– sized over 0.063 mm, max	96 – 99	96 – 99	96 – 99

* typical





NPK/NPKS

Granular complex fertilisers

MINERAL FERTILISERS FOR AGRICULTURE

Balanced formulations

Packaging and storage:



-  big bags
-  in bulk

-  Granules can be colored in pink and blue.
-  Various trace elements can be added to all NPK grades.

Store in a dry insulated place, away from moisture and direct sunlight.

NPK/NPKS

Granular complex

NPKS 15:15:15:11, NPK 16:16:16

Granular complex fertilisers with balanced composition of key nutrients.

The 11% sulphur content in NPKS 15:15:15:11 supports the quality of agricultural products (increases the protein content in cereals and oil content in oilseeds).

Suitable for all types of soil. Optimal for pre-sowing or at-sowing application for all types of crops.

With their consistent nutrient composition in each granule these complex NPK fertilisers ensure uniform distribution of all nutrients across the field.

	15:15:15:11	16:16:16
Appearance	white to various shades of grey or pink granules	
Mass fraction of total nitrogen (N), %	15	16
Including mass fraction of:		
– ammonium nitrogen, %	15	8
– nitrate nitrogen, %	-	8
– total phosphates in terms of P ₂ O ₅ , %	15	16
– digestible phosphates in terms of P ₂ O ₅ , %, min	15	16
– potassium in terms of K ₂ O, %	15	16
– sulphate sulphur in terms of S, %, min	11	-
Particle size distribution, %		
Mass fraction of granules, mm		
– sized under 1 mm, max	3	3
– sized 1-5 mm, min	90	90
– sized over 6.3 mm	0	0
Friability, %	100	100



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Packaging and storage:



big bags

in bulk

Store in a dry insulated place, away from moisture
and direct sunlight.

NPK/NPKS

Granular complex

NPKS 21:10:10:2, NPKS 22:7:12:2

Granular complex NPKS fertilisers with high
nitrogen content.

Fully provides mineral nutrition for the plants due
to the availability of the essential mineral nutrition
elements in one granule. The presence of ammonium
and nitrate forms of nitrogen provides a prolonged
effect of the fertiliser. The presence of phosphorus,
potassium and sulphur allows for more efficient
absorption of nitrogen, reducing its loss from leaching.

Suitable for all types of soils and all crops, optimally
as basic fertiliser on soils with a high content of mobile
phosphorus and potassium. Effective for top-dressing
of perennial grasses, hayfields and pastures. Suitable
for inter-row top-dressing on perennial plantations
and fruits.

With their consistent nutrient composition in each
granule these complex NPKS fertilisers ensure uniform
distribution of all nutrients across the field.

	21:10:10:2	22:7:12:2
Appearance	pink, light pink or light brown granules	
Mass fraction of total nitrogen (N), % including mass fraction of:	21	22
– ammonium nitrogen	11	12
– nitrate nitrogen	10	10
– total phosphates in terms of P ₂ O ₅ , %	10	7
– digestible phosphates in terms of P ₂ O ₅ , %, min	10	7
– potassium in terms of K ₂ O, %	10	12
– sulphate sulphur in terms of S, %, min	2	2
Particle size distribution, % Mass fraction of granules, mm		
– sized under 1 mm, max	3	3
– sized 1-5 mm, min	90	90
– sized over 6.3 mm	0	0
Friability, %	100	100

Packaging and storage:



big bags

in bulk

Store in a dry insulated place, away from moisture
and direct sunlight.

NPK/NPKS

Granular complex

NPKS 24:6:12:1, NPKS 27:6:6:2

Granular complex NPKS fertilisers with high
nitrogen content.

Fully provides mineral nutrition for the plants due
to the availability of the essential mineral nutrition
elements in one granule. The presence of ammonium
and nitrate forms of nitrogen provides a prolonged
effect of the fertiliser. The presence of phosphorus,
potassium and sulphur allows for more efficient
absorption of nitrogen, reducing its loss from leaching.

Suitable for all types of soils and all crops, optimally
as basic fertiliser on soils with a high content of mobile
phosphorus and potassium. Effective for top-dressing
of perennial grasses, hayfields and pastures. Suitable
for inter-row top-dressing on perennial plantations
and fruits.

With their consistent nutrient composition in each
granule these complex NPKS fertilisers ensure uniform
distribution of all nutrients across the field.

	24:6:12:1	27:6:6:2
Appearance	pink, light pink or light brown granules	
Mass fraction of total nitrogen (N), % including mass fraction of:	24	27
– ammonium nitrogen	12	15
– nitrate nitrogen	12	12
– total phosphates in terms of P ₂ O ₅ , %	6	6
– digestible phosphates in terms of P ₂ O ₅ , %, min	6	6
– potassium in terms of K ₂ O, %	12	6
– sulphate sulphur in terms of S, %, min	1	2
Particle size distribution, % Mass fraction of granules, mm		
– sized under 1 mm, max	3	3
– sized 2-5 mm, min	90	90
– sized over 6.3 mm	0	0
Friability, %	100	100



MINERAL FERTILISERS FOR AGRICULTURE
High-phosphorus formulations

Packaging and storage:



big bags

in bulk

Store in a dry insulated place, away from moisture and direct sunlight.

NPK/NPKS

Granular complex

NPKS 10:20:10:5, NPKS 12:24:12:6,

Granular complex NPKS fertilisers with high phosphorus content.

Suitable for all crops and soils. Used as main fertiliser for winter crops, as well as pre-planting and at-planting fertiliser for spring crops. Optimal for cereals, oilseeds and vegetable crops.

Also recommended for phosphorus-deficient soils.

With their consistent nutrient composition in each granule these complex NPKS fertilisers ensure uniform distribution of all nutrients across the field.

	10:20:10:5	12:24:12:6
Appearance	white to various shades of grey or pink granules	
Mass fraction of total nitrogen (N), % including mass fraction of:	10	12
– ammonium nitrogen	10	12
– amide nitrogen	-	-
– total phosphates in terms of P ₂ O ₅ , %	20	24
– digestible phosphates in terms of P ₂ O ₅ , %, min	20	24
– potassium in terms of K ₂ O, %	10	12
– sulphate sulphur in terms of S, %, min	5	6
Particle size distribution, %		
Mass fraction of granules, mm		
– sized under 1 mm, max	3	3
– sized 1-4 mm, min	90	90
– sized over 6.3 mm	0	0
Friability, %	10	10

MINERAL FERTILISERS FOR AGRICULTURE
Low-phosphorus formulations (V-grades)

NPK/NPKS

Granular complex

NPK 19:4:19

Packaging and storage:



big bags

in bulk

Store in a dry insulated place, away from moisture and direct sunlight.

Granular complex NPK fertilisers with high nitrogen and potassium content.

Granular complex NPK has a balanced nitrogen source, containing both forms of nitrogen (nitrate and ammonium). The nitrate form of nitrogen is a prerequisite to feed fast growing crops and ensure good root development, while the ammonium form is important to keep a sustained delivery of nitrogen.

Optimal for soils with a high phosphorus content.

Recommended for perennial crops, fruit, coffee, cocoa, sugarcane, vegetables. Suitable for top-dressing during inter-row tillage.

With their consistent nutrient composition in each granule these complex NPK fertilisers ensure uniform distribution of all nutrients across the field.

	19:4:19
Appearance	pink, light-pink or light-brown granules
Mass fraction of total nitrogen (N), % including mass fraction of:	19
– ammonium nitrogen	10
– nitrate nitrogen	9
– total phosphates in terms of P ₂ O ₅ , %	4
– digestible phosphates in terms of P ₂ O ₅ , %, min	4
– potassium in terms of K ₂ O, %	19
– sulphate sulphur in terms of S, %, min	-
– magnesium in term of Mg, %, min	-
Particle size distribution, %	
Mass fraction of granules, mm	
– sized under 1 mm, max	3
– sized 1-5 mm, min	90
– sized over 6.3 mm	0
Friability, %	100



Packaging and storage:



big bags

in bulk

Store in a dry insulated place, away from moisture
and direct sunlight.

