



# The effects of Sivanthi Coir WOK

A product of Sivanthi Joe Coirs



RHP  
The Netherlands  
February 2010

# The effects of Sivanthi Coir WOK

A product of Sivanthi Joe Coirs

M.A. Zevenhoven

## COLOFON

Stichting RHP  
Galgeweg 38  
2691 MG 's Gravenzande  
The Netherlands

T : +31 (0)174 - 62 03 60  
F : +31 (0)174 - 64 04 13  
E : [info@rhp.nl](mailto:info@rhp.nl)  
I : [www.rhp.nl](http://www.rhp.nl)

*KvK Haaglanden 41146015*

© 2010. This is a publication of Stichting RHP and Sivanthi Joe Coirs.

This document is a copyright publication. No part of this book may be used, reproduced, distributed, and/or published in any form, photo print, microfilm or by any other means without written permission of Stichting RHP. Stichting RHP does not accept any liability for damages as consequence of using information from this publication.

# Introduction

Sivanthi Joe Coirs has developed a new coir product named Sivanthi Coir WOK (SCW). This new product is a combination of coir fibres and coir pith. On request, several test and trails were performed to gain an insight into the effects of this product, when it's mixed in substrates. To get this information, mixtures were made as used in practice. The different items which were part of the research, are dived into chemical and physical aspects.

## Chemical aspects

The chemical aspects of coir products are very important. Coir has an adsorption complex. This complex has a role during the use in horticulture. From nature the balance on the complex of several major elements is far from optimal. Without a treatment coir can cause serious problems in culture. Next to this also the salt content needs attention.

For the results of Chemical analyses Contact us:

## Physical aspects

To gain an insight into the physical effects of the Sivanthi Coir WOK, several mixtures with peat are made. The (peat) mixtures which are made are used in practice in high volumes.

The Sivanthi Coir WOK is mixed into black peat and into white peat for 25% and 50% in volume. The Sivanthi Coir WOK is also added (25% and 50%) into a mixture of 50% black peat and 50% white peat. The used black peat is frozen black peat from Germany. The white peat which is used, is milled peat from Estonia.

To compare the Sivanthi Coir WOK with other fibre materials, mixtures were made with peat fibre and wood fibre in the same dosage as the Sivanthi Coir WOK.

For all the recipes of all mixtures Contact us:

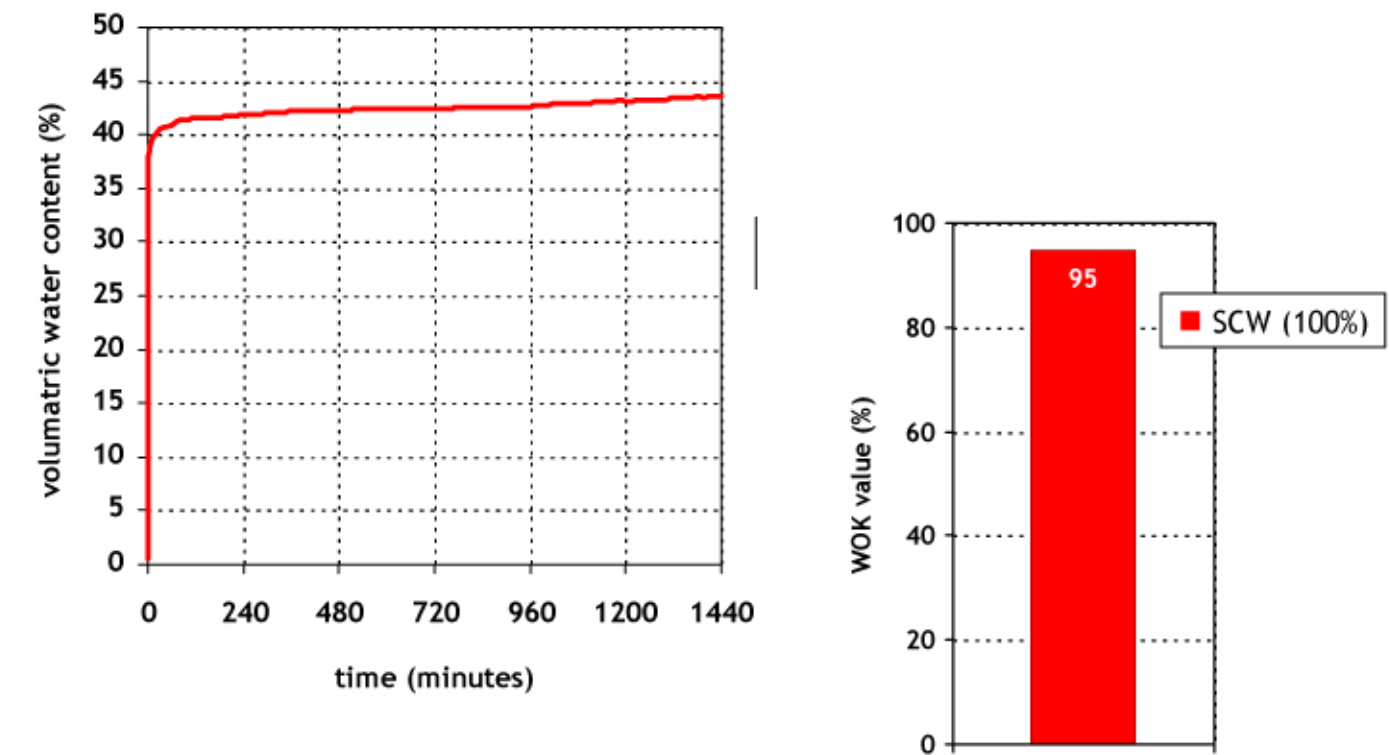
It's known that coir products have a major influence on the physical properties of peat mixtures. The speed of the water uptake and the air content are the most important.

