

# 14-31PK Glass Fertilizer, particle fraction 0-5mm

Manufacturer: Preciosa Ornella, a.s., Krkonošská 732, 468 61 Desná, the Czech Republic

Registration decision number: R13149

The long-acting mineral 14-31 PK Glass Fertilizer, particle fraction 0-5 mm contains phosphorus and potassium, as well as calcium, magnesium, sulphur and trace elements (iron, manganese, copper and molybdenum) of nutrients in the form of vitreous compounds. The 0-5 mm particle fraction is designated for fertilization over 2-3 vegetative periods.

## Physical and chemical properties:

Total phosphorus as $P_2O_5$ (P)	14 % (6.2 %)
Phosphorus soluble in citrate as $P_2O_5$ (P)	4.2 % (1.8 %)
Phosphorus soluble in water as $P_2O_5$ (P)	1.6 % (0.7 %)
Total potassium as $K_2O$ (K)	31 % (25.7 %)
Potassium soluble in water as $K_2O$ (K)	24 % (19.9 %)
Insoluble calcium as CaO	19 %
O-2 mm particles min.	95.0 %

The content of any high risk elements is in compliance with the statutory limits that apply in the Czech Republic.

## The scope and method of use:

This involves a long-acting fertilizer with a regulated process for the release of nutrients into the ground. It is activated at temperatures in excess of 8 °C according to the time of year. It is suitable for the long-acting fertilization of all types of plants with an anticipated effect of 2-3 vegetative periods. Given its long-acting nature, the fertilizer is mainly designated for fertilizing long-term plantings in an urban environment; extensive and intensive green roofs, perennial flowerbeds, mobile greenery and avenue trees and for the pre-cultivation of trees in containers or quick pots, where the long-acting dose is used both during the pre-cultivation in the pots and after planting. Phosphate glass usually has a high phosphorus content, as well as other nutrients, especially potassium. The fertilizer is distinguished by its increased potassium content, while the phosphorus and potassium ratio is P:K = 0.24. This enables optimum fertilization with phosphorus and potassium without the need for the application of any additional potassium. The share of long-acting phosphorus is at least 70%, while the long-lasting potassium accounts for at least 25%. The fertilizer dosage needs to be adapted to the overall fertilization system, the basic fertilization and any additional fertilization with potassium and to ensuring the optimum Mg and Ca ratio in the soil or the cultivation mixture. In addition to independent applications, the fertilizer can also be used as a component in complex NPK fertilizers with a long-acting character in conjunction with long-acting nitrogen-based fertilizers. The particle fraction of 0-5 mm is suitable for the preparation of so-called mixed fertilizers.

## Recommended dosages:

The recommended dosage for large-scale applications is 20 g (15 ml) per  $m^2$ , which will provide the amount of nutrients necessary for one vegetative period.

It is possible to use a dose of 60 g (45 ml) per  $m^2$  for long-acting fertilization over several vegetative periods. When preparing cultivation substrates for a single vegetative period, a dosage of 1.5 g (1 ml) per litre of substrate is sufficient to provide the corresponding amount of nutrients. A dosage of 3 g per litre or an increased dose 4.5 g (3 ml) per litre is recommended for long-acting fertilization over several vegetative periods.

## The balance of supplied nutrients:

The fertilizer dosage needs to be adapted to the used fertilization system, the substrate and the anticipated length of the long-acting fertilization. During large-scale applications, the dosage of the individual nutrients per surface unit (Table 1) is used for individual types of plantings. The lower dosage limit is designated, for example, for extensive green roofs, while the upper limit is for intensive green roofs or for tree plantings. The recommended dosage of 20 g per  $m^2$  for one vegetative period provides ca. 1.2 g of P/ $m^2$  and 5.1 g of K/ $m^2$ . When using long-acting fertilization in soil or a structural mineral substrate, it is necessary to take into account the admissible nutrient content, especially with regard to potassium, and the cation-exchange capacity. The recommended dose of 1.5 g per litre of substrate for one vegetative period provides 92 mg of P and 386 mg of K per litre of substrate (Table 2). The application of fertilizer to the substrate should ensure that the plants have a sufficient supply of phosphorus and potassium, including with regard to the properties of the used substrate. It is necessary to ensure sufficient nitrogen when incorporating the 14-31 PK Glass Fertilizer, particle fraction 0-5 mm, into the fertilization system.

**Table 1:** The recommended nutrient dosages during large-scale applications of fertilizer and the doses of long-acting 14-31 PK Glass Fertilizer, particle fraction 0-5 mm, and the supplied nutrients.

