

PVAmicro cloth

Internal Launch Presentation

18th of September 2013, Joerg Dunkel



internal

PVAmicro - Agenda



- Background
- Product features
- What is PVA material
- Technical tests
- Positioning
- Pricing / ADS
- Communication Material

Background

Background



WHY?

PVAmicro

- The Microfibre/Polyurethane cloth *PURmicro* launch in Q1 2013 was a big success due to two main reasons:
 - *PURmicro* cloth is following the market trend of knitted microfibre cloths.
 - The cloth has a superior performance which is easy to notice during use.
- With the development of **PVAmicro** we want to participate on the success of impregnated knitted microfibre cloths by using our unique PVA technique. We have applied for a patent for this new product.

Background – PVA Material

- Professional window cleaner used it since years
- Is used as a synthetic chamois, famous for streak free cleaning and absorbency
=> making it the cloth of choice for professional window cleaners and car cleaners.
- We are the first to combine the high absorbency and streak-free properties of PVA with the well known cleaning performance of microfibre.
- Patent pending unique production process.
- Vileda Professional was the first company launching microfibre cleaning cloth in the European professional market. Now we Vileda is continuous leading the innovation in professional wiping by launching the latest generation of microfibre cloth.



Features of PVAmicro

Features of PVPmicro

Knitted microfiber base for superior cleaning performance



Superior release of dirt particles during rinsing (cloth stays clean)



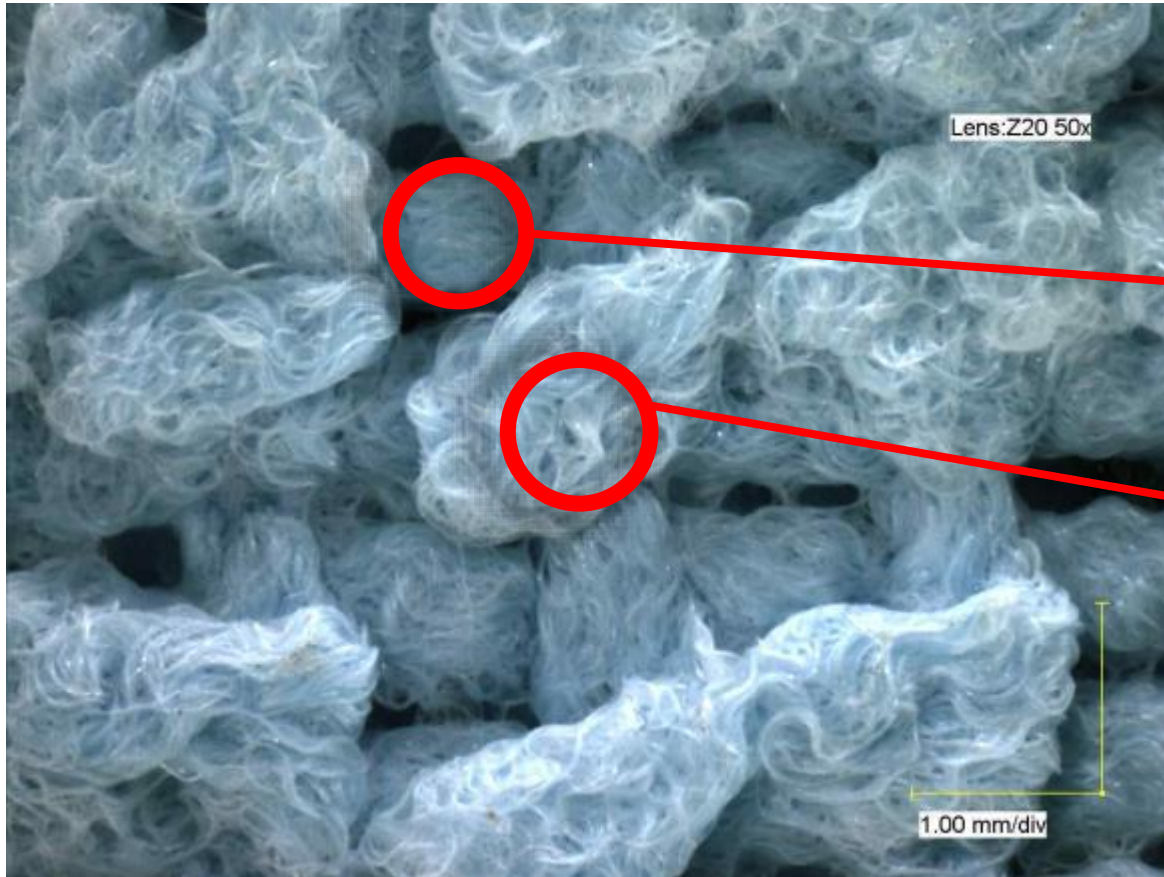
Unique PVA impregnation (patent pending)



PVAmicro ensures a streak free cleaning result but has also a good absorbency.