NPK/NPKS

Granular complex

NPK 17:6:18+MgO

Granular complex NPK fertiliser with high nitrogen, potassium and additional magnesium content.

Granular complex NPK has a balanced nitrogen source, containing both forms of nitrogen (nitrate and ammonium). The nitrate form of nitrogen is a prerequisite to feed fast growing crops and ensure good root development, while the ammonium form is important to keep a sustained delivery of nitrogen.

Magnesium improves absorption of phosphorus, supports activation of enzymes and accelerates formation of carbohydrates.

Optimal for soils with a high phosphorus content.

Recommended for perennial crops, fruit, coffee, cocoa, sugarcane, vegetables. Suitable for top-dressing during inter-row tillage.

With their consistent nutrient composition in each granule these complex NPK fertiliser ensure uniform distribution of all nutrients across the field.

	17:6:18+MgO
Appearance	pink, light-pink or light-brown granules
Mass fraction of total nitrogen (N), %	17
including mass fraction of:	
– ammonium nitrogen	10
– nitrate nitrogen	7
– total phosphates in terms of P ₂ O ₅ , %	6
– digestible phosphates in terms of P ₂ O ₅ , %, min	6
– potassium in terms of K ₂ O, %	18
– sulphate sulphur in terms of S, %, min	4
– magnesium in term of Mg, %	3
Particle size distribution, %	
Mass fraction of granules, mm	
– sized under 1 mm, max	3
– sized 1-5 mm, min	90
– sized over 6.3 mm	0
Friability, %	100

Packaging and storage:



big bags

in bulk

Store in a dry insulated place, away from moisture
and direct sunlight.

NPK/NPKS

Granular complex

NPKS 6:18:34:2, NPKS 8:15:30:4,
NPKS 8:20:30:3

Granular complex NPKS fertilisers with high potassium content.

Suitable for all crops and soils. Ammonium nitrogen gives a sustained delivery of nitrogen as it becomes slowly available to the plant after conversion to nitrate form.

Effective as main fertiliser or for pre-planting and at-planting application. Recommended for potassium-loving crops.

With their consistent nutrient composition in each granule these complex NPKS fertilisers ensure uniform distribution of all nutrients across the field.

	6:18:34:2	8:15:30:4	8:20:30:3
Appearance	light grey, grey, pink and grey-pink granules		
Mass fraction of total nitrogen (N), %	6	8	8
including mass fraction of:			
– ammonium nitrogen	6	8	8
– total phosphates in terms of P ₂ O ₅ , %	18	15	20
– digestible phosphates in terms of P ₂ O ₅ , %, min	18	15	19.5
– potassium in terms of K ₂ O, %	34	30	30
– sulphate sulphur in terms of S, %, min	2	4	3
Particle size distribution, %			
Mass fraction of granules, mm			
– sized under 1 mm, max	3	3	3
– sized 1-4 mm, min	95	95	95
– sized over 6 mm	0	0	0
Friability, %	100	100	100

Packaging and storage:



big bags

in bulk

Store in a dry insulated place, away from moisture and direct sunlight.

NPK/NPKS

Granular complex

NPKS 8:20:30:3+0.015Zn

Granular complex NPKS fertilisers with micronutrients.

Ensure comprehensive nutrition because of balanced composition and the presence of micronutrients in one granule. Suitable for all crops and all soils.

Zinc supports growth of the root system and the absorption of nutrients from the soil; it increases the protein and carbohydrate content in agricultural products.

Effective as basic and at-sowing fertiliser for all crops.

Recommended for use on maize, cereals, rapeseed, root and tubers crops.

With their consistent nutrient composition in each granule these complex NPKS fertilisers ensure uniform distribution of all nutrients across the field.

Appearance	pink and greyish-pink granules
Mass fraction of total nitrogen (N), % including mass fraction of:	8
– ammonium nitrogen	8
– amide nitrogen	-
– total phosphates in terms of P ₂ O ₅ , %	20
– digestible phosphates in terms of P ₂ O ₅ , %, min	20
– potassium in terms of K ₂ O, %	30
– sulphate sulphur in terms of S, %, min	3
– zinc in terms of Zn, %	0.015
– boron in terms of B, %	-
Particle size distribution, %	
Mass fraction of granules, mm	
– sized under 1 mm, max	3
– sized 1-4 mm, min	95
– sized over 6 mm	0
Friability, %	100

Packaging and storage:



big bags



Possibility of production different biomodified NPKS grades of complex fertilisers.

Store in a dry insulated place, away from moisture and direct sunlight, at a temperature from –40 °C to +40 °C.

NPK/NPKS

Granular complex

MultiStart NPKS 8:20:30:3+BIO,
MultiStart NPKS 15:15:15:11+BIO

Granular complex biomodified fertiliser containing the main nutrients (nitrogen, phosphorus, potassium and sulphur), as well as *Bacillus rhizospheric bacteria*.

Once in the soil, the bacteria produce auxins, which stimulate development of the root system, increase its absorption capacity and produce organic acids, which increase the content of water-soluble forms of phosphorus in the soil.

The microorganisms in the fertiliser inhibit the activity of pathogens in the rhizosphere and increase the plant's bacterial and fungal resistance.

MultiStart NPKS increases biological activity of the soil, improves yields of crops and quality of agricultural products and supports business profitability.

Used for pre-sowing or at-sowing application for all types of crops.

	MultiStart 8:20:30:3+BIO	MultiStart 15:15:15:11+BIO
Appearance	white to various shades of grey or pink granules	
Mass fraction of total nitrogen (N), % including mass fraction of:	8	15
– ammonium nitrogen	8	15
– total phosphates in terms of P ₂ O ₅ , %	20	15
– digestible phosphates in terms of P ₂ O ₅ , %, min	19.5	15
– potassium in terms of K ₂ O, %	30	15
– sulphate sulphur in terms of S, %, min	3	11
Viable bacterial cells per 1 gram of fertiliser, CFU/g, min	5x10 ⁴	5x10 ⁴
Particle size distribution, %		
Mass fraction of granules, mm		
– sized under 1 mm, max	3	3
– sized 1-5 mm, min	90	90
– sized over 6 mm	0	0
Friability, %	100	100



RM

Raw materials
for WS NPK production





MINERAL FERTILISERS FOR AGRICULTURE

Packaging and storage:



big bags

Store in a dry insulated place, away from moisture and direct sunlight.

RM

Raw materials

Urea microprilled

Microprilled urea can be used to produce water-soluble NPK blends.
Fine microprills lead to high uniformity of blends.
NPK blends containing microprills do not cake, segregate and do not produce dust.

Appearance	white or slightly colored granules
– nitrogen content on dry basis, %	46.2
– biuret content, %	1.4
– free ammonia content, %	0.02
Granulometric composition, content of granules sized, %:	
– 1 to 1,5 mm, max	10
– 0.7 to 1 mm, min	60
– less than 0.3 mm, max	3



WS

Water-soluble
fertilisers



Calcium nitrate concentrated (CN)

17N+33CaO

The only water-soluble source of calcium with the maximum content of the active substance (calcium nitrate content – 98%*).

The product has a low content of ammonium nitrogen and is in anhydrous form. Calcium nitrate increases plant's resistance to environmental factors, improves quality of fruits and increases their shelf life. The presence of accessible calcium is necessary throughout the growing season, since calcium is not redistributed within the plant.

Used in greenhouse vegetable growing, in drip irrigation systems. An excellent solution for top-dressing fruit and berry crops, roots and tubers crops.