A known problem in relatively dry cropping is the rewetting of the substrate. Basically, this applies to all growing media. A method, developed by RHP offers clear insight into the *water uptake characteristics* (WOK) of growing media.

The WOK analysis gives a reflection of the water uptake under dry conditions. RHP research has demonstrated a clear relation between the measurement and the water uptake of (dry) root balls in (greenhouse) cultures.

The analysis shows the water uptake from air dry situation, which often can appear in practice. The “WOK value” is the translation of the curve. It reflects the velocity of the water uptake in the first minutes. The higher this value the better. Growing media with a WOK value >80 % are considered to take up water well under all moisture conditions.

Below you can find the WOK curve and the WOK value of the pure Sivanthi Coir WOK (SCW).



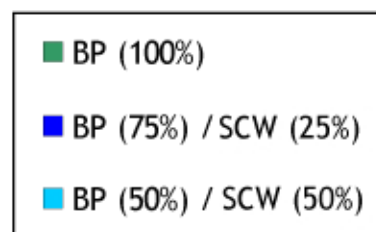
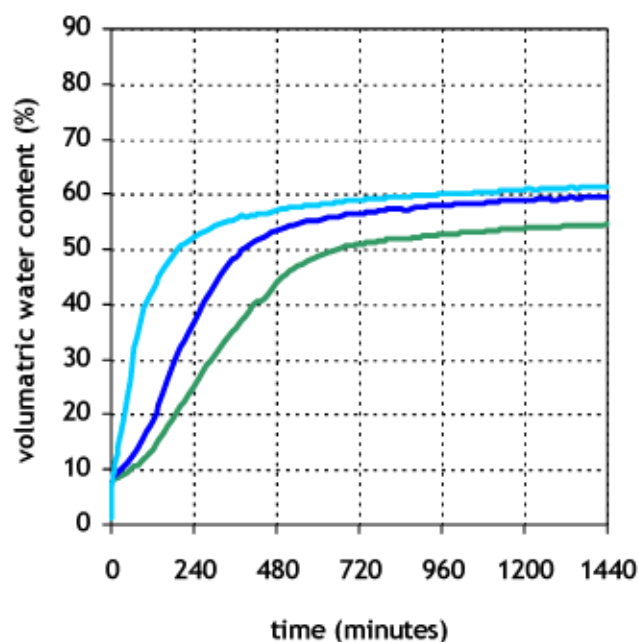
SCW has a very fast water uptake, even under very dry conditions. The WOK value is 95%, which means a very fast water uptake. This characteristic can be taken over in peat mixtures whereas SCW is mixed in.

In the following table the other physical properties of the Sivanthi Coir WOK can be found.

