

**On approval of the natural norms of chemical reagents, laboratory glassware and field equipment during the monitoring and assessment of the ameliorative state of irrigated lands**

*Invalidated Unofficial translation*

Order of the Deputy Prime Minister of the Republic of Kazakhstan - Minister of Agriculture of the Republic of Kazakhstan dated December 25, 2017 № 513. Registered with the Ministry of Justice of the Republic of Kazakhstan on January 17, 2018 № 16243. Abrogated by the order of the Acting Minister of Water Resources and Irrigation of the Republic of Kazakhstan dated July 31, 2025 № 190-NK.

**Unofficial translation**

Footnote. Abrogated by the order of the Acting Minister of Water Resources and Irrigation of the Republic of Kazakhstan dated 31.07.2025 № 190-NK (effective ten calendar days after the date of its first official publication).

In accordance with paragraph 2 of Article 69 of the Budget Code of the Republic of Kazakhstan dated December 4, 2008 **I ORDER:**

1. To approve the attached natural norms of chemical reagents, laboratory glassware and field equipment during monitoring and assessment of the ameliorative state of irrigated lands.

2. The committee on water resources of the Ministry of Agriculture of the Republic of Kazakhstan, in accordance with the procedure established by legislation, shall ensure:

1) state registration of this order at the Ministry of Justice of the Republic of Kazakhstan;

2) within ten calendar days from the date of state registration of this order sending its copy on paper and electronic form in the Kazakh and Russian languages to the Republican state enterprise on the right of economic management "Republican Center for Legal Information" for official publication and inclusion into the Standard control bank of regulatory legal acts of the Republic of Kazakhstan;

3) within ten calendar days after the state registration of this order, sending its copy for official publication in periodicals;

4) placement of this order on the Internet resource of the Ministry of Agriculture of the Republic of Kazakhstan;

5) within ten working days after the state registration of this order, submission of information about implementation of measures provided for in subparagraphs 1), 2), 3)

and 4) of this paragraph to the Legal department of the Ministry of Agriculture of the Republic of Kazakhstan.

3. Control over implementation of this order shall be entrusted to the supervising Vice-Minister of agriculture of the Republic of Kazakhstan.

4. This order shall be enforced upon expiry of ten calendar days after its first official publication.

*Deputy Prime-Minister  
of the Republic of Kazakhstan  
- Minister of Agriculture  
of the Republic of Kazakhstan*

*U. Shukeyev*

"AGREED"

Minister of Finance  
of the Republic of Kazakhstan

\_\_\_\_\_ B. Sultanov

dated December 28, 2017

Approved by the order  
of the Deputy Prime-Minister  
of the Republic of Kazakhstan -  
Minister of Agriculture  
of the Republic of Kazakhstan  
dated December 25, 2017 № 513

**Natural standards of chemical reagents, laboratory utensils and field equipment during monitoring and assessment of irrigated land reclamation condition**

**Footnote. Natural standards- in the wording of the order of the Minister of Agriculture of the Republic of Kazakhstan dated 21.01.2021 № 18 (shall enter into force upon expiry of ten calendar days after the day of its first official publication).**

№r/n	Natural standard name	Unit of measurement	Standard in quantitative terms	Service life, year	Areas of application	Distribution area	Characteristics specifying the definition and application of natural standards
1	2	3	4	5	6	7	8
Section 1. Standards of chemical reagents for 1 abbreviated chemical analysis							
Subsection 1. Laboratory analysis of groundwater							
							chemically pure, ammon

1	Chloride of ammonia	gram	0, 10	1	to define magnesium	ium chloride, infusion
2	Ammonia aqueous	milliliter	0, 50	1	to define magnesium	25% solution, special purity, (r = 0.8), packing 1 liter (hereinafter referred to as l), ammonium hydroxide, synthetic alcohol
3	Cationite KU-2	gram	0, 50	1	to determine sulphates	chemically pure
4	Potassium chromate	gram	0, 10	1	to determine chlorine	chemically pure, potassium chromate
5	Potassium chloride	milliliter	0, 25	1	to determine the hydrogen index	3 molar solution free of silver ions for silver chloride electrode
						chemically pure, packing 0.5

