



## Tip of the Month

November 2019

### ELECTRICAL CONDUCTIVITY

Electrical conductivity (EC) is the ability of dissolved ions in water to conduct an electrical current. Both cations and anions contribute to EC and the amount of electrical current that is conducted by cations increases with valence (charge).

This means that divalent (double charged) cations like calcium and magnesium carry more electrical current than monovalent cations like sodium. Therefore, EC is a reliable indicator of ionic content and water quality.

#### Units of measurement

EC measurements can sometimes be confusing because it can be expressed in milli-Siemens/m, milli-Siemens/cm or even micro-Siemens/cm.

It is important to be able to convert these measurement units to get a clear picture of ionic content. Villa prefers milli-Siemens/m and we have therefore included the table below for conversion purposes.

EC conversion in different units		
mS/m	mS/cm	µS/cm
1	0.01	10
100	1	1000
1000	10	10000

#### Total dissolved solids

This is an indication of both the dissolved ions and dissolved organic material in water. However, dissolved ions normally make up the bulk of the total dissolved solids measurement.

An EC value in milli-Siemens/m is commonly multiplied by a conversion factor of approximately 7 to determine the total dissolved solids measurement in mg/L or ppm (eg. 100 mS/m = approximately 700 mg/L).

However, this is not totally accurate, and the conversion factor can vary somewhat.

#### Villa's stance

EC is a simple and effective measurement of ionic concentration of spray water.

It is important to have a thorough knowledge of EC to determine water quality and ammonium sulphate use.

Contact Brian de Villiers  
for more information on  
adjuvants and water quality  
082 880 0974 or  
bdevilliers@villacrop.co.za