Nutrient	Recommended nutrient dose in g/ $m^2$		Fertilizer dose and the supplied nutrients			
	1 Veg. period	3 Veg. period	20 g/ $m^2$	45 g/ $m^2$	60 g/ $m^2$	120 g/ $m^2$
N*	5 - 10	15 - 30*	-	-	-	-
P	1 - 1.5 (max. 3)	3 - 4.5 (max. 9)	1.23	2.77	3.69	7.39
K	3 - 7 (max. 10)	9 - 21 (max. 30)	5.15	11.58	15.44	30.88
Mg**	0.6 - 1.2 (max. 5)	1.8 - 3.6 (max. 15)	0.06	0.14	0.19	0.36
Ca***	-	-	2.70	6.07	8.09	16.19

**Table 2:** The recommended nutrient doses during bulk fertilizer applications during the preparation of cultivation mixtures and doses of long-acting 14-31 PK Glass Fertilizer, particle fraction 0-5 mm, and the supplied nutrients.

Nutrient	Recommended dose of nutrients in mg/litre of substrate		
	1 Vegetationsperiode	3 Vegetationsperiode	45 g/l
N*	70 - 200 (max. 300)	-	-
P	30 - 50 (max. 100)	60 - 150 (max. 300)	92
K	90 - 200 (max. 300)	270 - 600 (max. 900)	386
Mg**	80 - 160 (max. 200)	240 - 480 (max. 600)	4.5
Ca***	-	-	202
			404
			607

\* N - fertilization with nitrogen is necessary in every vegetative period or use a long-acting nitrogen-based fertilizer

\*\* Mg - the application of chalky fertilizers (limestone, dolomitic limestone) is based on the soil or substrate pH and the admissible calcium content in the soil

\*\*\* Ca - the application of chalky fertilizers (limestone, dolomitic limestone) is based on the soil or substrate pH and the admissible calcium content in the soil

Long-term STRENGTH  
for your garden!

Glass PK Fertilizer

up to 3 years | LONG-ACTING

INNOVATION  
for every plant!



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PRECIOSA

# 14-31PK Glass Fertilizer, particle fraction 0-2 mm

Manufacturer: Preciosa Ornella a.s., Krkonošská 732, 468 61 Desná, the Czech Republic

Registration decision number: R13148

The long-acting mineral 14-31 PK Glass Fertilizer, particle fraction 0-5 mm contains phosphorus and potassium, as well as calcium, magnesium, sulphur and trace elements (iron, manganese, copper and molybdenum) of nutrients in the form of vitreous compounds.

The particle fraction of 0-2 mm is designated for fertilization over 1-2 vegetative periods.

## Physical and chemical properties:

Total phosphorus as $P_2O_5$ (P)	14 % (6.2 %)
Phosphorus soluble in citrate as $P_2O_5$ (P)	4.2 % (1.8 %)
Phosphorus soluble in water as $P_2O_5$ (P)	2.3 % (1.0 %)
Total potassium as $K_2O$ (K)	31 % (25.7 %)
Potassium soluble in water as $K_2O$ (K)	24 % (19.9 %)
Insoluble calcium as $CaO$	19 %
0-2 mm particles min.	95.0 %

The content of any high risk elements is in compliance with the statutory limits that apply in the Czech Republic.

## The scope and method of use:

This involves a long-acting fertilizer with a regulated process for the release of nutrients into the ground. It is activated at temperatures in excess of 8 °C according to the time of year. It is suitable for the long-acting fertilization of all types of plants with an anticipated effect of 1-2 vegetative periods. Given its long-acting nature, the fertilizer is mainly designated for fertilizing long-term plantings in an urban environment; extensive and intensive green roofs, perennial flowerbeds, mobile greenery and avenue trees and for the pre-cultivation of trees in containers or quick pots, where the long-acting dose is used both during the pre-cultivation in the pots and after planting. The fertilizer enables optimal long-acting fertilization with phosphorus and potassium without the need for any subsequent reapplication of potassium. The share of long-acting phosphorus in the fertilizer is at least 70%, while the long-acting potassium content is at least 25%. The fertilizer composition must be adapted to the overall fertilization system, the basic fertilization and any supplemental fertilization with potassium, while ensuring the optimal ratio of Mg and Ca in the soil or the plant mix. In addition to individual applications, the fertilizer can also be used as a component in complex NPK fertilizers with a long-acting character in conjunction with long-acting nitrogen-based fertilizers. The 0-2 mm particle fraction is suitable for the preparation of granular fertilizers.