6	Potassium permanganate	gram	0, 50	1	for washing utensils	Republican State Institution "Zone Hydrogeological and Reclamation Center" of the Ministry of Agriculture of the Republic of Kazakhstan (hereinafter referred to as ZHGRC)	kilograms (hereinafter referred to as kg)
7	Methylorange (indicator)	gram	0, 01 0, 01	1	for the determination of sulphates for the determination of carbonates and bicarbonates	Republican State Institution "South Kazakhstan Hydrogeological and Reclamation Expedition" of the Ministry of Agriculture of the Republic of Kazakhstan (hereinafter referred to as SKHGRE)	heliantine, acid orange
8	Murexide (indicator)	gram	0, 01	1	to determine calcium	Republican State Institution "Kyzylorda Hydrogeological and Reclamation Expedition" of the Ministry of Agriculture of the Republic of Kazakhstan (hereinafter referred to as KHGRE)	ammonium purpurate
9	Sodium hydroxide	gram	0, 48	1	to determine calcium	Republican State Institution "Kyzylorda Hydrogeological and Reclamation Expedition" of the Ministry of Agriculture of the Republic of Kazakhstan (hereinafter referred to as KHGRE)	chemically pure, caustic alkali
10	Sodium chloride	gram	0, 125 0, 125	1	to determine calcium for the definition of magnesium	Republican State Institution "Kyzylorda Hydrogeological and Reclamation Expedition" of the Ministry of Agriculture of the Republic of Kazakhstan (hereinafter referred to as KHGRE)	chemically pure, table salt, galite, sodium chloride
11	Hydrochloric acid	milliliter	0, 11	1	to determine sulphates	Republican State Institution "Kyzylorda Hydrogeological and Reclamation Expedition" of the Ministry of Agriculture of the Republic of Kazakhstan (hereinafter referred to as KHGRE)	chemically pure hydrochloric acid, (r = 1,180 ... 1,185)
12	Caustic silver	gram	0, 02	1	to determine chlorine	Republican State Institution "Kyzylorda Hydrogeological and Reclamation Expedition" of the Ministry of Agriculture of the Republic of Kazakhstan (hereinafter referred to as KHGRE)	chemically pure, silver nitrate
13	Sulphuric acid	milliliter	0, 10	1	for washing utensils	Republican State Institution "Kyzylorda Hydrogeological and Reclamation Expedition" of the Ministry of Agriculture of the Republic of Kazakhstan (hereinafter referred to as KHGRE)	chemically pure, (r = 1,75)
	Standard - hydroc						normality of

14	hloric acid titer	milliliter	0,48	1	to determine carbonates and bicarbonates	solutio n 0.1
15	Standar d - sodium hydroxi de titer	milliliter	1,20	1	to determine calcium	normali ty of solutio n 0,1
16	Standar d - sodium chlorid e titer	milliliter	0,48	1	to determine chlorine	normali ty of solutio n 0,1
17	Standar d - Trilon B titer	gram	0, 060, 06	1	to determine calcium for the definition of magnesium	normali ty of solutio n 0,1
18	Standar d - buffer solutio n titer pH 4	milliliter	0, 50	1	to determine the hydrogen index	pH 4
19	Standar d - buffer solutio n titer pH 7	milliliter	0, 50	1	to determine the hydrogen index	pH 7
20	Standar d - buffer solutio n titer pH 10	milliliter	0,50	1	to determine the hydrogen index	pH 10
21	Ethyl alcohol	milliliter	0, 07	1	to determine carbonates and bicarbonates	particul arly pure, 70%
22	Phenol phthale in	gram	0, 01	1	to determine carbonates and bicarbonates	chemic ally pure, purgen
23	Eriochr ome black ( indicator)	gram	0, 01	1	to define magnesium	chemic ally pure, chromo gen black ET-00

Subsection 2. Laboratory analysis of surface water

24	Ammonium chloride	gram	0, 10	1	to define magnesium	chemically pure, ammonium chloride, infusion
25	Аммиак водный	milliliter	0, 50	1	to define magnesium	25% solution, special purity, (r = 0.8), packaging 1 l ammonium hydroxide, butler alcohol
26	Cationite KU-2	gram	0, 50	1	to determine sulphates	chemically pure
27	Potassium chromic acid	gram	0, 10	1	to determine chlorine	chemically pure, potassium chromate
28	Potassium chloride	milliliter	0, 25	1	to determine the hydrogen index	3 molar solution free of silver ions for silver chloride electrode
29	Potassium permanganate	gram	0, 50	1	for washing utensils	chemically pure, packaging 0.5 kg

