Granular NPK Fertilizers

Blaukorn®

NovaTec®
Blaukorn® / NovaTec® general benefits

- Premium quality granular complex compound fertilizers.
- Complete analysis containing N, P, K, Mg, S and trace elements.
- Very low chloride (potassium from SOP).
- Fast acting Nitrogen source with both ammonium and nitrate N.
- Perfect granulometry (90% granules within 2–4 mm).
- Highly available source of phosphate (80% water-soluble).
- Industry leading granule strength and dust free.
- Available in standard release (Blaukorn®) or stabilised release (NovaTec®).
- German quality packaging and colour coded product.

Blaukorn® / NovaTec® include trace elements.
Made with SOP for safe application to chloride sensitive crops.

Advantages of complex compounds vs blended compounds

- No differential segregation of granules.
- Superior homogenous nutrient distribution in the field.
- More accurate spreading is possible.
- High nutrient efficiency.
- Easier and labour saving handling.
- Less storage capacity required.
- Blaukorn® / NovaTec® include trace elements.
- Made with SOP for safe application to chloride sensitive crops.
**Blaukorn® / NovaTec® product range**

**Blaukorn® range**
- Blaukorn® classic 12-8-16(+3MgO+10S)
- Blaukorn® 12-12-17(+2MgO+8S)
- Blaukorn® premium 15-3-20(+3MgO+10S)
- Blaukorn® suprem 21-5-10(+3MgO+6S)
- Blaukorn® N-Max 24-5-5(+2MgO+5S)

**NovaTec® range (with DMPP)**
- NovaTec® classic 12-8-16(+3MgO+10S)
- NovaTec® premium 15-3-20(+3MgO+10S)
- NovaTec® suprem 21-5-10(+3MgO+6S)
- NovaTec® N-Max 24-5-5(+2MgO+5S)

**Blaukorn® / NovaTec® application guidelines**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Annual demand Blaukorn® / NovaTec® (kg/ha)</th>
<th>Application frequency per year Blaukorn®</th>
<th>NovaTec®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenhouse vegetables</td>
<td>800 – 2000</td>
<td>3 – 4</td>
<td>2 – 3</td>
</tr>
<tr>
<td>Brassicace</td>
<td>1600 – 2500</td>
<td>3 – 4</td>
<td>2 – 3</td>
</tr>
<tr>
<td>Lettuce, carrots, onions</td>
<td>700 – 1200</td>
<td>2</td>
<td>1 – 2</td>
</tr>
<tr>
<td>Strawberries</td>
<td>700 – 1000</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Fruit trees</td>
<td>300 – 800</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Soft fruits</td>
<td>600 – 1100</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Grapevines</td>
<td>300 – 600</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Potatoes</td>
<td>500 – 1200</td>
<td>2 – 3</td>
<td>1 – 2</td>
</tr>
</tbody>
</table>

For detailed recommendation please contact your local Blaukorn® / NovaTec® dealer/agent.

* For superior performance and results, NovaTec should be used in place of Blaukorn particularly under any of the following conditions.
  - Free draining soil
  - Close proximity to water courses or sensitive habitats.
  - Sparse/shallow rooting system (e.g. potatoes, lettuce)
  - High soil pH
What is NovaTec®

- NovaTec® is the COMPO EXPERT innovation in granular compound NPK Fertilizer stabilized with DMPP (3.4 Dimethylpyrazolphosphate).
- DMPP protects Ammonium –N from quick conversion into Nitrate–N.
- NovaTec® will ensure constant supply of both forms of Nitrogen (ammonium and nitrate).

Benefits

- Lower N losses from reduced leaching and volatilisation.
- Reduced number of applications required.
- Improved yield and quality due to extended -N supply and increased ammonium nutrition.
- Positive pH effect in the rootzone (acidification of the rhizosphere gives Superior P and micronutrient availability).
- Crops develop and ripen more evenly due to a stabilised N supply.
- Can help to reduce free nitrate levels in fresh produce.

Ammonium-based fertilization with nitrification inhibitor

NovaTec® delays the 1st step of nitrification (Oxidation of ammonium (NH₄⁺) to nitrate (NO₃⁻)).
- NovaTec® leads to a more efficient NH₄⁺-based N-nutrition.
- Environmental benefits: lower emission of greenhouse gases and reduction of nitrogen leaching.

