



## The Mysteries of Salts Revealed

*All fertilizers are not created equally. The ingredients that make up the bulk of today's NPK fertilizers vary greatly. So too do the results (and side effects!) that come with their application.*

A glaring example of this can be found in the widely divergent levels of soluble salts found in different fertilizers. This is the result of the materials that make up these products.

*Why are salts so bad for your plants? First, consider that they can accumulate in the soil, where they cause serious damage to seeds, roots, and plant tissue. They also cause water to move out of (instead of into) the plant's root cells. The effect of this is a reduction in the amount of water available to the plant, which almost always leads to burning.*

Higher salt index values greatly increase the tendency of a given fertilizer to injure plants. Such injury is manifested in the form of poor plant quality, lack of roots, "pruning" of existing roots, and extremely rapid dehydration. In fact, if a fertilizer has a high salt index, there is a strong likelihood of dessication injury due to high salt accumulation. All fertilizers can be measured for salt index values through lab testing. They are determined by measuring the electrical current that a one percent solution will conduct.

The higher the soluble salt content, the more current the product will conduct. The salt index of sodium nitrate (value of 100) is used as a standard reference point. Other products are compared to this.

*Lower is good. A salt index of less than 30 means that a product has a nearly undetectable level of soluble salts. An index between 30 and 40 has a very low potential for plant damage. In fact, anything under 50 is considered "low." When index readings reach between 60 and 70, the damage potential rises to a low-moderate level. 70 to 80 translates into a moderate-high potential for salt damage, and anything over 100 should be avoided if possible.*

Most Green Industry pros don't have their own lab, but that doesn't mean they have to make blind decisions about the fertilizers they choose. Armed with a little knowledge, there is much that can be gleaned by reading a product's label. The ingredients that go into any product all have their own salt indices (these can be found in many books, as well as on the Internet).

*For instance, many fertilizers include straight urea nitrogen, which has a salt index of 75.4. This would place a product that contains it in the "moderate-high damage potential" category. A*

*good alternative is a product containing Methylene Urea, which has an index of only 24. And what about your potassium sources? Potassium chloride has a salt index of 116, while that of potassium sulphate is only 46.*

The following chart shows the salt indices for some other common fertilizer ingredients:

Product	Salt Index
Ammonium Nitrate	104.7
Ammonium Sulphate	69
Calcium Nitrate	53
Dolomite	1
Magnesium Sulphate	44
Methylene Urea	24
Potassium Chloride	116
Potassium Nitrate	73.6
Potassium Sulphate	46
Superphosphate	7.8
Urea	75.4

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