## Recommended dosages:

The recommended dosage for large-scale applications is 20 g per  $m^2$  (18 ml), which will provide the amount of nutrients necessary for one vegetative period. It is possible to use a dose of 40-50 g per  $m^2$  (35 - 44 ml) for long-acting fertilization over two vegetative periods.

When preparing cultivation substrates for a single vegetative period, a dosage of 1.5 g (1 ml) per litre of substrate is sufficient to provide the corresponding amount of nutrients. A dosage of 3 g (2 ml) per litre is recommended for long-acting fertilization over two vegetative periods.

## The balance of supplied nutrients:

The fertilizer dosage needs to be adapted to the used fertilization system, the substrate and the anticipated length of the long-acting fertilization. During large-scale applications, the dosage of the individual nutrients per surface unit (Table 1) is used for individual types of plantings. The lower dosage limit is designated, for example, for extensive green roofs, while the upper limit is for intensive green roofs or for tree plantings. The recommended dosage of 20 g per  $m^2$  for one vegetative period provides ca. 1.2 g of  $P/m^2$  and 5.1 g of  $K/m^2$ . When using long-acting fertilization in soil or a structural mineral substrate, it is necessary to take into account the admissible nutrient content, especially with regard to potassium, and the cation-exchange capacity. The recommended dose of 1.5 g per litre of substrate for one vegetative period provides 92 mg of P and 386 mg of K per litre of substrate (Table 2). The application of fertilizer to the substrate should ensure that the plants have a sufficient supply of phosphorus and potassium, including with regard to the properties of the used substrate. It is necessary to ensure sufficient nitrogen when incorporating the 14-31 PK Glass Fertilizer, particle fraction 0-2 mm, into the fertilization system.

**Table 1:** The recommended nutrient dosages during large-scale applications of fertilizer and the doses of long-acting 14-31 PK Glass Fertilizer, particle fraction 0-2 mm, and the supplied nutrients.

Nutrient	Recommended nutrient in $g/m^2$		Fertilizer dose and the supplied nutrients			
	1 Veg. period	2 Veg. period	20 g/ $m^2$	45 g/ $m^2$	60 g/ $m^2$	90 g/ $m^2$
N*	5 - 10	15 - 20*	-	-	-	-
P	1 - 1.5 (max. 3)	3 - 4.5 (max. 6)	1.23	2.77	3.69	5.54
K	3 - 7 (max. 10)	6 - 14 (max. 20)	5.15	11.58	15.44	23.16
Mg**	0.6 - 1.2 (max. 5)	1.2 - 2.4 (max. 10)	0.06	0.14	0.19	0.28
Ca***	-	-	2.70	6.07	8.09	12.14

**Table 2:** The recommended nutrient doses during bulk fertilizer applications during the preparation of cultivation mixtures and doses of long-acting 14-31 PK Glass Fertilizer, particle fraction 0-2 mm, and the supplied nutrients.

Nutrient	Recommended dose of nutrients in mg/litre of substrate		Fertilizer dose and the supplied nutrients in mg/litre of substrate	
	1 Veg. period	2 Veg. period	1.5 g/l	3 g/l
N*	70 - 200 (max. 300)	-	-	-
P	30 - 50 (max. 100)	60 - 100 (max. 200)	92	150
K	90 - 200 (max. 300)	180 - 400 (max. 600)	386	600
Mg**	80 - 160 (max. 200)	160 - 320 (max. 400)	4.5	9
Ca***	-	-	202	404

\*N - fertilization with nitrogen is necessary in every vegetative period or use a long-acting nitrogen-based fertilizer

\*\*Mg - the application of chalky fertilizers (limestone, dolomitic limestone) is based on the soil or substrate pH and the admissible calcium content in the soil

\*\*\*Ca - the application of chalky fertilizers (limestone, dolomitic limestone) is based on the soil or substrate pH and the admissible calcium content in the soil

## Occupational health and safety instructions:

- P102 Keep out of reach of children.
- P270 Do not eat, drink or smoke when using this product.
- P262 Do not get in eyes, on skin or on clothing.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P305+P351+P338 IF IN EYES: rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
- P303+P352 IF ON SKIN: wash with plenty of soap and water.

**Storage conditions:** Store in a dry, cool place

**Shelf life:** 5 years from the year of production when stored correctly

**Weight of packaging:** 100 g, 500 g, 10 kg, 1 t (netto)

**Disposal of packaging:** Take the empty packaging to recycling.

Developed with scientists from the  
Landscape Research Institute, v. v. i.



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