NovaTec® – ammonium nutrition

- Energy savings by Ammonium-N-nutrition (no biological reduction of nitrate required).
- Enhanced flowering (ammonium promotes synthesis of phytohormones and polyamines).
- Ammonium nutrition favours root growth.
- Ammonium based nutrition can help to reduce nitrate levels in fresh produce.
- Use of NovaTec® results in deeper green colouring in leafy salads and vegetables.

ATP = Adenosine Triphosphate. Is one of the most important energetic carriers in plants.
Trial results

Effect of NovaTec® on yield of vegetables (1998–2002; 100% = marketable yield without NovaTec®)

<table>
<thead>
<tr>
<th>Crop</th>
<th>n=</th>
<th>sub-optimal N</th>
<th>optimal N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salads</td>
<td>24</td>
<td>105</td>
<td>101</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>9</td>
<td>105</td>
<td>103*</td>
</tr>
<tr>
<td>Broccoli</td>
<td>3</td>
<td>85</td>
<td>109*</td>
</tr>
<tr>
<td>Cabbage</td>
<td>4</td>
<td>99</td>
<td>105*</td>
</tr>
<tr>
<td>Brussel sprouts</td>
<td>1</td>
<td>120</td>
<td>97</td>
</tr>
<tr>
<td>Chinese cabbage</td>
<td>6</td>
<td>106</td>
<td>108*</td>
</tr>
<tr>
<td>Kohlrabi</td>
<td>5</td>
<td>111</td>
<td>100</td>
</tr>
<tr>
<td>Leek</td>
<td>8</td>
<td>102</td>
<td>107</td>
</tr>
<tr>
<td>Celeriac</td>
<td>6</td>
<td>103</td>
<td>107</td>
</tr>
<tr>
<td>Carrots</td>
<td>6</td>
<td>103</td>
<td>100</td>
</tr>
<tr>
<td>Onions</td>
<td>8</td>
<td>100</td>
<td>104</td>
</tr>
<tr>
<td>Lambs lettuce</td>
<td>16</td>
<td>155</td>
<td>150</td>
</tr>
<tr>
<td>Small radish</td>
<td>6</td>
<td>104</td>
<td>104</td>
</tr>
<tr>
<td>Radish</td>
<td>4</td>
<td>98</td>
<td>102</td>
</tr>
<tr>
<td>Spinach</td>
<td>4</td>
<td>102</td>
<td>101</td>
</tr>
<tr>
<td>mean</td>
<td>110</td>
<td>114</td>
<td>110</td>
</tr>
</tbody>
</table>

* 1 round less

NovaTec® improves the Nitrogen Use Efficiency (NUE): Use Less and achieve more!
NovaTec® controls the transformation of ammonium to nitrate. The stabilizing effect is diminished under hot weather conditions. Nitrate is supplied in accordance to plant demand.

Growth of lettuce when fertilised with NovaTec®

- Compact growth.
- Better storability and shelf life.

Application in potatoes

NovaTec® ensures the N supply, even when applying in early growth stages.