Material	Air at -10 cm pressure head (% of volume)	Pores (% of volume)	Organic matter (% by weight)
SCW (100%)	33	94	88

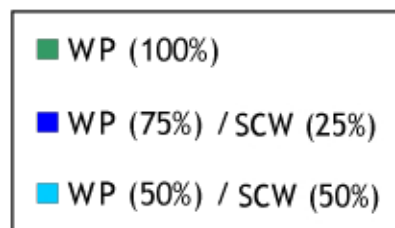
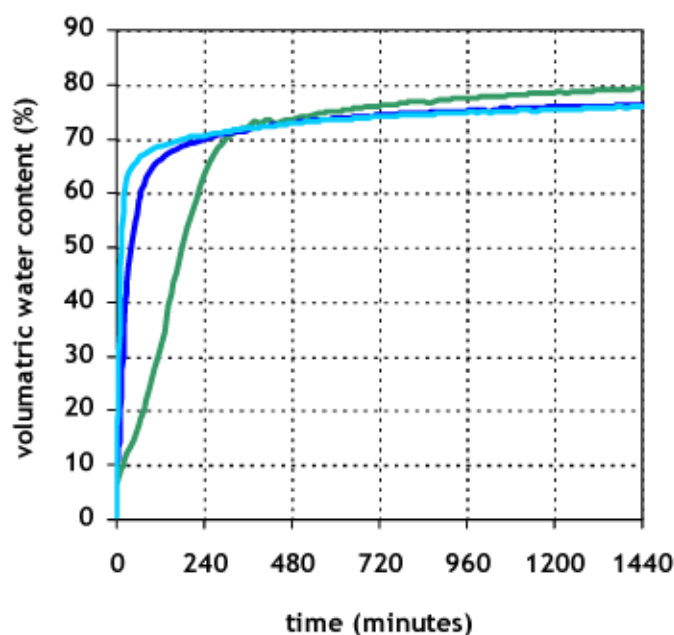
The air capacity is favourable high. The other parameters are normal.

In the following graphs the mixtures of the Sivanthi Coir Fibres Mix with the black peat are presented.



The black peat has a very low WOK value of itself. This is known normal for this type of peat. SCW shows a high value which property can be taken over to mixtures with black peat. At least 50% SCW is needed to get a considerable effect.

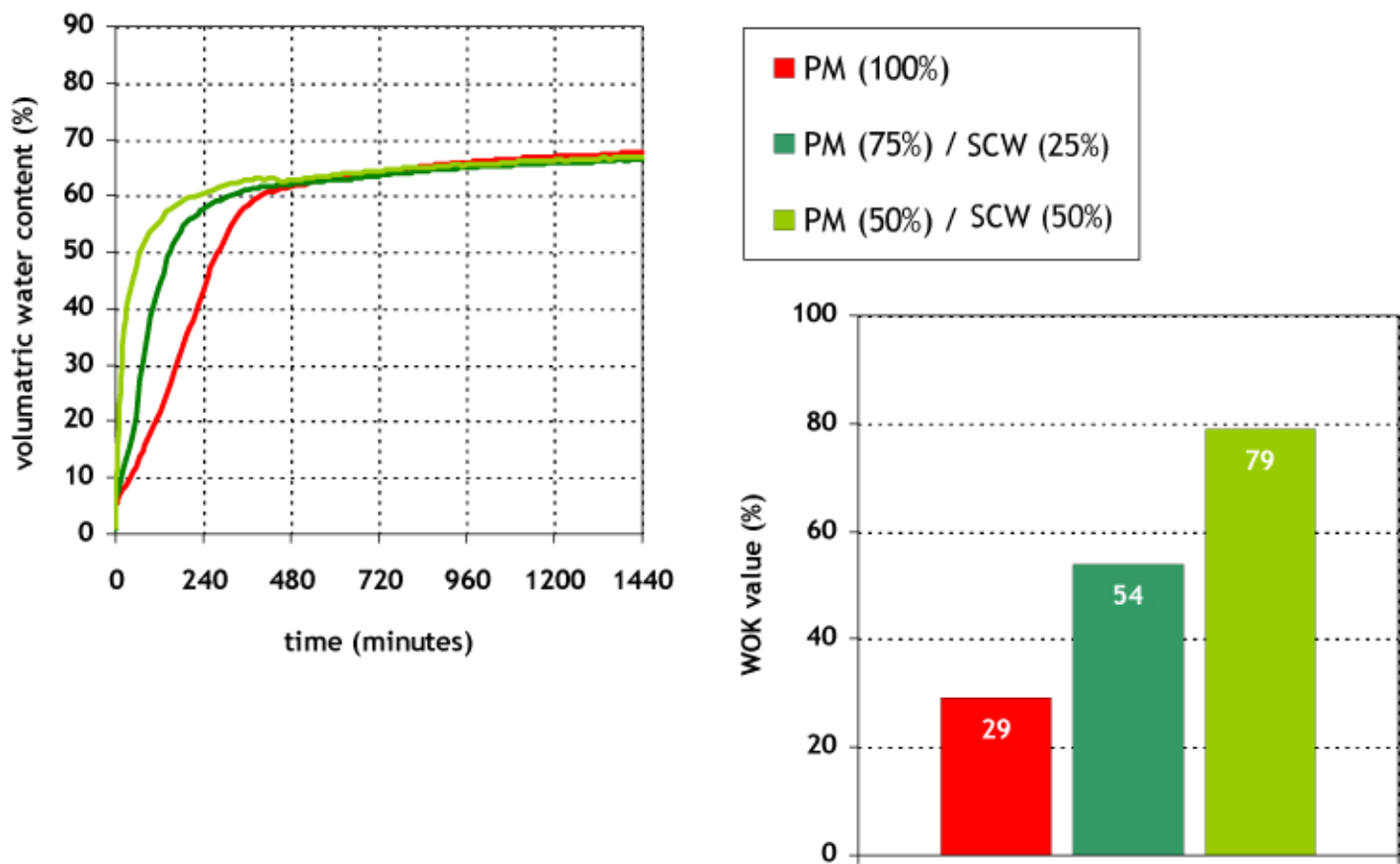
In the following graphs the mixtures of the Sivanthi Coir Fibres Mix with white peat are presented.