Microscopic Pictures



Take a closer look:

Microscopic picture 50 x

Basic fabric with 3D loop structure for MF cleaning performance

Very thin PVA impregnation to ensure superior rinsibility of dirt particles and water absorbency

Microscopic Pictures



Microscopic picture 100 x

internal

Microscopic Pictures



Microscopic picture 200 x

PVA layer only partially covers the microfiber to ensure perfect cleaning performance.

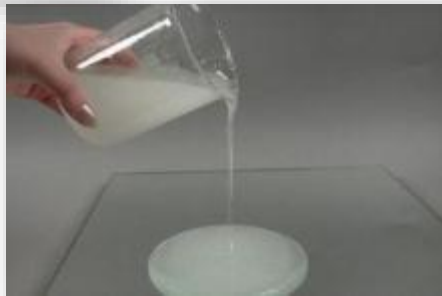
What is PVA material?

What is PVA Material

- Polyvinyl alcohol (PVA) is a water-soluble synthetic polymer.
- Professional window cleaner used it since years
- Is used as a synthetic chamois, famous for streak free cleaning and absorbency
=> making it the cloth of choice for professional window cleaners and car cleaners.
- Vileda it the first company combine the high absorbency and streak-free properties of PVA with the well known cleaning performance of microfibre.
- This is a unique production process (patent pending) .
- Vileda Professional was the first company launching microfibre cleaning cloth in the European professional market. Now Vileda is continuous leading the innovation in professional wiping by launching the latest generation of microfibre cloth.



What is PVA Material – Process



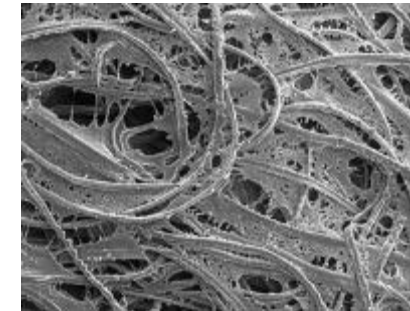
Water
+
Polyvinyl alcohol
+
Mixing



PVA impregnating of knitted
microfibre fabric



Crosslinking agent
+ Catalyst



Crosslinking

Benefits of PVAmicro

Benefits of PVAmicro



Microfibre cleaning performance

- PVAmicro is made of state of the art microfibre, ensuring **perfect cleaning results**



Easy to rinse

- After rinsing in a bucket PVAmicro **holds 40 times less particles** in the cloth vs. conventional knitted microfibre cleaning cloths.

Streak free cleaning result

- Surfaces dry faster with less streaks as PVAmicro releases **50% less water on surfaces** than conventional knitted microfibre cloths.

Benefits Overview

Function/Feature	Benefit for the customer
Microfibre cleaning performance	<ul style="list-style-type: none"> • Better cleaning results => improved customer satisfaction • Less detergent needed => reduced chemical costs and more ecological cleaning
Easy to rinse	<ul style="list-style-type: none"> • Cloth looks unstained for a longer time • Less need to launder the cloth regularly • Less risk of scratching surfaces with particles remained in the cloth => maintaining the value of the building and its interiors.

Benefits Overview

Function/Feature	Benefit for the customer
Streak free cleaning result	<ul style="list-style-type: none"> • No drying step needed =>faster cleaning • Faster drying of surfaces => surfaces can be use again quicker (e.g. office desks, tables in restaurants)
PVAmicro is very absorbent	<ul style="list-style-type: none"> • Normally microfibre cloths are either good in absorbency (e.g. MicroTuff Plus) or are good in streak free cleaning (e.g. Quickstarmico). <u>Now PVAmicro can do both</u> which makes this cloth unique in the market.

Vileda Research

Scratching characteristics of microfibre cloths

FHP Research – Background

Some years ago cleaning magazines made the statement, that microfibre cloths have an abrasive effect and can scratch chromium-plated sanitary fittings.

In order to find out, if the microfibers are really the reason for the damages, FHP has made a research. Purpose was to evaluate the (non-)scratching behavior of different cloths (incl. microfibers).



Test description of FHP research

1. Saturation of different cloths with commercially available sand and afterwards manual rinsing/wringing.
2. Wiping simulation with Gardner lab test machine on chromium-plated brass-metal sheets.
3. Surface Topography Analysis to check, if the chromium plate is scratched
4. Ashing (burning) of rinsed cloths for sand content determination.

