

SGS INSTITUT FRESENIUS · GmbH Postfach 1261 · 65220 Taunusstein

Ruehe ecoClean GmbH

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Order No.: 6404244
Client No.: 10193871
SAP Report No.: 6459037

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Health & Nutrition
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SGS INSTITUT FRESENIUS GmbH
Kasteler Str. 45, Building H578 EG
65203 Wiesbaden

Wiesbaden, 01.09.2023

Subject : Comparative Performance Test
Your ref. : Mr. Andre Nanda
Order Date : 05.12.2022
Sample No. : 221288877
Testing Period : December 2022

Comparative Performance Tests on Material Compatibility Report No.: 6404244 – 02 SAP Report Nr.: 6459037

Dear Mr. Nanda,

on your request we have carried out comparative performance test on material compatibility. The samples were sent to us by you and they were labelled as follows:

Sample No.	Sample Description
221288877	eco power Solar Paneel cleaner, 500ml EAN: 4 270000 918506, Batch: 4136/1 RUEHE ecoClean GmbH

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Please note that the indexes given in the enclosure are not absolute values but can serve for product comparison within one test run.

Please find enclosed the individual results, the test procedure and the resumes.

We hope to have served you satisfactorily with our investigations. We are on your disposal for any further requests.

Yours sincerely

SGS INSTITUT FRESENIUS GMBH

i. V. Zena Malocho
 Division Manager Lab Operation

i. V. Nadine Buresch
 Customer Service Consultant

ATTACHMENT

Test Methods and Summary of Test Results (2 pages)

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1 Material Compatibility Test

The cleaning performance is carried out in accordance to a SGS INSTITUT FRESENIUS GmbH internal method.

1.1 Method Description

For the material compatibility test, different new unused and unsoiled surfaces were used.
 For the material compatibility test, the material Solarpanel ASTRO 5s (395W~410W Monocrystalline PV Module, CHSM54M-HC Series (182)) von Astronergy was tested. Prior to testing, the above mentioned surfaces were cleaned and wiped. A defined amount of test sample was applied onto each surface.

1.1.1 Tests at Room Temperature

The exposure time was 24h and 1h covered at room temperature (23°C). Any visually recognizable changes are evaluated on the surfaces and the removability of the product residues.

1.1.2 Tests under Heat

The solar panel is set up in vertical position and the product is applied to a defined area. The surface is then heated for 8 hours with a heat gun at 120 °C. The removability of the residues of the product are evaluated after 24 hours.

After the reaction time, the test surfaces are cleaned, dried and graded visually according to the following rating scale:

- = no change of the surface
- 1 = small change of the surface
- 2 = medium change of the surface
- 3 = large/ strong change of the surface

Additional material change were described as following

- a) discolouring of the tested materials
- b) lustreless surface
- c) milky
- d) non removable product residues, product residues are perceptible
- e) rough surface
- f) non removable sticky and visual product residues
- g) visible rim residues
- h) shade of the test sample
- i) lime scale residues

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1 Material Compatibility Test

1.3 Results on Visual Evaluation at Room Temperature

Sample No.	Blind value				221288877			
Sample Name	Tap Water				SOLVIS eco power			
Test Material	Reaction Time				Reaction Time			
	1 h		24 h		1 h		24 h	
ASTRO 5s	-		-		-		-	

1.4 Results on Visual Evaluation under Heat

Sample No.	221288877*	
Sample Name	SOLVIS eco power	
Test Material	Reaction Time	
	8 h	
ASTRO 5s	-	

* the product could be removed without leaving any residue after 24 hours.

Evaluation Scale	
-	= no change of the surface
1	= small change of the surface
2	= medium change of the surface
3	= large/ strong change of the surface
	a) discolouring of the tested materials
	b) lustreless surface
	c) milky
	d) non removable product residues, product residues are perceptible
	e) rough surface
	f) non removable sticky and visual product residues
	g) visible rim residues
	h) shade of the test sample
	i) lime scale residues

Under the chosen test conditions the test product **221288877 SOLVIS eco power** showed to leave no visually recognizable changes or residues on the tested material.

SGS INSTITUT FRESENIUS GmbH

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 Division Manager Lab Operation

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End of Report