SCW can achieve a strong effect on water uptake in white peat mixtures even at low addition rates. An addition of 25% does improve the water uptake velocity strongly.

The effect of SCW on a mixture of black peat and white peat is presented in the next graphs. This 50/50 peat mixture is used frequently by growers.



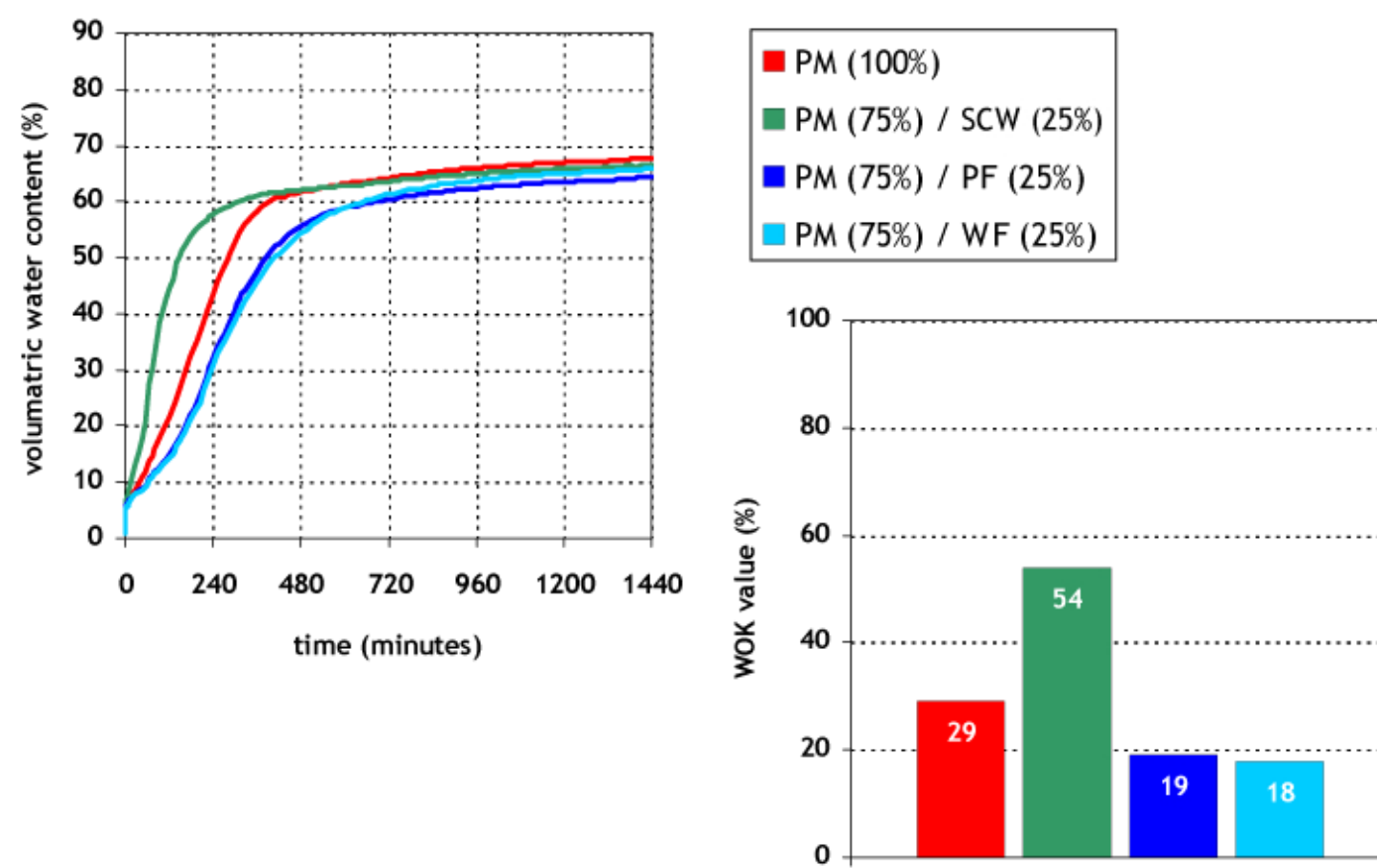
The mixture of frozen black peat and white peat has a very low WOK value of itself. SCW can improve water uptake strongly. The water repellence of the peat mixture is mainly due to the black peat part. To overcome this and realize a high WOK value, addition up to 50% SCW is desired. A dosage of 25% SCW gives already a considerable improvement of the water uptake.