* vs 78% content in similar products

Packaging and storage:

bags

big bags



Do not mix calcium nitrate with fertilisers containing phosphates and sulphates.

Store in a dry insulated place, away from moisture and direct sunlight.

Appearance	white or grey-yellow granules
Mass fraction of total nitrogen (N), %	17
including mass fraction of:	
– nitrate nitrogen	16.7
– ammonium nitrogen	0.3
– calcium in terms of CaO, %, min	33
– Insoluble residue, %	0.1
Particle size distribution, %	
Mass fraction of granules, mm	
– sized under 1 mm, max	5
– sized 1-4 mm, min	90
– sized over 6.3 mm	0
pH (1% aqueous solution)	5.5 – 6.5
Water solubility at 20 °C, g/100 cm ³	120
Friability, %	100

Calcium nitrate concentrated with boron (CN with B)

17N+32CaO+B

Granular fertiliser containing fully water-soluble calcium and boron in combination with fast acting nitrate nitrogen.

High calcium content increases storability and quality of agricultural products. Calcium nitrate increases plant's resistance to environmental factors, improves quality of fruits and increases their shelf life.

The addition of boron stimulates the setting and preservation of crop ovaries. Ideal for light soils (sandy, sandy-loam and light loam soils).

Recommended for use in fertigation systems for all crops. Suitable for top-dressing sugar beet, vegetable, roots and tubers crops, fruit and berry crops, cotton.

Packaging and storage:

bags

big bags



Do not mix calcium nitrate with fertilisers containing phosphates and sulphates.

Store in a dry insulated place, away from moisture and direct sunlight.

Appearance	white or grey-yellow granules
Mass fraction of total nitrogen (N), %	17
including mass fraction of:	
– nitrate nitrogen	16.5
– ammonium nitrogen	0.5
– calcium in terms of CaO, %, min	32
– boron in terms of B, %	0.3
– Insoluble residue, %	0.1
Particle size distribution, %	
Mass fraction of granules, mm	
– sized under 1 mm, max	5
– sized 1-4 mm, min	90
– sized over 6.3 mm	0
pH (1% aqueous solution)	5.5 – 8
Water solubility at 20 °C, g/100 cm ³	120
Friability, %	100



Packaging and storage:



bags

big bags



Do not mix calcium nitrate with fertilisers containing phosphates and sulphates.

Store in a dry insulated place, away from moisture and direct sunlight.

Calcium nitrate concentrated with magnesium (CN with Mg)**17N+32CaO+Mg**

Granular fertiliser containing fully water-soluble calcium and magnesium in combination with fast acting nitrate nitrogen.

High calcium content increases storability and quality of agricultural products. Calcium nitrate increases plant's resistance to environmental factors, improves quality of fruits and increases their shelf life.

Magnesium improves absorption of phosphorus, supports activation of enzymes and accelerates formation of carbohydrates. Ideal for light soils (sandy, sandy-loam and light loam soils).

Recommended for use in fertigation systems on all crops.

Effective on vegetable, fruit and berry crops.

Appearance	white or grey-yellow granules
Mass fraction of total nitrogen (N), %	17
Including mass fraction of:	
– nitrate nitrogen	16.7
– ammonium nitrogen	0.3
– calcium in terms of CaO, %, min	32
– magnesium in terms of MgO, %	0.3
– Insoluble residue, %	0.1
Particle size distribution, %	
Mass fraction of granules, mm	
– sized under 1 mm, max	5
– sized 1-4 mm, min	90
– sized over 6.3 mm	0
pH (1% aqueous solution)	5.5 – 6.5
Water solubility at 20 °C, g/100 cm ³	120
Friability, %	100

Potassium nitrate (NOP)**NK 13,7:46,2**

Highly effective water-soluble nitrogen-potassium fertiliser with high potassium content. SOLAR potassium nitrate is a chemical purity benchmark for similar products.

Potassium supports the intensity of photosynthesis and oxidation, is involved in carbohydrate metabolism, and helps the plant retain water by strengthening cell walls. Potassium nitrate increases the plant's resistance to adverse environmental factors like rapid changes in water and temperature conditions.

Ideal for use in greenhouse farming, fertigation systems, for foliar feeding of grain, technical, fruit, berry and ornamental crops.

Packaging and storage:



bags

big bags

Store in a dry insulated place, away from moisture and direct sunlight.

Appearance	white crystals with a yellowish-gray tint
Mass fraction of total nitrogen (N), %	13.7
Including mass fraction of:	
– nitrate nitrogen	13.7
– potassium in terms of K ₂ O, %	46.2
– insoluble residue, %	0.01
pH (1% aqueous solution)	5.3
Water solubility at 20 °C, g/100 cm ³	31
Friability, %	100





MINERAL FERTILISERS FOR AGRICULTURE

WS

Water-soluble

Packaging and storage:

 bags big bags

Do not mix MAP with fertilisers containing calcium and magnesium.

Store in a dry insulated place, away from moisture and direct sunlight.

Monoammonium phosphate (MAP)

NP 12:61

Due to its 100% water solubility SOLAR MAP is an excellent source of nitrogen and phosphorus in an easily available form.

Monoammonium phosphate is effective during early stages of plant development, especially during the formation of the root system. Ideal for use in fertigation systems and in fertiliser blends.

Appearance	white crystals
Mass fraction of total nitrogen (N), % including mass fraction of:	12
– ammonium nitrogen	12
– water-soluble phosphates in terms of P_2O_5 , %	61
– insoluble residue, %	0.1
pH (1% aqueous solution)	4.5
Water solubility at 20 °C, g/100 cm ³	37.1
Friability, %	100

MINERAL FERTILISERS FOR AGRICULTURE

WS

Water-soluble

Packaging and storage:

 bags big bags

Store in a dry insulated place, away from moisture and direct sunlight.

Monopotassium phosphate (MKP)

PK 52:34

Highly efficient water-soluble phosphorus-potassium fertiliser.

Monopotassium phosphate is the most concentrated phosphorus-potassium fertiliser on the market converted into the content of each element.

Fertiliser is effective during the late stages of vegetation period when the nitrogen application is not recommended.

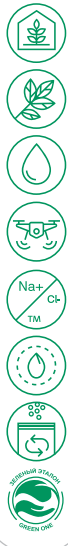
Provides plants with an additional resistance effect against bacterial and fungal activity.

Ideal for use in greenhouses, fertigation systems, or for supplementary foliar feeding.

Can be used for production of complex water-soluble fertilisers.

Appearance	white crystals
Mass fraction of:	
– water-soluble phosphates in terms of P_2O_5 , %	52
– water-soluble potassium in terms of K_2O , %	34
– insoluble residue, %, max	0.1
pH (1% aqueous solution)	4.5 – 4.9
Water solubility at 20°C, g/100 cm ³	24
Friability, %	100





MINERAL FERTILISERS FOR AGRICULTURE

WS

Water-soluble

SOLAR NPK micro Starter

NPK 11:40:11+2MgO+TE, NPK 13:40:13+TE,
NPK 15:30:15+2MgO+TE

Water-soluble phosphorus-rich NPK fertilisers.

At the early growth stages the special formula of the fertiliser stimulates development of the root system, increases absorption of nutrients, improves metabolism, division and reproduction processes in plant cells. At the stage of budding and flowering the products accelerate formation of reproductive organs and improve quality of agricultural products.

A balanced ratio of nutrients with meso- and micronutrients makes these fertilisers suitable for all crops. Ideal for foliar application to field crops.

Packaging and storage:



bags

Store in a dry insulated place, away from moisture and direct sunlight.