NovaTec®: nitrate supply on demand

NovaTec® controls the transformation of ammonium to nitrate. The stabilizing effect is diminished under hot weather conditions. Nitrate is supplied in accordance to plant demand.
<table>
<thead>
<tr>
<th>Product</th>
<th>Composition</th>
<th>Characteristics</th>
<th>Packing</th>
<th>Use</th>
</tr>
</thead>
</table>
| Blaukorn®/NovaTec® classic 12-8-16 (+3+10) | 12 % N  
5 % nitrate-nitrogen (NO$_3$-N)  
7 % ammonium-nitrogen (NH$_4$-N)  
8 % P$_2$O$_5$  
6.4 % water soluble P$_2$O$_5$  
16 % K$_2$O  
3 % MgO  
2.4 % water soluble MgO  
10 % S  
0.02 % B  
0.06 % Fe  
0.01 % Zn | Blaukorn®: Complex NPK-fertilizer with potassium sulphate (SOP), magnesium and micronutrients. For basal and complementary dressing in chloride sensitive crops and on salt-affected soils; in horticulture and special crops outdoor and under glass. | Bag: 25 kg/50 kg/600 kg big bag | For detailed recommendations please contact your local Blaukorn®/NovaTec® dealer/agent. |
| Blaukorn® 12-12-17 (+2+8) | 12 % N  
5 % nitrate-nitrogen (NO$_3$-N)  
7 % ammonium-nitrogen (NH$_4$-N)  
12 % P$_2$O$_5$  
9.6 % water soluble P$_2$O$_5$  
17 % K$_2$O  
2 % MgO  
1.6 % water soluble MgO  
8 % S  
0.02 % B  
0.06 % Fe  
0.02 % Zn | NovaTec®: Complex NPK-fertilizer with nitrification inhibitor DMPP (3,4-dimethylpyrazolophosphate). Reduces N-leaching and increases N-efficiency. During the active phase of DMPP (4 to 10 weeks, depending on soil temperature and soil humidity) the transformation of ammonium to nitrate is delayed. As a result N-availability is further adapted to the plants requirements and N-efficiency is increased. Fertilizer based on SOP, for usage in chloride sensitive crops and on salt-affected soils. | Pallet size: 40 x 25 kg = 1,000 kg  
21 x 50 kg = 1,050 kg  
1 x 600 kg | |
| Blaukorn®/NovaTec® premium 15-3-20 (+3+10) | 15 % N  
7 % nitrate-nitrogen (NO$_3$-N)  
8 % ammonium-nitrogen (NH$_4$-N)  
3 % P$_2$O$_5$  
2.4 % water soluble P$_2$O$_5$  
20 % K$_2$O  
3 % MgO  
2.4 % water soluble MgO  
10 % S  
0.02 % B  
0.06 % Fe  
0.01 % Zn | Blaukorn®: Complex NPK-fertilizer with potassium sulphate (SOP), magnesium and micronutrients. For basal and complementary dressing in chloride sensitive crops and on salt-affected soils; in horticulture and special crops outdoor and under glass. | Container: 20 x 1.00 mt (20 mt)  
20 x 1.05 mt (21 mt)  
10 x 0.6 mt (6 mt) |
| Blaukorn®/NovaTec® suprem 21-5-10 (+3+6) | 21 % N  
10 % nitrate-nitrogen (NO$_3$-N)  
11 % ammonium-nitrogen (NH$_4$-N)  
5 % P$_2$O$_5$  
4 % water soluble P$_2$O$_5$  
10 % K$_2$O  
3 % MgO  
2.4 % water soluble MgO  
6 % S  
0.02 % B  
0.3 % Fe  
0.02 % Zn | Blaukorn®: Complex NPK-fertilizer with potassium sulphate (SOP), magnesium and micronutrients. For basal and complementary dressing in chloride sensitive crops and on salt-affected soils; in horticulture and special crops outdoor and under glass. | | |

Granule size: 2 – 4 mm
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<th>Use</th>
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</table>
| Blaukorn®/NovaTec® N-Max 24-5-5(+2+5) | 24 % N  
11 % nitrate-nitrogen (NO₃-N)  
13 % ammonium-nitrogen (NH₄-N)  
5 % P₂O₅  
4 % water soluble P₂O₅  
5 % K₂O  
2 % MgO  
1.6 % water soluble MgO  
5 % S  
0.02 % B  
0.06 % Fe  
0.01 % Zn | Blaukorn®: Complex NPK-fertilizer with potassium sulphate (SOP), magnesium and micronutrients. For basal and complementary dressing in chloride sensitive crops and on salt-affected soils; in horticulture and special crops outdoor and under glass. NovaTec®: Complex NPK-fertilizer with nitrification inhibitor DMPP (3.4-di-methylpyrazolphosphate). Reduces N-leaching and increases N-efficiency. During the active phase of DMPP (4 to 10 weeks, depending on soil temperature and soil humidity) the transformation of ammonium to nitrate is delayed. As a result N-availability is further adapted to the plants requirements and N-efficiency is increased. Fertilizer based on SOP, for usage in chloride sensitive crops and on salt-affected soils. | Bag: 25 kg/50 kg/600 kg big bag | Pallet size: 40 x 25 kg = 1,000 kg  
21 x 50 kg = 1,050 kg  
1 x 600 kg  
Container: 20 x 1.00 mt (20 mt)  
20 x 1.05 mt (21 mt)  
10 x 0.6 mt (6 mt)  
Granule size: 2 – 4 mm |