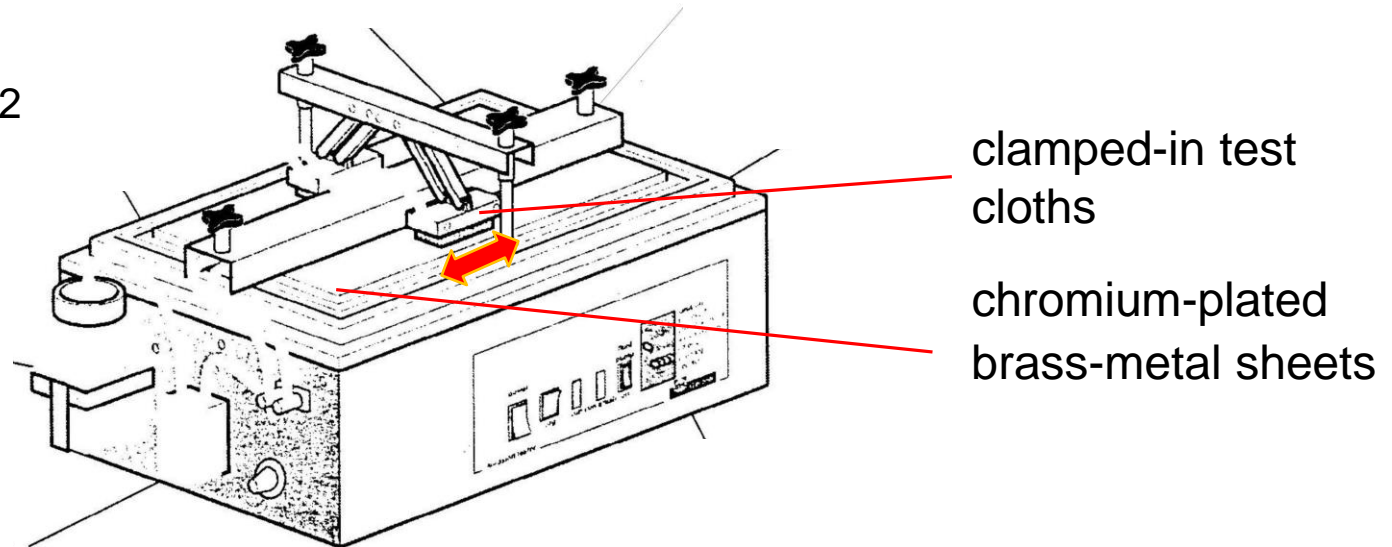
FHP Research – Testing

Wiping simulation with Gardner lab test machine on chromium surfaces

Damp cloths are prepared with and without sand. Then the cloths are clamped into a Gardner wiping simulator, which moves back and forth over a chrome plate. After a defined time, the chrome plate is scanned for scratches (see next page).

Test parameter:

- contact pressure 0.3N/cm²
- lateral movement
- 1.350m in total distance



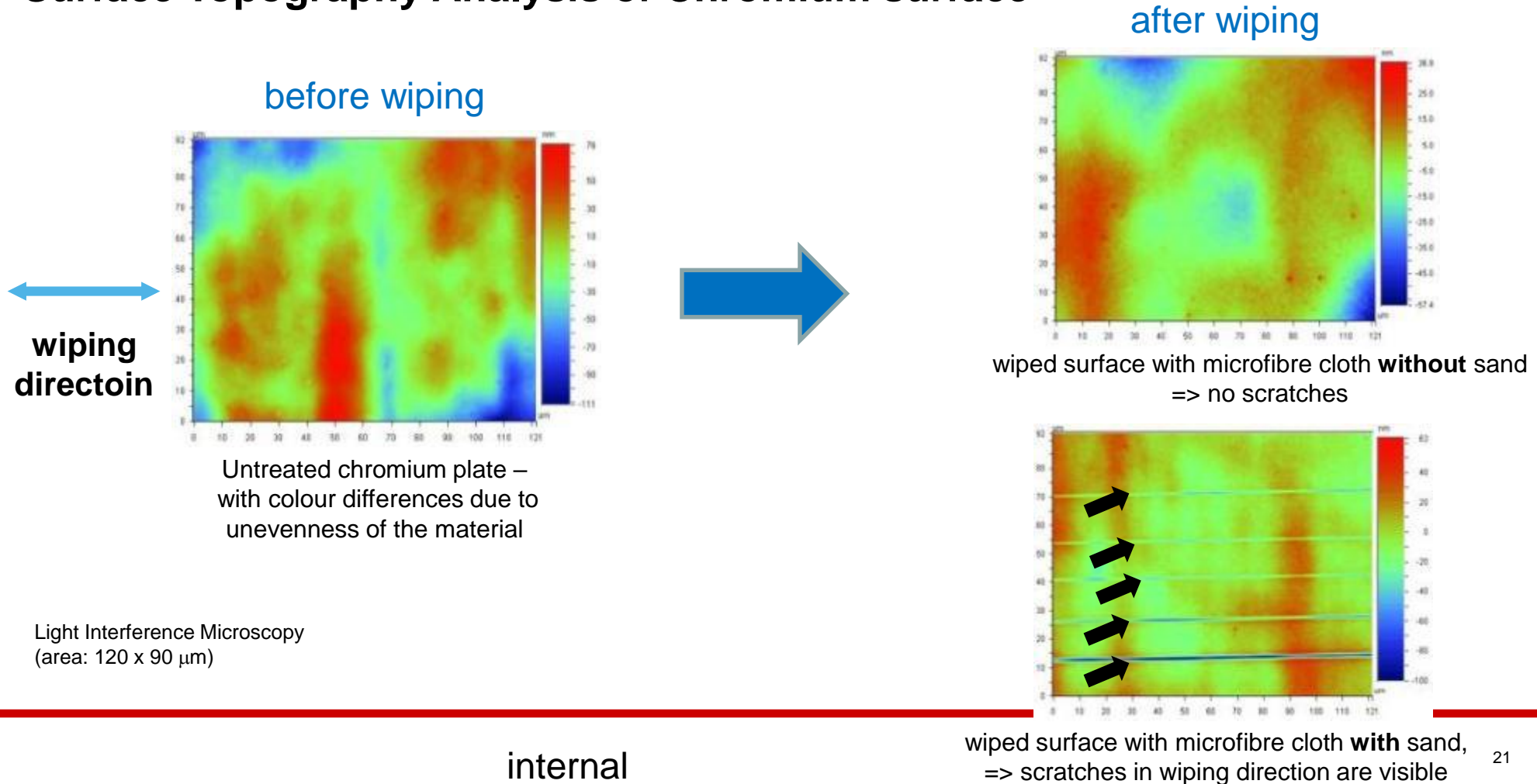
clamped-in test cloths

chromium-plated brass-metal sheets

Gardner scrubbing simulator
(acc. to DIN 53778, ISO 11998, ASTM D 2486)

FHP Research – Results

Surface Topography Analysis of Chromium surface



FHP Research – Conclusion

Conclusion

This research has proven that microfibre cloths cannot scratch hard surfaces like chrome fittings .

But if cloths are contaminated with particles like sand then there is a very high risk to scratch the wiped surface.

An easy-to-rinse cloth, which releases all particles while manual rinsing, can be a major contributor in maintaining the value of the building and its interiors as it is leaving the wiped surface scratch free.



Technical tests

PVAmicro – Technical tests



Excellent lab results:

- **Rinse ability** is significantly better vs. Terry Type MF cloths, same value like PURmicro
- **Cleaning performance** significantly better vs. non-MF cloths (but comparable to PURmicro and MicroTuff Swift)
- **Streak freeness** significantly better vs. Terry Type MF cloths and same level as PURmicro (very low water release on surface)
- **Water absorbency** significantly better than PURmicro, and slightly better than Terry Type MF cloths
- Good appearance after **400 washes**
PVA still on the cloth surface

Easy to Rinse

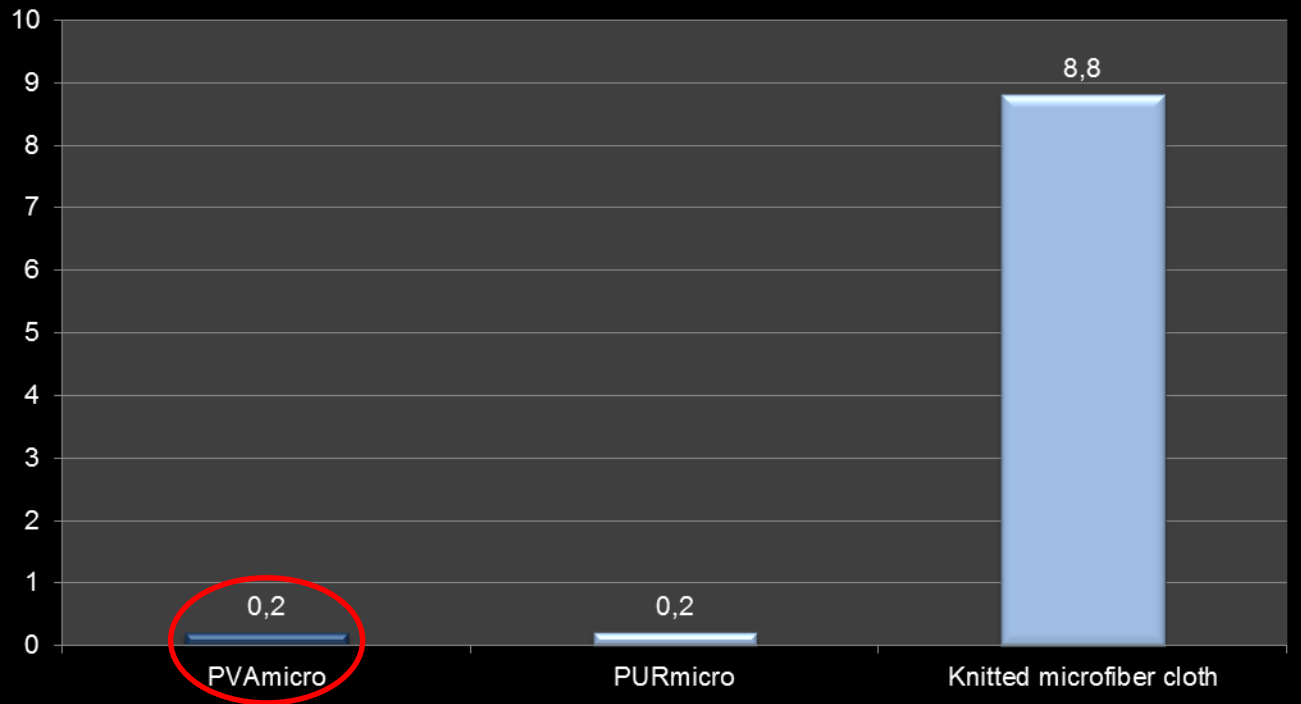
Manual Rinsability Test of PVAmicro



1. Cover a wet cloth with sand and do a wringing action so sand is in the cloth
2. Put the cloth in bucket with water 3 times
3. Check sand residue in cloth