30	Methyl orange (indicator)	gram	0,010, 01	1	for the determination of sulphates for the determination of carbonates and bicarbonates		heliantine, acid orange
31	Murexide (indicator)	gram	0,01	1	to determine calcium		ammonium purpurate
32	Sodium hydroxide	gram	0,48	1	to determine calcium		chemically pure, caustic alkali
33	Sodium chloride	gram	0,125 0,125	1	to determine magnesium calcium	ZHGRC, SKHGRE, KHGRE	chemically pure, table salt, galite, sodium chloride
34	hydrochloric acid	milliliter	0,11	1	to determine sulphates		chemically pure hydrochloric acid, (r = 1.180 ... 1.185)
35	Nitric acid silver	gram	0,02	1	to determine chlorine		chemically pure, silver nitrate
36	Sulphuric acid	milliliter	0,10	1	for washing utensils		chemically pure (r = 1.75)
37	Standard - hydrochloric acid titer	milliliter	0,48	1	to determine carbonates and bicarbonates		normality of solution 0,1
38	Standard - sodium hydroxide titer	milliliter	1,20	1	to determine calcium		normality of solution 0,1

39	Standard - sodium chloride titer	milliliter	0,48	1	to determine chlorine	normality of solution 0,1
40	Standard - Trilon B titer	gram	0,060,06	1	to determine calcium for the definition of magnesium	normality of solution 0,1
41	Standard - buffer solution titer pH 4	milliliter	0,50	1	to determine the hydrogen index	pH 4
42	Standard - buffer solution titer pH 7	milliliter	0,50	1	to determine the hydrogen index	pH 7
43	Standard - buffer solution titer pH 10	milliliter	0,50	1	to determine the hydrogen index	pH 10
44	Ethyl alcohol	milliliter	0,07	1	to determine carbonates and bicarbonates	particularly pure, 70%
45	Phenolphthalein	gram	0,01	1	to determine carbonates and bicarbonates	chemically pure, purgen
46	Eriochrome black (indicator)	gram	0,01	1	to define magnesium	chemically pure, chromogen black ET-00
Subsection 3. Laboratory analysis of soil						
47	Ammonium chloride	gram	0,10	1	to define magnesium	chemically pure, ammonium chloride

						e , infusio n
48	Ammonia aqueous	milliliter	0, 50	1	to define magnesium	25% solutio n , special purity, (r = 0.8 ), packin g 1 ammon ium hydroxi de, saturate d alcohol
49	Cationi te KU- 2	gram	0, 50	1	to determine sulphates	chemic ally pure
50	Potassi um chromi c acid	gram	0, 10	1	to determine chlorine	chemic ally pure, potassi um chroma te
51	Potassi um chlorid e	milliliter	0, 25	1	to determine the hydrogen index	3 molar solutio ns free of silver ions for silver chlorid e electro de
52	Potassi um perman ganate	gram	0, 50	1	for washing utensils	chemic ally pure, packin g 0.5 kg
53	Methyl orange ( indicat or)	gram	0, 01 0, 01	1	for the determination of carbonates and bicarbonates	helianti ne, acid orange

54	Murexide (indicator)	gram	0,01	1	to determine calcium		ammonium purpurate
55	Sodium hydroxide	gram	0,48	1	to determine calcium		chemically pure, caustic alkali
56	Sodium chloride	gram	0,125 0,125	1	to determine magnesium calcium	ZHGRC, SKHGRE, KHGRE	chemically pure, table salt, galite, sodium chloride
57	Hydrochloric acid	milliliter	0,11	1	to determine sulphates		chemically pure hydrochloric acid, (r = 1.180 ... 1.185)
58	Nitric acid silver	gram	0,02	1	to determine chlorine		chemically pure, silver nitrate
59	Sulphuric acid	milliliter	0,10	1	for washing utensils		chemically pure (r = 1.75)
60	Standard - hydrochloric acid titer	milliliter	0,48	1	to determine carbonates and bicarbonates		normality of solution 0,1
61	Standard - sodium hydroxide titer	milliliter	1,20	1	to determine calcium		normality of solution 0,1
62	Standard - sodium chloride titer	milliliter	0,48	1	to determine chlorine		normality of solution 0,1

63	Standard - Trilon B titer	gram	0,060,06	1		to determine magnesium calcium	normality of solution 0,1
64	Standard - buffer solution titer pH 4	milliliter	0,50	1		to determine the hydrogen index	pH 4
65	Standard - buffer solution titer pH 7	milliliter	0,50	1		to determine the hydrogen index	pH 7
66	Standard - buffer solution titer pH 10	milliliter	0,50	1		to determine the hydrogen index	pH 10
67	Ethyl alcohol	milliliter	0,07	1		to determine carbonates and bicarbonates	particularly pure, 70%
68	Phenolphthalein	gram	0,01	1		to determine carbonates and bicarbonates	chemically pure, purgen
69	Eriochrome black (indicator)	gram	0,01	1		to define magnesium	chemically pure, chromogen black ET-00