	11:40:11 +2MgO+TE	13:40:13 +TE	15:30:15 +2MgO+TE
Appearance	yellow crystals		
Mass fraction of:			
– total nitrogen (N), %	11	13	15
– nitrate nitrogen	3	4.5	4.4
– ammonium nitrogen	8	8.5	6
– amide nitrogen	-	-	4.6
– water-soluble phosphates in terms of P ₂ O ₅ , %	40	40	30
– water-soluble potassium in terms of K ₂ O, %	11	13	15
– sulphates in terms of S, %	2	-	2
– water-soluble magnesium in terms of MgO, %	2	-	2
– insoluble residue, %	0.1	0.1	0.1
Mass fraction of trace elements (* – in chelated EDTA form), %			
– boron (B)	0.02	0.02	0.02
– copper (Cu)*	0.01	0.01	0.01
– iron (Fe)*	0.1	0.1	0.1
– manganese (Mn)*	0.05	0.05	0.05
– molybdenum (Mo)	0.01	0.01	0.01
– zinc (Zn)*	0.01	0.01	0.01
Friability, %	100	100	100

MINERAL FERTILISERS FOR AGRICULTURE

WS

Water-soluble

SOLAR NPK micro Universal

NPK 18:18:18+3MgO+TE, NPK 19:19:19+TE,
NPK 20:20:20+TE

The equal-ratio water-soluble grade fertilisers are designed for comprehensive plant nutrition at all phases of growth and support correct development of the plant throughout the growing season.

The products are effective during stress periods like drought, waterlogging, diseases, pests, etc.

A balanced ratio of nutrients makes these fertilisers suitable for all crops. Ideal for foliar application to field crops.

Packaging and storage:



bags

Store in a dry insulated place, away from moisture and direct sunlight.

	18:18:18 +3MgO+TE	19:19:19 +TE	20:20:20 +TE
Appearance	green crystals		
Mass fraction of:			
– total nitrogen (N), %	18	19	20
– nitrate nitrogen	5.4	10.5	6
– ammonium nitrogen	3.6	8.5	4
– amide nitrogen	9	-	10
– water-soluble phosphates in terms of P ₂ O ₅ , %	18	19	20
– water-soluble potassium in terms of K ₂ O, %	18	19	20
– sulphates in terms of S, %	2.5	-	-
– water-soluble magnesium in terms of MgO, %	3	-	-
– insoluble residue, %	0.1	0.1	0.1
Mass fraction of trace elements (* – in chelated EDTA form), %			
– boron (B)	0.02	0.02	0.02
– copper (Cu)*	0.01	0.01	0.01
– iron (Fe)*	0.1	0.1	0.1
– manganese (Mn)*	0.05	0.05	0.05
– molybdenum (Mo)	0.01	0.01	0.01
– zinc (Zn)*	0.01	0.01	0.01
Friability, %	100	100	100





MINERAL FERTILISERS FOR AGRICULTURE

WS

Water-soluble

Packaging and storage:



bags

Store in a dry insulated place, away from moisture and direct sunlight.

SOLAR NPK micro Finisher

NPK 3:11:38+TE, NPK 3:11:38+4MgO+TE,
NPK 12:6:36+2.5MgO+TE, NPK 15:7:30+3MgO+TE

Water-soluble potassium-rich NPK fertilisers.

At the final stages of vegetation the products promote even ripening and intensive fruiting, improve taste, appearance and storability of agricultural products, increase sugar content in sugar beet roots and stimulate the plant's resistance to drought conditions.

A balanced ratio of nutrients makes these fertilisers suitable for all crops. Ideal for foliar application to field crops.

	3:11:38 +TE	3:11:38 +4MgO+TE	12:6:36 +2.5MgO+TE	15:7:30 +3MgO+TE
Appearance	pink crystals			
Mass fraction of:				
– total nitrogen (N), %	3	3	12	15
– nitrate nitrogen	0.2	3	10.6	8.7
– ammonium nitrogen	2.8	-	1.4	1.4
– amide nitrogen	-	-	-	4.9
– water-soluble phosphates in terms of P ₂ O ₅ , %	11	11	6	7
– water-soluble potassium in terms of K ₂ O, %	38	38	36	30
– sulphate sulphur in terms of S, %, min	13	-	2	2.5
– water-soluble magnesium in terms of MgO, %, min	-	4	2.5	3
– insoluble residue, %	0.1	0.1	0.1	0.1
Mass fraction of trace elements (* – in chelated EDTA form), %:				
– boron (B)	0.02	0.02	0.02	0.02
– copper (Cu)*	0.01	0.01	0.01	0.01
– iron (Fe)*	0.1	0.1	0.1	0.1
– manganese (Mn)*	0.05	0.05	0.05	0.05
– molybdenum (Mo)	0.01	0.01	0.01	0.01
– zinc (Zn)*	0.01	0.01	0.01	0.01
Friability, %	100	100	100	100

MINERAL FERTILISERS FOR AGRICULTURE

WS

Water-soluble

Packaging and storage:



bags

Store in a dry insulated place, away from moisture and direct sunlight.

SOLAR NPK micro+Stim

Starter 13:40:13+TE+Stim
Universal 20:20:20+TE+Stim
Finisher 12:6:36+2.5MgO+TE+Stim

Complex water-soluble fertiliser with trace elements and an effective growth modulator.

SOLAR NPK micro + Stim maintains the balance between the two main biochemical processes in the plant: respiration and photosynthesis.

During the period of active development of generative organs, the use of growth modulator accelerates fruit ripening, improves the outflow of plastic substances into marketable products, which contributes to higher yields and improved quality characteristics.

Compatible with all types of water-soluble fertilisers and pesticides.

Recommended for sugar beet, sunflower, oilseed, grain and vegetable crops in the open ground.

In experiments, the increase in yield of sugar beet and sunflower was 14-23%, compared to the use of standard SOLAR NPK micro.

	Starter 13:40:13+TE +Stim	Universal 20:20:20+TE +Stim	Finisher 12:6:36+2.5MgO+TE +Stim
Appearance	various colors crystals		
Mass fraction of:			
– total nitrogen (N), %	13	20	12
– nitrate nitrogen	4.5	6	10.6
– ammonium nitrogen	8.5	4	1.4
– amide nitrogen	-	10	-
– water-soluble phosphates in terms of P ₂ O ₅ , %	40	20	6
– water-soluble potassium in terms of K ₂ O, %	13	20	36
– sulphate sulphur in terms of S, %, min	-	-	2
– water-soluble magnesium in terms of MgO, %, min	-	-	2.5
– insoluble residue, %	0.1	0.1	0.1
Growth modulator, %, min	1	1	1
Mass fraction of trace elements (* – in chelated form), %:			
– boron (B)	0.02	0.02	0.02
– copper (Cu)*	0.01	0.01	0.01
– iron (Fe)*	0.1	0.1	0.1
– manganese (Mn)*	0.05	0.05	0.05
– molybdenum (Mo)	0.01	0.01	0.01
– zinc (Zn)*	0.01	0.01	0.01
Friability, %	100	100	100





MINERAL FERTILISERS FOR AGRICULTURE

WS

Water-soluble

Packaging and storage:



bags

Store in a dry insulated place, away from moisture and direct sunlight.

AQUADROP KCl

0:0:62

The most concentrated source of water-soluble potassium fertiliser for fertigation and foliar application.

Ideal water-soluble potassium fertiliser for all chloride-tolerant crops in open field fertigation systems.

Maximum concentration of K_2O and 100% water solubility.

Safe for irrigation systems.

Compatible with all types of water-soluble fertilisers.

Appearance	dust-free crystals with greyish-white color
Mass fraction of:	
– potassium chloride, %	98.2
– potassium in terms of K_2O , %	62
– moisture content, %, max	0.5
– insoluble residue, %*	0.03
Granulometric composition, %	
– sized under 0.1 mm, max	3
– sized 0.1 – 1.25 mm, min	90
– sized under 2 mm	100

* typical

MINERAL FERTILISERS FOR AGRICULTURE

WS

Water-soluble

Packaging and storage:



bags



AQUADROP fertilisers are not recommended for use in professional greenhouses due to their chloride content. Can be used in soil-based farm greenhouses.