PVAmicro – Technical tests

PVAmicro Sand Residue in Cloth after Rinsing



- Ordinary Terry Type cloths difficult for rinse, sand particles remain in the fluffy cloth structure
- PVAmicro with 40 times less particle residue vs. standard knitted terry type cloth
- Comparable to PURmicro

Washing Test

100x 60°C

200x 60°C

300x 60°C

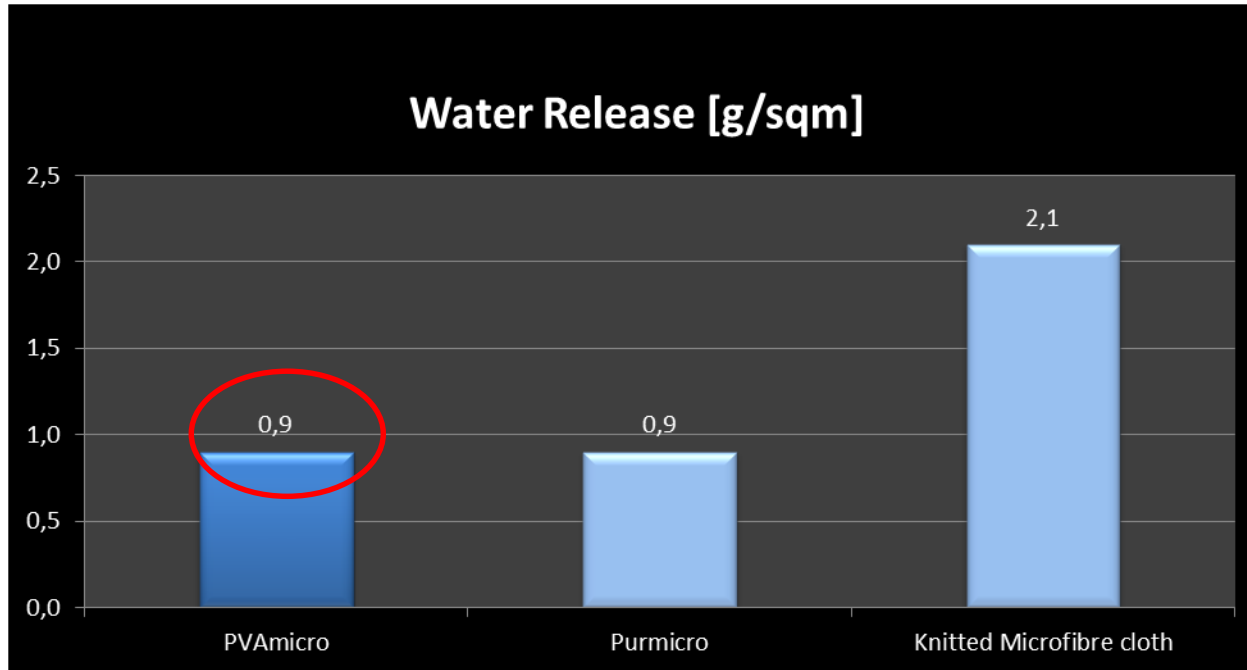
400x 60°C



Result

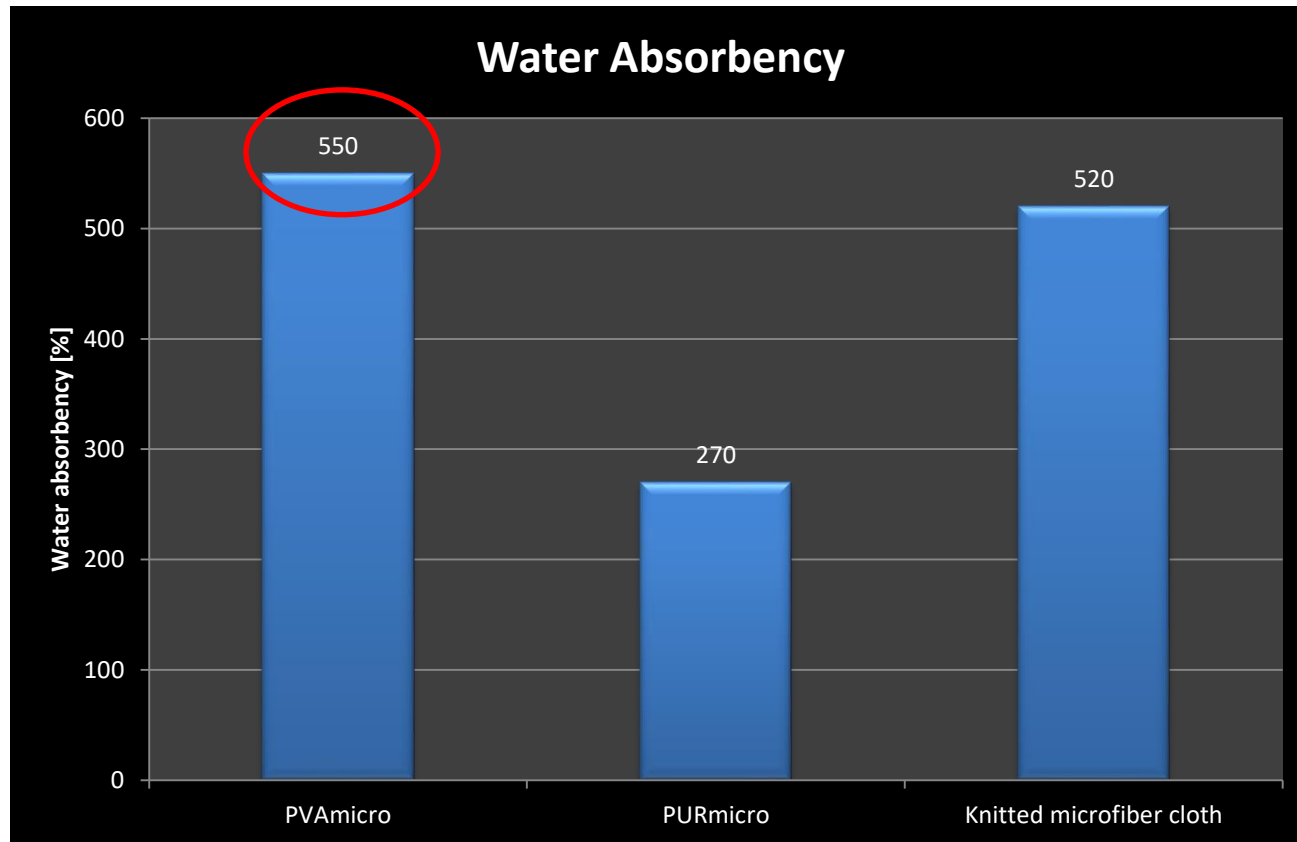
- After 400 laundering cycles at 60°C the cloth is still in acceptable condition.
