Fertilizing Potatoes
(*Solanum tuberosum*)
with Polysulphate
Main features of Polysulphate fertilizer

• Ideal multinutrient sulphur fertilizer with 48% SO$_3$ plus potassium (13.5% K$_2$O), magnesium (5.5% MgO) and calcium (16.5% CaO), all in sulphate form.
• Reduced risk of early season sulphate loss through leaching due to its prolonged nutrient release pattern.
• Fully soluble, with all nutrients available for plant uptake during the growth period.
• Low chloride, very low salinity index, neutral pH, no liming effect.
• Natural mined mineral (polyhalite) approved for organic agriculture.
• UK produced fertilizer with a low carbon footprint.

Functions of S, K, Mg and Ca in potato crops

• Sulphur is an essential constituent of proteins: it is required for the synthesis of three of the amino acids which make up true proteins. Necessary for high nitrogen use efficiency.
• Potassium secures yield and quality, transport of sugars, stomatal control and is a co-factor of many enzymes. It reduces susceptibility to plant diseases and the impact of drought, and is essential for efficient use of nitrogen.
• Magnesium is fundamental for photosynthesis, being a central part of chlorophyll molecule.
• Calcium for strong and healthy crops; it is a major building block in cell walls and reduces susceptibility to diseases. Soluble calcium is important for skin finish.

Practical guidelines for fertilising potatoes with Polysulphate fertilizer

• Low-chloride Polysulphate is a sulphate-based source of water soluble potassium, magnesium and calcium, supplying all of the sulphur, magnesium and calcium needed, and a significant proportion of the potash removed at harvest, without affecting the soil pH.
• Potatoes remove very large amounts of potassium at harvest and the proportion not supplied by Polysulphate can be applied as muriate of potash (MOP) at the time of planting.
• 100 kg/acre Polysulphate is generally a suitable dressing for potatoes in India. Incorporate straight Polysulphate into the seedbed before planting, or apply it as a constituent of a fertilizer blend at planting.
• The prolonged release characteristic of Polysulphate means that as the four macronutrients it contains are released they provide a continuing fresh source to the growing crop.
Estimated nutrient offtakes (removal) by potatoes

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Offtakes (kg/t)</th>
<th>Offtakes (kg/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Potato tubers</td>
<td>50 t/ha potato tubers</td>
</tr>
<tr>
<td>K2O</td>
<td>5.8</td>
<td>290</td>
</tr>
<tr>
<td>K</td>
<td>4.8</td>
<td>240</td>
</tr>
<tr>
<td>MgO</td>
<td>0.4</td>
<td>20</td>
</tr>
<tr>
<td>Mg</td>
<td>0.25</td>
<td>12</td>
</tr>
<tr>
<td>CaO</td>
<td>0.5</td>
<td>25</td>
</tr>
<tr>
<td>Ca</td>
<td>0.35</td>
<td>17</td>
</tr>
</tbody>
</table>

Sources: UK Fertiliser Manual, PDA and UNIFA

Guideline proportions of nutrients supplied by Polysulphate fertilizer at 400 kg/ha to a 50 t/ha potato crop

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO4</td>
<td>100%</td>
</tr>
<tr>
<td>K2O</td>
<td>20%</td>
</tr>
<tr>
<td>MgO</td>
<td>100%</td>
</tr>
<tr>
<td>CaO</td>
<td>100%</td>
</tr>
</tbody>
</table>

- Proportion of the nutrient removed by a 50 t/ha potato crop which is supplied by a standard 400 kg/ha dressing of Polysulphate.
- Proportion of the nutrient removed by a 50 t/ha potato crop which is not supplied by a standard 400 kg/ha dressing of Polysulphate.

Expected benefits
- Higher yields
- Good skin finish
- Improved dry matter
- Increased nitrogen use efficiency
Mined in the UK, ICL is the first – and only – producer in the world to mine polyhalite, marketed as Polysulphate.

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www.polysulphate.com
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The above are general rates, for specific recommendations or more information consult www.polysulphate.com/contact.php for your contact in your region.