Store in a dry insulated place, away from moisture and direct sunlight.

AQUADROP NPK

NPK 5:15:45, NPK 13:40:13, NPK 18:18:18, NPK 20:20:20

AQUADROP is a line of water-soluble complex fertilisers specially designed for fertigation of fruit and vegetable crops.

The line boasts a wide range of brands with optimal nutrient ratios to provide complete mineral nutrition throughout the growing season.

All AQUADROP products are suitable for drip irrigation systems.

	NPK 5:15:45	NPK 13:40:13	NPK 18:18:18	NPK 20:20:20
Appearance	white crystals			
Mass fraction of:				
– total nitrogen (N), %	5	13	18	20
– ammonium nitrogen	3	7.5	10.8	4
– nitrate nitrogen	-	-	7.2	-
– amide nitrogen	2	5.5	-	16
– water-soluble phosphates in terms of P_2O_5 , %	15	40	18	20
– water-soluble potassium in terms of K_2O , %	45	13	18	20
– insoluble residue, %	0.1	0.1	0.1	0.1
Friability, %	100	100	100	100





L

Liquid mineral
fertilisers

MINERAL FERTILISERS FOR AGRICULTURE

Packaging and storage:



canisters

Store in a dry insulated place, away from moisture
and direct sunlight.

Appearance	light-yellowish liquid
Mass fraction:	
– total nitrogen (N), %	5% (70 g/l)
– boron (B), %	11% (154 g/l)
Density, g/cm³	1.3 – 1.4
pH of 1% water solution, max	10*

* actual pH of 1% water solution is 8 – 9

L

Liquid

MicroSolar Liquid Boron

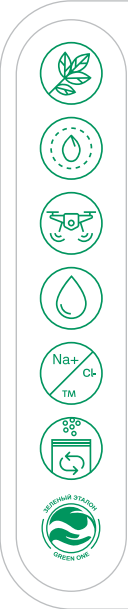
Applied to all crops during critical growth and development stages.

Supports normal functioning of the plants' conductive system; improves phosphorus uptake; participates in hydrocarbon metabolism; stimulates formation of and preserves flower buds; improves seed productivity; increases the content of sugars, starch, proteins, and oils in the produce; supports formation of root nodules in pulse crops.

Most effective on neutral, close-to-neutral, and mildly alkaline soils.

Can be used with pesticides and water-soluble fertilisers.

Especially effective on pulse crops, sunflower, cruciferous crops, sugar beet, potato, flax, maize and vegetable crops.



URALCHEM
GROUP





Packaging and storage:



Store in a dry insulated place, away from moisture and direct sunlight.

L Liquid

MicroSolar Liquid Zinc

Applied to all crops during critical growth and development stages.

Contains zinc in easily accessible chelated form (EDTA), which plays an important role in gaseous metabolism of plants.

Zinc regulates oxidation-reduction processes, and also activates a large number of enzymes.

Most effective on acid and carbonate soils.

Can be used with pesticides and water-soluble fertilisers.

Especially effective on pulse crops, sunflower, cruciferous crops, sugar beet, potato, flax, maize and vegetable crops.

Appearance	clear colourless liquid
Mass fraction:	
– total nitrogen (N), %	5% (67 g/l)
– zink (Zn*), %	6% (80 g/l)
– boron (B), %	0.2% (2.7 g/l)
Density, g/cm ³	1.3
pH of 1% water solution, max	11**

*in the chelate form of EDTA

** actual pH of 1% water solution is 7.2 – 7.8

L Liquid

MicroSolar Liquid Manganese

Applied to all crops during critical growth and development stages.

Contains manganese in easily accessible chelated form (EDTA), which is an essential participant of enzyme systems; takes part in oxidation-reduction processes (hydrocarbon and protein metabolism, photosynthesis, and respiration); increases the content of sugars, starch, and proteins in the produce; improves plants' resistance to draught and diseases.

Most effective on neutral, close-to-neutral, and mildly alkaline soils.

Can be used with pesticides and water-soluble fertilisers.

Especially effective on pulse crops, sunflower, cruciferous crops, sugar beet, potato, flax, maize and vegetable crops.

Packaging and storage:



Store in a dry insulated place, away from moisture and direct sunlight.

Appearance	dark red liquid
Mass fraction:	
– total nitrogen (N), %	4% (56 g/l)
– manganese (Mn*), %	6% (84 g/l)
Density, g/cm ³	10**
pH of 1% water solution, max	10

*in the chelate form of EDTA

** actual pH of 1% water solution is 5 – 6





F

Feed grade products

Packaging and storage:



bags

big bags

The feed quality and safety management system, including Good Manufacturing Practices (GMP), at the production facility is certified in accordance with the FAMI-QS code

Store in a dry insulated place, away from moisture and direct sunlight.

Feed-grade urea

An effective protein supplement to boost dairy production.

- replenishes dietary deficiency of crude protein
- improves absorption of nutrients by organisms
- increases milk yield and animal weight gain



Appearance	white or slightly coloured granules
Mass fraction of:	
– total nitrogen in terms of dry matter, %	46
– biuret, %	1
– free ammonia, %	0.03
– pH of 1% water solution	8 – 13
Particle size distribution, %:	
– sized 1-4 mm, %, min	94
– sized 2-4 mm, %, max	50
– sized under 1 mm, %, max	5
– sized over 6 mm	0
Mass fraction of:	
– fluorine, mg/kg, max	150
– arsenic, mg/kg, max	2
– lead, mg/kg, max	10
– cadmium, mg/kg, max	2
– mercury, mg/kg, max	0.1



MINERAL FERTILISERS FOR AGRICULTURE

F

Feed grade products

Packaging and storage:



bags



big bags

Store in a dry insulated place, away from moisture and direct sunlight.

Feed-grade monoammonium phosphate

An excellent source of phosphorus for nutrition enrichment and balancing. Phosphorus availability in this product is over 91%.

- boosts immunity
- increases milk yield and animal weight gain
- normalises metabolism
- improves meat quality

Appearance	white crystals
Mass fraction of:	
– phosphorus soluble in a 0.4% hydrochloric acid solution in terms of P ₂ O ₅ , %	61
– nitrogen soluble in 0.4% hydrochloric acid solution, %	12
– water, %, max	0.3
– pH of 1% water solution	4.5
Particle size distribution, %:	
– sized under 0.1 mm, %, min	90
– sized 4-7 mm, %, max	3
– sized over 7 mm, %	0
Mass fraction of:	
– fluorine, %, max	0.05
– arsenic, mg/kg, max	10
– lead, mg/kg, max	10
– cadmium, mg/kg, max	0.4
– mercury, mg/kg, max	0.1

MINERAL FERTILISERS FOR AGRICULTURE

F

Feed grade products

Packaging and storage:



bags



big bags

Store in a dry insulated place, away from moisture and direct sunlight.

Fodder salt

A balancing additive, which supports development of the musculoskeletal, muscle, and nervous systems. Also increases milk productivity of certain production animals.

- balances potassium-sodium ratio
- supports osmotic blood pressure and kidney function
- increases resistance to thermal stress

Appearance	white with a grey or pink shade crystalline product
Mass fraction of:	
– sodium chloride in terms of dry matter, %	97
– water, %	0.5
– insoluble residue, %	0.5
Particle size distribution, %	
– sized up to 1.2 mm, %, min	90
– sized over 2.5 mm, %, max	5



Packaging and storage:



bags



big bags

Store in a dry insulated place, away from moisture and direct sunlight.