- After washing several times at 90°C the cloth shows only low shrinkage. PVA fibres can not be washed above 60°C but as the base material is made of PES/PA microfibre 95°C is not a problem.

PVAmicro – Technical tests



- Very low liquid release
- Streak free cleaning without need of after drying step
- Knitted microfibre cloths are not suitable for e.g. mirror cleaning.

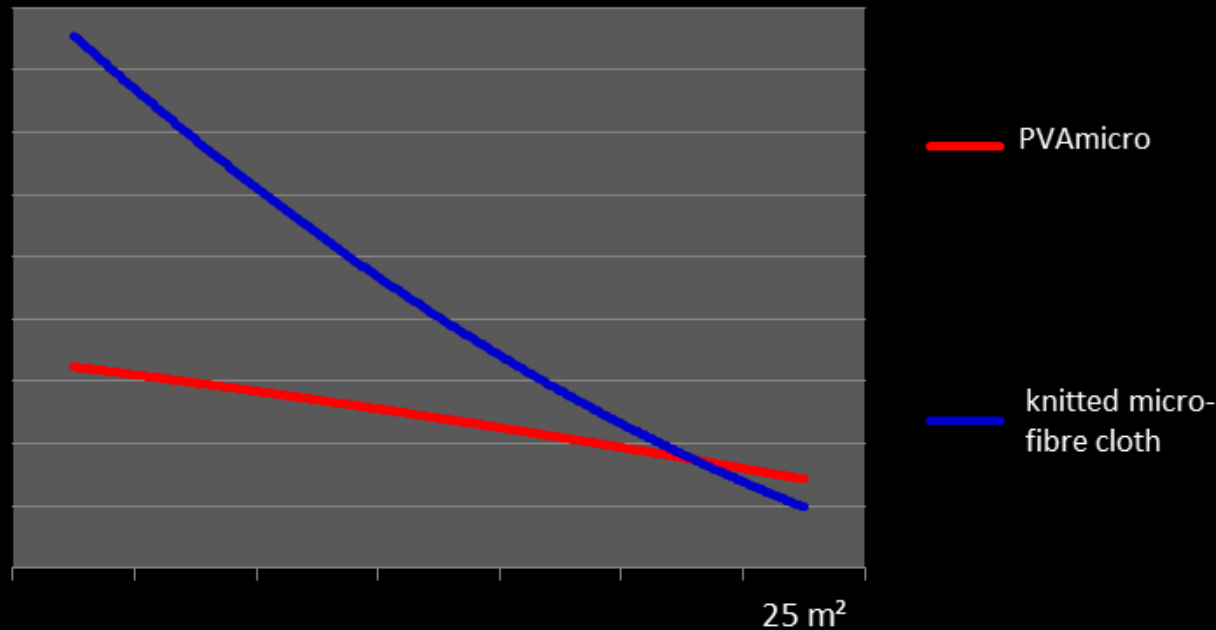
PVAmicro – Technical tests



- Increased water absorbency due to PVA coating
- Significant higher water absorbency than PURmicro cloth
- Slightly higher water absorbency than MicroTuff Swift

