CANNA

Research Laboratories

SUBSTRATE ANALYSIS REPORT

Test of 6 latest batches

Product: CANNA Coco Professional Plus
Latest batchnr: 031114

Sample taken
Sampling date: 06-11-2014
Analysis date: 10-11-2014

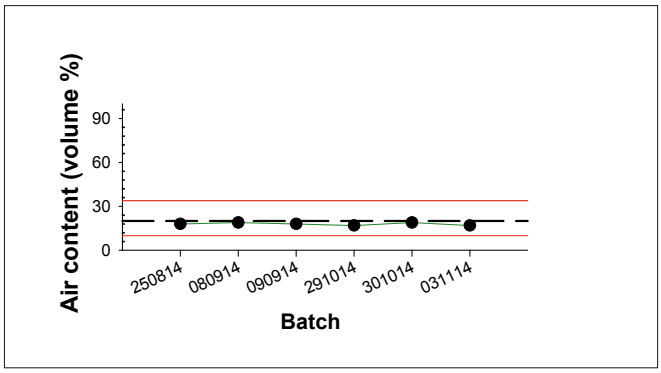
Researcher: S. de Bok, BSc

Comments
Please refer to CANNA Sales for future batch analysis

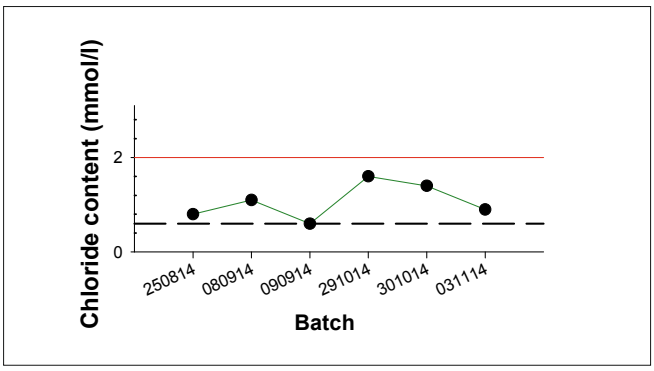
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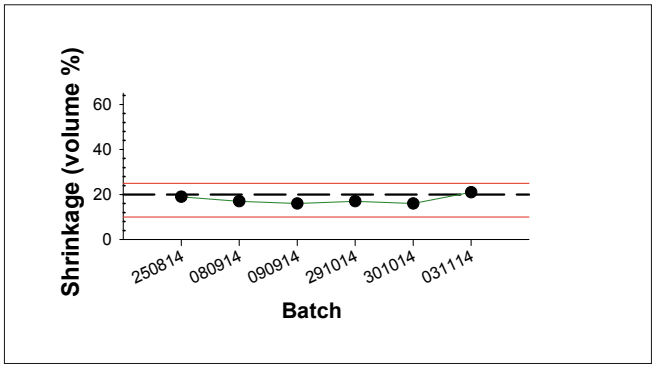
Air Content