Appearance	white with a grey or pink shade crystalline product
Mass fraction of:	
– potassium chloride, %	95.0 – 98.8
– sodium chloride, %	1.1 – 4.8
Typical content of particles sized under 2 mm, %	100
Mass fraction of:	
– arsenic, mg/kg, max	50.0
– lead, mg/kg, max	50.0
– cadmium, mg/kg, max	0.4
– mercury, mg/kg, max	0.1

F

Feed grade products

Potassium chloride

A food additive used in the production of pre-mixtures and compound feeds to replenish potassium deficiency.

- maintains normal osmotic pressure, affects tissue excitability
- promotes digestion and improves metabolism
- promotes intensive growth and development of poultry
- increases resistance to thermal stress



Services

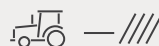
Agro-Consulting

- Agronomic competence programmes for customers and partners
- Customised nutrition programmes
- Development of new agricultural services
- Training programmes and educational projects



Agro-Support

- 24/7 consulting
- Data analytics
- Field tests
- Introduction of new agricultural technologies including drone-assisted fertilisation



Agro-Laboratory

- Various agrochemical analyses of biological components (soils, water, animal feeds, organic and mineral fertilisers)
- Microbiological analysis of biological components
- Detailed recommendations on nutrition programmes



Agro-Signal

- Agro-Signal is a major digital platform for agricultural companies. It currently covers over 8.5 million hectares of land in more than 60 regions of the Russian Federation.
- Improvement of productivity
- Optimisation of inventory utilisation through work planning and IoT sensor-aided monitoring
- Calculation of labour pay-outs based on actual performance
- Real-time monitoring of equipment usage
- Reduced human error and faster accounting
- Real-time monitoring and scouting of plantations
- Integration with agency-level digital systems



PRODUCTS FOR INDUSTRIAL CHEMISTRY



PRODUCTS FOR INDUSTRIAL CHEMISTRY

B	Base products
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LEGEND

-  Construction
-  Chemical industry
-  Mining
-  Fire-extinguishing equipment
-  Glass-making
-  Petroleum production
-  De-icing materials
-  Diesel exhaust treatment
-  Metalworking
-  Woodworking



B

Base products

PRODUCTS FOR INDUSTRIAL CHEMISTRY

B

Base products

Technical liquid ammonia

Technical liquid ammonia **Grade A** is used in the production of nitric acid and nitration processes, as a coolant, and in the creation of protective gas environments.

Grades Ak, B are used for the production of nitrogen fertilizers and as an independent fertilizer.

Packaging, transportation and storage:



tank cars

Transportation in tank cars and tanker lorries in accordance with applicable regulations.



URALCHEM GROUP

	Grade A	Grade Ak	Grade B
Mass fraction of:			
– ammonia, %	99.9	99.6	99.6
– nitrogen (N), %	-	82	82
– water (residue after evaporation), %	-	0.2 – 0.4	0.2 – 0.4
– water (by Fisher method), %	0.1	-	-
Mass concentration:			
– iron, max	1	1	2
– oil, max	2	2	8



Packaging, transportation and storage:



tank cars

Transported in tank cars and tanker lorries in accordance with applicable regulations.

Technical aqueous ammonia
(ammonia water)

Technical aqueous ammonia (a 20-25% ammonia water solution) is used in the pulp and paper industry in the pulp cooking process or in the neutralisation of organic acids in hydrolysis plants.

A key application area is treatment of feed water for power plants.

	Grade A
Mass fraction of:	
– ammonia, %	25
Mass concentration:	
– non-volatile residue, mg/dm ³	0.07

Packaging, transportation and storage:



bags



big bags



in bulk

Transportation by rail, road and water transport in accordance with applicable regulations.
Store in a dry insulated place.

	Grade A		Microprilled
	Premium grade	First grade	
Mass fraction of:			
– nitrogen in dry matter, %	46.3	46.2	46.2
– biuret, %	0.6	1.4	0.6
– free ammonia, %	0.02	0.03	0.02
Mass fraction of water:			
– hygroscopic, %	0.3	0.3	0.3
– total, %	0.6	0.6	0.5

Technical urea
CH₄N₂O

Urea is used in the production of plastics, adhesives, urea formaldehyde resins and the ADBLUE AUS 32 agent for treatment of diesel exhaust of industrial plants, vessels and vehicles.

For orders with extra purity requirements, urea can be supplied without anti-caking treatment.





PRODUCTS FOR INDUSTRIAL CHEMISTRY

Packaging, transportation and storage:



bags

big bags

in bulk

Transportation by rail, road and water transport
in accordance with applicable regulations.

Store in a dry insulated place.

B

Base products

Ammonium nitrate

GOST 2-2013

NH_4NO_3

Ammonium nitrate is used as the main oxidiser
in various types of industrial explosives.

Ammonium nitrate is used as a raw material
to produce emulsion explosives, which are prepared
directly at the sites of drilling and blasting operations
or at stationary plants to produce IE (industrial
explosives).

	Grade A	Grade B
Total mass fraction of:		
- nitrate and ammonium nitrogen in terms of NH_4NO_3 in dry matter, %, min	98	-
- nitrate and ammonium nitrogen in terms of nitrogen in dry matter, %, min	-	34.4
Mass fraction of:		
- hygroscopic water, %, max	0.3	0.5
- total water, %, max	0.6	-
- substances insoluble in 10% solution of nitric acid, %, max	0.2	-
- organic additive, %, max	-	0.15
- calcium and magnesium nitrates (in total) in terms of MgO in dry matter, %, max	-	0.6
Static strength of granules, N/gran (kgf/ granule)	5 (0.5)	3(0.3)
pH of a water solution of ammonium nitrate with a mass fraction of 10%	5.0	4.5
Particle size distribution, %		
Mass fraction of granules		
- sized 1-3 mm, min	93	90
- sized 1-4 mm, min	-	-
- sized 2-4 mm, min	-	-
- sized under 1 mm, max	4	10
- sized over 6 mm, %	0	0
Friability, %	100	100

PRODUCTS FOR INDUSTRIAL CHEMISTRY

B

Base products

Grade FWRG water-resistant
ammonium nitrate

NH_4NO_3

The Grade FWRG water-resistant ammonium nitrate is
used in the production of industrial explosive mixtures
for waterflooded rock applications.

Packaging, transportation and storage:



bags

Transportation by rail, road and water transport
in accordance with applicable regulations.

Store in a dry insulated place.

Mass fraction of:	
- ammonium nitrate in terms of dry matter, %	99
- water, %	0.8
- fatty acids and paraffin in the 1:1 ratio, %	0.2 – 0.4
- iron, %	0.06 – 0.09
Acidity in terms of HNO_3 , %	0.01
Water resistance measured with a hydrodynamic tool, Pa (cm of water column)	2451.7 (25)
Mechanical strength of granules (kg/granule), min	0.4
Particle size distribution, %	
Mass fraction of granules, mm	
- sized 1-3 mm, min	94
Friability, %	100





PRODUCTS FOR INDUSTRIAL CHEMISTRY

B

Base products

Packaging, transportation and storage:



bags

Transportation by rail, road and water transport in accordance with applicable regulations.

Store in a dry insulated place.

Porous modified ammonium nitrate



Porous modified ammonium nitrate is used in the production of the ANFO industrial explosive, which is typically used for 127 mm wells.