In the following table the physical properties are presented.

Material	Air at -10 cm pressure head (% of volume)	Pores (% of volume)	Organic matter (% by weight)
PM (100%)	9	91	97
PM (75%) / SCW (25%)	10	91	95
PM (50%) / SCW (50%)	10	91	97

It's known that the air capacity drops, when coir pith is mixed with peat. Mostly the air capacity is less then the air capacity of the used coir and peat individually. The Sivanthi Coir WOK doesn't show this effect. The air capacity doesn't drop by using this coir product.

The following results of the WOK measurements show the comparison of the Sivanthi Coir WOK with two other types of fibres, which are often used in peat mixtures for the horticultural industry; namely peat fibre and wood fibre.



Whereas SCW the velocity of water uptake strongly improves, comparable fibre products such as peat fibre and wood fibre do show a negative effect. Sivanthi Coir WOK improves the water uptake of the peat mixture considerable.

In the table below you find the other physical properties.

Material	Air at -10 cm pressure head (% of volume)	Pores (% of volume)	Organic matter (% by weight)
PM (100%)	9	91	97
PM (75%)/ SCW (25%)	10	91	95
PM (75%)/ PF (25%)	9	91	96
PM (75%)/ WF (25%)	13	92	93

The air capacities by adding SCW or peat fibres remain comparing with the base peat mixture. The mixture with wood fibre shows a slight increase of the air capacity.



## Summary and conclusions

On request of Sivanthi Joe Coirs mixtures are made of a new product called Sivanthi Coir WOK to get insight in the effects of this product. Sivanthi Coir WOK is a mixture of a few coir products and is a RHP approved product.

The Sivanthi Coir WOK is analysed chemically in order to check the plant safety. Coir products need a special treatment, to get a save balance of the elements at the adsorption complex.

The analysis results show that the Sivanthi Coir WOK is well treated and has a good balance concerning the elements. The EC (salt content) is very low.

Several physical properties are investigated. In this report the main attention is paid to the Water Uptake Characteristic (WOK) and air capacity. Both parameters can be seen as the most important physical aspects.

By making several mixtures the physical effects of the Sivanthi Coir WOK are investigated. The Sivanthi Coir WOK improves the water uptake in mixtures with black peat and mixtures with white peat. In case of pure black peat 50% of the coir product is needed to get improvement. For white peat 25% gives already a serious improvement of the water uptake.

The Sivanthi Coir WOK is also added in two dosages (25% and 50%) to a mixture of black peat and white peat (50/50). An addition of 25% shows an improvement of WOK. The addition of 50% shows a serious improvement of the water uptake.

The addition of the Sivanthi Coir WOK is also compared to the addition of peat fibre and wood fibre in a mixture of black peat and white peat. The Sivanthi Coir WOK gives the best water uptake. Peat fibre as well as wood fibre even decrease the water uptake.

The air capacity is not decreasing by the use of the Sivanthi Coir WOK. Normally this is an effect when coir pith is used in peat mixtures. Wood fibre shows a slight increase of the air capacity.

The Sivanthi Coir WOK of Sivanthi Joe Coirs is chemically plant safe. It improves the water uptake demonstrable. This is observed in several peat products and peat mixtures, with the remark that the air capacity remains entirely.