PVAmicro – Technical tests

Water release on wiped surface



- After wringing a knitted standard MF cloth leaved the surface very wet.
- PVAmicro shows a much more homogenous water release and a better coverage performance.

PVAmicro – Technical tests



Chemical resistance

- **Chemical resistance** overall good. Low resistance against **chlorine** and moderate resistance against very strong acids and high alkalinity.

PVAmicro – Technical tests



Independent Institute for Facility Management FIGR has proven the excellent properties of PVAmicro



Summary of test results

- Very good cleaning performance
- Cleans without streaks
- Easy to rinse, prevents scratches on wiper surface.
- Very absorbent

Positioning

PVAmicro - Positioning



GBC – HoReCa – Bucket Method

Key Benefits: Cleaning Performance & Streak free cleaning

- Microfibre cleaning performance
- Streakfree result on all surfaces
- Superior rinse ability → significant lower risk of scratching on cleaning surfaces (vs. terry type MF)
- High absorbency



PVAmicro - Positioning



PVAmicro vs. PURmicro


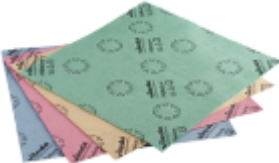

- PVAmicro has significant better water absorbency
- PVAmicro is offered at a more competitive price (IC 0,38€ vs. 0,53€ for PURmicro)
- PVAmicro is based on FHP technology/production

→ The better price with very low compromises on durability allows us a wider positioning of PVAmicro (not only in premium price area but also in medium price segments → to reach more customers)

→ **Keep both cloths in the range, let the customer decide** (review sales performance of PURmicro after e.g. 1 year)



PVAmicro - Positioning

	Absorbency	Cleaning large areas	Streak free cleaning	Easy to rinse out particles	Cleaning performance	Wash resistance
Knitted Microfibre Cloths 	●	●	●	●	●	●
PURmicro 	●	●	●	●	●	●
PVAmicro 	●	●	●	●	●	●

● Best ● Suitable ● Not recommended

Communication Material

Communication

Available Communication Material

- PDS
- TDS
- Ad full page
- 4 page folder
- Press release text

PVAmicro
Streak free, clean and fast

TECHNICAL DATA SHEET
PVAmicro

INTERNATIONAL ARTICLE NUMBER:
165 blue, 143566 red, 143567 yellow, 143568 green

DUCT CLASSIFICATION:
offibre cloth with PVA (polyvinyl alcohol) coating

POSITION:
ic: 80 % Polyester
id: 20 % Polyamide
ing: 100 % Polyvinyl alcohol

PHNICAL DATA:

Property	Typical Value	Unit
Weight per unit area	245	g/m ²
Thickness	1,45	mm
Water absorbency dry	550	%

DUCT PROPERTIES & PRODUCT USAGE

High cleaning performance due to microfibre base material
Ideal for streak free cleaning of shiny surfaces
The cloth releases particles very easily during manual rinsing
Ideal for bucket method
The 4 color system offers simple differentiation of cloths and individual adaptation to hygiene system

Usage recommendations:
Use in conditions: 60°C, avoid high alkalinity and strong bleaching activity (do not use chlorine bleach).
Use with similar colours
Maximum washing temperature: 95°C

Precaution:
Use in wet and damp cleaning of hard surfaces.
Avoid contact with chlorine bleach and strong acids (always use sanitary detergents according to instructions of manufacturer)

PACKAGE, TRANSPORTATION & DISPOSAL
Palletized products in a cold and dry place. Avoid exposure to direct sunlight. Product is not subject to special regulations for hazardous substances or chemicals. Disposal via landfill or incineration. Please respect local regulations.

QUALITY APPROVALS / COMPLIANCE WITH INTERNATIONAL STANDARDS
Product is manufactured conforming to appropriate standards within FHP Quality System.

09/17

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Information contained herein is given according to our specifications and best knowledge without any warranty or guarantee and can be subject to further notice. The suitability of our products to our customers' specific applications and conditions of use has to be confirmed by our customers. In particular, product users shall not be released from their duty to check all health, safety and environmental risks of the delivered goods under their specific conditions of use.

Application area
PVAmicro is an innovative all-purpose fabric impregnated with PVA. The cloth is ideal for cleaning all types of hard surfaces, such as offices, furniture, glass, stainless steel and many more. The PVA impregnation makes the cloth very easy to rinse and wring. PVAmicro achieves a perfect, shiny cleaning result without streaks every time.