Mass fraction of:	
– ammonium nitrate in terms of NH_4NO_3 , %	98
– water, %	0.5
– pore-forming additive in terms of MgO in dry matter, %	0.6
– organic additive, %	0,15
pH of a water solution of ammonium nitrate with a mass fraction of 10%	4.5
Static strength of granules, N/granule (kg/granule), min	3 (0.3)
Absorption capacity in relation to diesel fuel, % min	10
Retentivity in relation to diesel fuel, % max	5.5
Bulk density, g/cm ³ , max	0.84
Particle size distribution, %	
Mass fraction of granules, mm	
– sized 1-3 mm, %, min	90
– sized under 1 mm and over 3 mm, %, total max	10
Friability, %	100



PRODUCTS FOR INDUSTRIAL CHEMISTRY

B

Base products

Packaging, transportation and storage:



big bags

in bulk

Transportation by rail, road and water transport in accordance with applicable regulations.

Store in a dry insulated place.

Technical potassium chloride



Technical Potassium chloride has many industrial applications but is mainly used in the production of chemical products.

	Grade A	Grade B
Guaranteed values		
Mass fraction of:		
– potassium chloride, %, min	98,2	98,2
– potassium chloride in terms of K_2O , %, min	62	62
– sodium chloride, %, max	1.3	1.6
– mass fraction of water, %	0.5	0.5
Typical values		
Mass fraction of:		
– water-insoluble residue, CaSO_4 , $\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$, %	0.2	0.2
– amines, %	0,02	-





PRODUCTS FOR INDUSTRIAL CHEMISTRY

Packaging, transportation and storage:



big bags

Transportation by rail, road and water transport in accordance with applicable regulations.
Store in a dry insulated place.

Mass fraction of:	
– potassium chloride, %	95
– water, %	0.5
Friability, %	100

B

Base products

Potassium chloride
for oil & gas applications

KCl
Potassium chloride for the oil & gas sector is used in the production of drilling fluids, killing fluids, additives for grouting mixtures, and fluids for hydraulic fracturing.



S

Specialty
products





PRODUCTS FOR INDUSTRIAL CHEMISTRY

S

Specialty products

Packaging, transportation and storage:

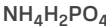


bags

Transportation by rail, road and water transport in accordance with applicable regulations.

Store in a dry insulated place.

Technical water-soluble Monoammonium phosphate



Technical water-soluble monoammonium phosphate is a versatile flame retardant.

In particular, it is used as a water-soluble agent for fireproofing of wood, wooden boards, plywood, and fabric. MAP can be successfully used in extinguishing fires of classes A, B, C and E. It is also used in the production of matches as a flame retardant agent.

As MAP does not contain any insoluble impurities, it dissolves completely and is better absorbed by target materials like fabric, plywood or wood.

MAP is used as a component in the production of lithium-iron-phosphate batteries (LiFePO₄, LFP), including for electric vehicles.

Mass fraction of:

– monoammonium phosphate, %	99
– water, %	0.3
– water-insoluble residue, %	0.1

PRODUCTS FOR INDUSTRIAL CHEMISTRY

S

Specialty products

Packaging, transportation and storage:



bags

Transportation by rail, road and water transport in accordance with applicable regulations.

Store in a dry insulated place.

Technical potassium nitrate



Technical potassium nitrate is widely used in glass-making due to its high chemical purity and very low content of chlorides, sulphates and insoluble impurities.

Nitrate of potassium is used in the processes of producing colored explosives.

Mass fraction of:

– potassium nitrate, %	99.85
– water, %	0.2
– chloride salts in terms of NaCl, %	0.03
– water-insoluble residue in dry matter, %	0.03
– substances oxidised by potassium permanganate in terms of KNO ₂ , %	0.01
– calcium and magnesium salts in terms of Ca, %	0.02
– iron, %	0.005



Anhydrous calcium nitrate



Anhydrous calcium nitrate is widely used in various industries.

The product is often used in the oil and gas sector. During well work-overs, killing fluids are used, which create back pressure inside the well and plug it. Calcium nitrate allows killing fluids to be made with different density levels and therefore be used for a wide range of formation pressure values. An important advantage of calcium nitrate is that it does not cause clogging of the bottomhole area in a productive formation, which prevents adverse impacts on the well flow rate.

As an element of multi-purpose additives, calcium nitrate is used in concrete production: it reduces the freezing point, accelerates strength development of cold and hot concrete, increases water resistance, reduces efflorescence and ensures flat surface finishes.

Calcium nitrate can also be used in external finishing works, in the creation of foundations, construction of transport infrastructure and production of de-icing agents for airports.

Packaging, transportation and storage:



bags

big bags

Transportation by rail, road and water transport in accordance with applicable regulations.

Store in a dry insulated place.

Mass fraction of:	
– calcium nitrate, %	96
– water, %	3
– ammonium nitrogen, %	0.3*
Static strength of granules, MPa (kgf/cm ²), min	2.0 (20)
Particle size distribution, %	
Mass fraction of granules, mm	
– sized under 1 mm, %, max	10
– sized 1-5 mm, %, min	85
– sized under 6.3 mm, %	100
Friability, %	100

* Under an agreement with customers, mass fraction of ammonium nitrogen in terms of nitrogen can be limited to 0.1%

Sodium nitrate



Sodium nitrate is used as a component of complex additives to reduce the freezing point of concrete slurries in construction.

Sodium nitrate also accelerates the strength development of the slurry and improves the quality of precast concrete structures. An important quality of sodium nitrate in the construction applications is its ability to inhibit corrosion of rebars. Sodium nitrate can also be used for external and internal finishing works. In glass-making, sodium nitrate improves optical properties of glass. As a strong oxidising agent, sodium nitrate is widely used as an additional oxidiser in the production of emulsion explosives and pyrotechnic products. In metalworking, sodium nitrate is used in the preparation of fluxes for soldering and welding of metals, and in etching and melting.

Packaging, transportation and storage:



bags

Transportation by rail, road and water transport in accordance with applicable regulations.

Store in a dry insulated place.

	Grade A	Grade B
Mass fraction of:		
– sodium nitrate, %	99.8	99.5
– water, %	0.5	0.5
– water-insoluble substances, %	0.03	0.03
– chloride salts in terms of NaCl, %	0.15	0.3
– oxidisable substances in terms of NaNO ₂ , %	0.010	0.2
– iron in terms of Fe ₂ O ₃ , %	0.001	-
– chromium in terms of Cr ₂ O ₃ , %	0.0001	-



PRODUCTS FOR INDUSTRIAL CHEMISTRY

Packaging, transportation and storage:



bags

Transportation by rail, road and water transport in accordance with applicable regulations.
Store in a dry insulated place.

S Specialty products

Sodium nitrite
NaNO₂

Sodium nitrite is used as a gas generating additive in emulsion explosives, as a component in metalworking, and as an oxidising agent in well yield enhancement processes in the oil and gas sector. In construction, sodium nitrite is used as an anti-freeze additive.

Mass fraction of:	
– sodium nitrite (NaNO ₂), %	98.5
– sodium nitrate (NaNO ₃), %	1.0
– sodium chloride (NaCl), %	0.17
– water-insoluble residue, %	0.03
– water, %	1.4



A
Acids





Packaging, transportation and storage:



tank cars

Transportation by railroad in special aluminium tanks in accordance applicable regulations.

Concentrated nitric acid (98%)

HNO₃

Grade A is used in the production of electronic and radio products, in the nitration of organic compounds, in the production of explosives, in the chemical processing of metals and in other applications.

Grade B is used for galvanic operations, in the production of chemicals, and in the dissolution of impurities in industrial products.

	Grade A	Grade B
--	---------	---------

Mass fraction of:

- | | | |
|--|-------|-------|
| - nitric acid, %, min | 98.6 | 97.5 |
| - sulphuric acid, %, max | 0.05 | 0.06 |
| - nitrogen oxides (N ₂ O ₄), %, max | 0.2 | 0.3 |
| - residue after calcination, %, max | 0.014 | 0.025 |



Packaging, transportation and storage:



tank cars

Transportation by railroad in special steel tanks in accordance applicable regulations.

Special nitric acid (75%)

HNO₃

Used in the production of nitro compounds and in the processing of fuel elements of nuclear reactors.