Section 2. Standards of laboratory utensils for laboratory tests per 1000 conditional tests

1	Bottle	piece	1		2	to collect distilled water	glass with plastic lid, volume 50,000 milliliters (hereinafter referred to as ml)
2	Burette	piece	2		2	for liquid titration	glass with division, 25 ml
							glass, outer diameter 100

3	Funnel B-100-150-XC	piece	2	2	for liquid transfusion	millimeters (hereinafter referred to as mm), total height 150 mm
4	Funnel V-100-200-KhS	piece	2	2	for liquid transfusion	glass, outer diameter 100 mm in, total height 200 mm
5	Funnel B-150-230-XC	piece	2	2	for liquid transfusion	glass, outer diameter 150 mm, total height 230 mm
6	Funnel dividing, VD-3-500-KhS	piece	6	2	for cleaning from various substances	glass, 500 ml
7	Rubber pear, 50	piece	1	2	for fast and safe dosing of liquid media	rubber, soft tip, 50 ml
8	Rubber pear, 100	piece	1	2	for fast and safe dosing of liquid media	rubber, with soft tip, 100 ml
9	Glass flask, 250	piece	12	2	for storage, mixing and reaction between liquids	glass, heat-resistant, flat-bottomed with a long throat, 250 ml
10	Glass flask, 500	piece	12	2	for storage, mixing and reaction between liquids	glass, heat-resistant, flat-bottomed with a long throat, 500 ml

11	Erlenmeyer glass flask, 50	piece	20	2	for titration, heating of chemical liquids	glass, heat-resistant, flat-bottomed with wide throat, 50 ml
12	Erlenmeyer glass flask, 100	piece	25	2	for titration, heating of chemical liquids	glass, heat-resistant, flat-bottomed with wide throat, 100 ml
13	Erlenmeyer glass flask, 250	piece	35	2	for titration, heating of chemical liquids	glass, heat-resistant, flat-bottomed with wide throat, 250 ml
14	Porcelain mug	piece	5	2	for storage and mixing of acidic, alkaline and neutral liquid	porcelain with spout, 500 ml
15	Glass stick	piece	2	2	for mixing liquids	glass, diameter 7 mm, length 300 mm
16	Glass pipette, 5	piece	2	2	for accurate measurement of certain volumes of liquid	glass measuring, 5 ml, fission price 0.1 ml
					for accurate measurement	

17	Glass pipette, 10	piece	2	2	of certain volumes of liquid	ZHGRC, SKHGRE, KHGRE	glass measuring, 10 ml, fission price 0.1 ml
18	Glass pipette, 25	piece	2	2	for accurate measurement of certain volumes of liquid		glass measuring, 25 ml, fission price 0.2 ml
19	Glass pipette, 100	piece	2	2	to measure certain volumes of liquid		glass, 100 ml, without division
20	A glass B-1-50	piece	2	2	for preparation of solutions, heating, measurement of liquids		glass, tall, with spout and with one mark, 50 ml
21	A glass V-1-100	piece	2	2	for preparation of solutions, heating, measurement of liquids		glass, high, with spout and with one mark, 100 ml
22	A glass B-1-250	piece	2	2	for preparation of solutions, heating, measurement		glass, tall, with spout and with

					o f liquids	one mark, 250 ml
23	A glass H-1-1000	piece	2	2	for preparation of solutions, heating, measurement of liquids	glass, high, with spout and with one mark, 1000 ml
24	A glass B-1-2000	piece	2	2	for preparation of solutions, heating, measurement of liquids	glass, tall, with spout and with one mark, 2000 ml
25	Mortar with pestle	piece	2	2	for grinding and thorough mixing of solids	porcelain, 500 ml, pestle length 14 centimeters (hereinafter referred to as sm),
26	Cylinder 3-50-2	piece	2	2	to measure a certain volume of liquid and store it	glass, three-dimensional with spout, 50 ml, 2nd class accuracy
27	Cylinder 3-100-2	piece	2	2	to measure a certain volume of liquid and store it	glass, three-dimensional with spout, 100 ml, 2nd class accuracy
					to measur	