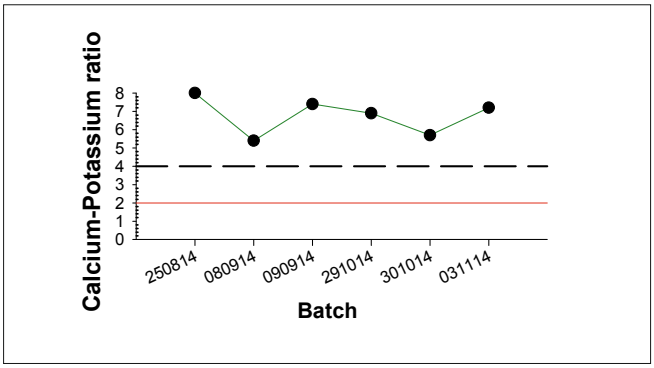
Chloride



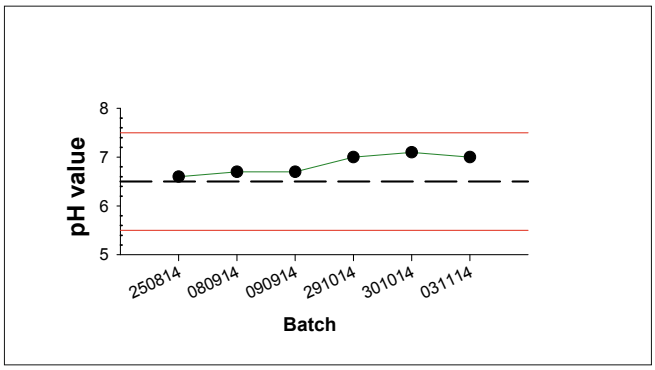
Shrinkage



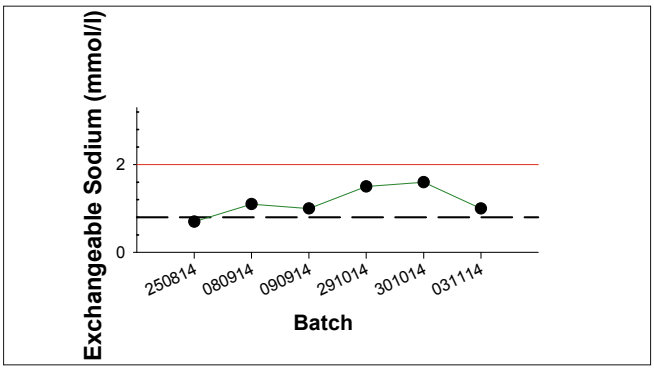
Calcium-Potassium ratio



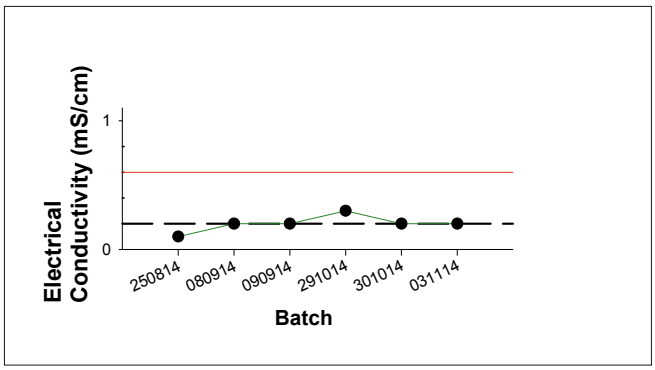
pH Value



Exchangable Sodium



EC Value



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Clarification

General

CANNA Research has been monitoring the quality of CANNA products for many years now. This analysis report includes features graphs showing the results for the last 6 production batches of 50L bags of CANNA Coco Professional Plus.

CANNA Coco Professional Plus is an organic substrate that is made from the husks of coconuts, the large fruit of the coconut tree (Cocos nucifera). The coconut husks consist of fibre and dust and can be ground into chips, particles that vary in size from 0.5 mm to over 16 mm.

Coco substrates usually have a high cation exchange capacity (CEC), meaning that calcium and magnesium, important nutrients for your plants, are retained on the surface of the coco chips. This means that there may not be enough calcium available for plant uptake.

To prevent this problem, is thoroughly washed and consists of 100% buffered coco coir. Excess salts that may interfere with the plants' nutrient uptake are washed out. 'Buffering' is the process by which the excess sodium and potassium bound to the coco coir are replaced by calcium in order to prevent calcium deficiency during the growth cycle.

The following properties were investigated: air content, shrinkage, pH, EC, chloride content, potassium-calcium ratio and exchangeable sodium. The red lines indicate the range within which these properties should fall. CANNA Research places stricter demands on its own products than RHP. This report will enable you to make up your own mind about the consistency of CANNA quality.

Air content

This is an indication of the amount of air in your coco substrate. For the customer, high air content means the plants will start growing in the medium quickly and root easily. It will also prevent suffocation of the roots during the later stages of cultivation.

Chloride content

The chloride content is monitored carefully. Together with the EC value, this is an important measure that tells us whether the coco coir has been washed thoroughly and whether or not it contains excess salts. A high chloride level in your medium will reduce nitrogen uptake and may result in nitrogen deficiency.

Shrinkage

If the coco substrate gets too dry, it will lose some of its volume. Although a coco substrate can be rewetted easily after drying out, it will not return to its original volume. This means less air will be available for the plant roots. Consequently, too much shrinkage is an undesirable quality for coco substrate.

The high quality of CANNA Coco Professional Plus ensures that the amount of shrinkage will not exceed 25%. This means that most growers will not experience any problems with watering the plants or with their cultivation results.

Growers who use bottom-watering systems will experience shrinkage in the top layer of the growing medium, near the surface. However, due to its low rate of shrinkage, CANNA Coco Professional Plus is a suitable coco substrate for bottom-watering systems too.

Calcium-Potassium ratio measured in barium chloride

Barium chloride is used to measure the level of exchangeable cations. These cations (e.g. calcium, potassium, magnesium and sodium) are bound to the coco surface and are not instantly available for the plant. This measurement gives an estimate of the amount of cations that become available to the plant during later stages of cultivation.

The ratio of potassium to calcium indicates the amount of calcium that will become available to the plant. It is a good way of determining whether the coco substrate is well buffered.

It is important that there is enough calcium relative to the amount of potassium. The average ratio is 1. The minimum ratio should be 0.7, i.e. it is permissible for the amount of potassium to slightly exceed the calcium level. Under normal circumstances, growers will not experience calcium deficiency.

pH value

pH is a measure of the acidity of the growing medium or water. It is a determining factor for a healthy root environment and the availability of nutrients to the plant, or in other words: whether or not the plant will be able to take up nutrition.

Coco coir is pH neutral, but will quickly reach the same pH value as your nutrient solution. Between pH 5 and 7, growers will not experience any pH problems caused by the medium.

Exchangeable sodium

The barium chloride is also used to measure the amount of exchangeable sodium and estimate the risk of a build-up of salt during cultivation. Less than 2.5 mmol/l sodium is safe and will cause no cultivation problems.

EC value

CANNA Coco Professional Plus is not pre-fertilised with any fertilisers, unlike CANNA's peat-based substrates. This means that the grower should begin feeding the plants immediately with CANNA Coco nutrients.

The EC level of this coco substrate is low – no higher than 1.0 mS/cm.

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