	Premium grade	First grade
--	---------------	-------------

Mass fraction of:

- | | | |
|-------------------------------------|--------|--------|
| - nitric acid, %, min | 72 | 70 |
| - chlorides, %, max | 0.0003 | 0.0004 |
| - iron, %, max | 0.0005 | 0.001 |
| - nitrogen oxides, %, max | 0.1 | 0.2 |
| - residue after calcination, %, max | 0.005 | 0.01 |



PRODUCTS FOR INDUSTRIAL CHEMISTRY

Packaging, transportation and storage:



tank cars

Transportation by railroad in special steel tanks in accordance applicable regulations.

A

Acids

Non-concentrated nitric acid (57%)



Used in the production of ammonium nitrate, complex fertilisers, in metal etching, and in acid washing of equipment.

	Premium grade	Grade 1	Grade 2
Mass fraction of:			
– nitric acid, %, min	57	56	46
– itrogen oxides (in terms of N_2O_4), %, max	0.07	0.10	0.20
– residue after calcination, %, max	0.004	0.020	0.050

PRODUCTS FOR INDUSTRIAL CHEMISTRY

Packaging, transportation and storage:



tank cars

Transportation by rail and road transport in rubber-lined or other special tanks in accordance with applicable regulations.

A

Acids

Phosphoric acid extractive



Used in the production of concentrated fertilisers, technical and feed grade phosphates.

Mass fraction of:	
– H_3PO_4 in the liquid clarified phase in terms of P_2O_5 , %	52
– sulphate sulphur in terms of SO_3 , %	3.0
– residue, %	5
– arsenic (As), %	0.004





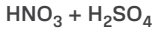
Packaging, transportation and storage:



tank cars

Transported by rail in specialised tank cars in line with applicable transportation regulations.

Acid melange



Used in the production of nitrating mixtures, semi-finished products, and synthetic colourants.

	Highest grade	First grade
Mass fraction:		
– nitric acid, % min	90	89.3
– sulphuric acid, % min	7.5	7.5
– nitrogen oxides (N_2O_4), % max	0.3	0.3
– ignition residue, % max	0.02	0.04



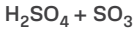
Packaging, transportation and storage:



tank cars

Transported by rail in specialised thermally insulated or heated tank cars in line with applicable transportation regulations.

Oleum



Used in the production of explosives, synthetic materials, and aniline colourants, and also in organic synthesis and petrochemical processes.

	Improved grade	Technical grade
Mass fraction:		
– free sulphur trioxide (SO_3), % min	24	19
– iron (Fe), % max	0.006	-
– nitrogen oxides (N_2O_3), % max	0.0002	-
– lead (Pb), % max	0.0001	-
– arsenic (As), % max	0.00008	-
– ignition residue, % max	0.02	-



Other
products

Packaging, transportation and storage:



tanker trucks

Liquid carbon dioxide is a cryogenic liquid and is filled into specialised tanker lorries. Transportation by motor roads in special isothermal tankers designed for pressurised liquid gases.

Carbon dioxide
CO₂

Liquid carbon dioxide is used in the food industry for carbonation of beverages and as a process gas, in mechanical engineering as a component of welding gas mixtures, and also in oil production to enhance oil recovery.



Volume fraction of carbon dioxide, %, min	99.8
Mass concentration of:	
– mineral oils, mg/kg	0.1
– water vapour at 20 °C g/m ³	0.037





PRODUCTS FOR INDUSTRIAL CHEMISTRY

Packaging, transportation and storage:



tank cars

Transportation airtight containers by rail and road transport in accordance with applicable regulations.

0

Other products

Urea formaldehyde concentrate

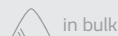
UFC-85

Urea formaldehyde concentrate is used in woodworking in the synthesis of urea formaldehyde resins, in the production of foundry resins

	Grade UFC-85/i	Grade UFC-85
Mass fraction of:		
– total urea, %	24 – 25.5	24 – 25.5
– total formaldehyde, %	59 – 60.5	59 – 60.5
– dry residue, %	0.3	0.3
– methanol, %	0.3	0.3
– methylol groups, %	10	10
Formaldehyde / urea molar ratio	4.6 – 5	4.6 – 5
Colour on the APHA scale at 2-25 °C	40	40
Content of uronic derivatives, %	10	10
Concentration of hydrogen ions at 20 °C, pH units	7 – 9.0	7 – 9.0
Buffer capacity, ml, max	12	18

PRODUCTS FOR INDUSTRIAL CHEMISTRY

Packaging, transportation and storage:



in bulk

Transportation by rail, road and water transport in accordance with applicable regulations.

Store in a dry insulated place.

Mass fraction of:

– magnesium chloride, %	31.5
– sulphates in terms of calcium sulphate, %	0.05
– hygroscopic water, %	3.3

Typical values

Mass fraction of:

– potassium chloride, %	25.3
– sodium chloride, %	5.3

0

Other products

Enriched carnallite

Carnallite is used in the production of metallic magnesium.





PRODUCTS FOR INDUSTRIAL CHEMISTRY

Packaging, transportation and storage:



 big bags

 in bulk

Transportation by rail, road and water transport
in accordance with applicable regulations.

Store in a dry insulated place.

0

Other products

Halite mineral concentrate

Halite is used as a de-icing material for roads
and streets, as an oil well killing agent, in chemical
water treatment systems in recirculation heating
and in other industrial applications.

	Grade A	Grade B	Grade M
Guaranteed values			
Mass fraction of:			
– sodium chloride, %	97.0	93.0	95.0
Typical values			
Mass fraction of:			
– calcium sulphate, %	2.0	3.3	2.0
– magnesium sulphate, %	0.4	0.3	0.2
– potassium chloride, %	0.8	2.7	2.2
– water-insoluble residue, %	1.0	2.0	1.2
Particle size distribution, %			
Mass fraction of granules, mm:			
– under 1.0 mm, %, min	-	-	75
– sized under 2.5 mm, %,	85	-	75
– sized over 2,5 mm, %, max	-	-	5
– sized under 4,5 mm, %, max	-	85	5
– sized over 4.5 mm, %, max	10	15	-



PRODUCTS FOR INDUSTRIAL CHEMISTRY

Packaging, transportation and storage:



 canisters

Supplied in 20 litre cans (20LG101), in special
polymer IBCs and in bulk in tanks.

Transportation by rail, road and water transport
in accordance with applicable regulations.

Store in original containers in indoor warehouses,
away from moisture and direct sunlight
at temperatures from –5 °C to 25 °C.

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Other products

ADBLUE® NOx Reduction Agent
AUS 32

The product effectively lowers the concentration
of nitrogen oxides in emissions from diesel vehicles.

The solution is consumed in selective catalyst
reduction (SCR) of nitrogen oxides in diesel exhaust.

Mass fraction of:	
– urea, %	31.8 – 33.2
– biuret, %	≤ 0.3
Density at 20 °C, kg/m ³	
Refractive index at 20 °C	1.3814 – 1.3843
Alkalinity (in terms of free ammonia NH ₃), %	≤ 0.2
Mass concentration, mg/kg:	
– aldehydes, mg/kg	≤ 5
– insoluble residue, mg/kg	≤ 20
– phosphates (PO ₄), mg/kg	≤ 0.5
– calcium, mg/kg	≤ 0.5
– iron, mg/kg	≤ 0.5
– copper, mg/kg	≤ 0.2
– zinc, mg/kg	≤ 0.2
– chromium, mg/kg	≤ 0.2
– nickel, mg/kg	≤ 0.2
– aluminium, mg/kg	≤ 0.5
– magnesium, mg/kg	≤ 0.5
– sodium, mg/kg	≤ 0.5
– potassium, mg/kg	≤ 0.5



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