28	Cylinder 3-250-2	piece	2	2	to measure a certain volume of liquid and store it	glass, 3-D with spout, 250 ml, 2nd class precision
29	Cylinder 1-500-2	piece	2	2	to measure a certain volume of liquid	glass, one-dimensional with spout, 500 ml, 2nd class accuracy
30	Cylinder 1-1000-2	piece	2	2	to measure a certain volume of liquid	glass, one-dimensional with spout, 1000 ml, 2nd class accuracy
31	Washing bottle	piece	2	2	for washing laboratory utensils	glass, with glass nozzle, capacity 250 ml
32	Drip	piece	2	2	for dosing indicators and other solutions	glass with pipette, 20 ml
33	Desalted "White ribbon" filter	piece	100	2	for separation of coarse precipitation	paper, diameter 18sm, medium filtration
34	Desalted filter "Blue ribbon"	piece	100	2	for separation of fine sediment	paper, diameter 18sm, slow filtration
35	Filter paper	packing	1	2	for filtration of liquids	paper

Section 3. Position standards of field equipment

Subsection 1. Common use (for 1 field brigade)

1	Tent for 4 people	piece	1	4	for protection against adverse weather conditions, temporary accommodation of workers in the field	waterproof with anti-mosquito filter, frame of dismountable alloy tubes, tent dimensions at least 220 * 285 * 235sm
2	Set of folding furniture	set	1	4	for household needs	table and 4 chairs made of low-melting material, disassembled in the case
3	Gas stove	piece	1	4	for field cooking	2- confluent, complete with 5 l gas cylinder, field
4	Roulette	piece	1	2	for measurements of linear dimensions of objects in the field	stainless steel tape, with a division price of 1 cm, on the drum, with a handle up to 30 meters long ( hereinafter referred to as m)
5	Flashlight	piece	1	2	for field lighting	portable battery, moisture-resistant, LED, type of charge from the network
6	Soldering lamp	piece	1	1	for household needs	nozzle type lamp, thermal power within 0.5-3 kilowatts, with fuel supply adjustment
7	Kettle	piece	1	2	for househ	

					old needs		metal, field with handle, volume up to 5 l
8	Cutting board	piece	1	2	for household needs		wooden, size 40x25sm
9	Knife	piece	1	1	for household needs	ZHGRC, SKHGRE, KHGRE	stainless steel with plastic handle
10	Thermos	piece	1	2	for storage of food or water in the field		stainless steel, portable, up to 5 l
11	Kettle	piece	1	3	for heating and boiling of water in the field		metal, with handle, volume up to 3 l
12	Pan	piece	1	3	for field cooking		metal with handles, volume 5 l
13	Bayonet shovel	piece	1	3	For excavation plans		hardened metal ladle coated with matte paint, dimensions 280 x 220 mm, ergonomic cuttings
14	Scoop shovel	piece	1	3	for handling loose materials		hardened metal ladle coated with matte paint, dimensions 280 x 230 mm, ergonomic cuttings
15	Axe	piece	1	3	for household needs		with a metal blade rigidly fixed on a wooden or plastic handle, walking

16	Rope	piece	1	1	for household needs	from deep or chemical fibers, up to 10 m long
17	Galvanized bucket	piece	1	2	for household needs	galvanized, volume up to 12 liters
18	Plastic bucket	piece	1	2	for household needs	plastic with lid, volume up to 12 liters
19	Universal first aid kit	piece	1	1	for first aid in the field	a set of medicines for first aid, in a plastic case

Subsection 2. Individual use (per employee's 1)

20	folding bed	piece	1	4	for domestic needs	ZHGRС, SKHGRE, KHGRE	framework of strong alloy pipe, maximum load up to 90 kg, weight up to 5.5 kg
21	Bed linen	set	1	2	for domestic needs		cotton, dimensions: blanket - 160 * 220 cm, sheet - 180 * 260 cm, pillowcase - 70 * 70 cm
22	Sleeping bag	piece	1	4	for domestic needs		synthetic filler double-layer, length up to 230 cm, weight up to 2.5 kg
23	Rucksack	piece	1	2	to carry various loads in the field		anatomical "back," raincoat, volume up to 70 liters
24	Towel	piece	1	1	for hygienic needs		rustic towel, 120x60 sm
25	Flask	piece	1	3	for field storage of drinking water		metal, camping, volume up to 2 liters
					for domestic		

26	Mug	piece	1	1	i c needs	metal, 0,5 l
27	Spoon- fork	piece	1	1	f o r domest i c needs	stainless steel

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