Product description
PVAmicro cloth is the combination of two unique materials, microfibre and PVA (polyvinyl alcohol). The 3D structure of the knitted microfibre base material offers high cleaning volume for good dirt pick up. Also as it is microfibre-woven difficult dirt, such as finger prints from glass, is easy to remove. The unique PVA impregnation process brings many additional advantages on top of microfibre. Particles are released very easily during manual rinsing as the inner cloth structure is smoothed. Water release on surfaces is reduced, avoiding streaks. Also due to the unique properties of PVA the water absorbency is dramatically increased, important when removing spills.

Customer benefits
Cleaning performance. The combination of knitted microfibre and PVA ensures perfect results on all surfaces - glass, office furniture, stainless steel and many more.
Streak-free wiping. The PVA has very good streak-free cleaning after-drying.
Durability. PVAmicro can be washed several hundred times.
Easy to rinse. PVAmicro holds 40 times less particle residue after rinsing, compared to ordinary knitted microfibre cloth.
Coverage Performance. PVAmicro applies a very fine film on the wiped surface - homogeneously over an area of more than 25 m² if needed.

TSU no.	Description	Colour	Size	Cloth/pack	Packs/case	EAN code (TSU)
143565	PVAmicro	blue	38 x 35	5	20	4023103176270
143566	PVAmicro	red	38 x 35	5	20	4023103176287
143567	PVAmicro	yellow	38 x 35	5	20	4023103176294
143568	PVAmicro	green	38 x 35	5	20	4023103176300

Helping you make a difference.

Made in Professional
www.vileda-professional.com

Communication - Images

23 in-use photos are available on Marco



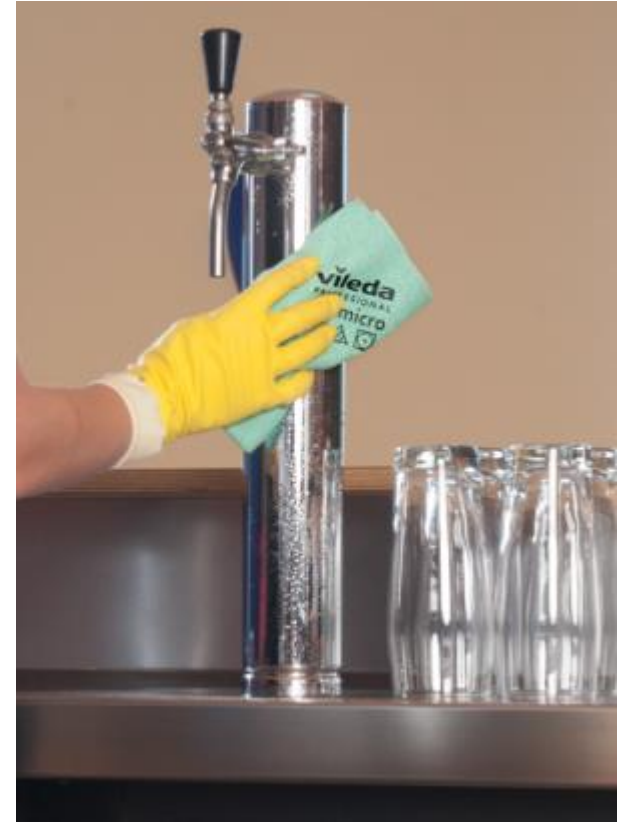
Communication - Images



Communication - Images



Communication - Images



Communication

Ad full page

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PVA micro

One cloth. Twice the actions!

Here it is – a cloth with high cleaning performance plus it wipes the surface dry in one single movement.
It's the all-new PVA micro, that combines two materials into a unique blend of performances. PVA for perfect absorbency and wetted microfibre for maximum cleaning performance.
No risk for scratching delicate surfaces, as the PVA surface makes it easy to rinse out particles, when dipping and wringing the cloth.
With just one wiping movement the surface is clean and dry, which saves time and money. The innovative cleaning performance and the absorption of other-drying, will make PVA micro to the favourite solution for fast and effective wiping!

Helping you make a difference.

Vileda Professional
Find us at www.vileda.com/professional
or contact us at info.professional@vileda.com

Communication

4 Page Folder

Description of the product + advantages in brief including two diagrams showing main advantage of PVAmico performance



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PVAmico cloth

Streakfree, clean and fast.

Wipe dry and clean in one single movement

You need a cloth with a high cleaning performance. You need a cloth with high absorbency that wipes the surface dry, without leaving droplets or streaks behind. And preferably, combined in one cloth.

Look over the PVAmico from Vileda Professional. It has three advantages built into the same double cloth, plus adding one more on our top.

PVA for absorbency. Microfibre for performance. PVA has been an approved cloth material for window cleaning, due to its excellent absorbency. Microfibre is the material for effective dirt removal.

The solution is obvious – PVAmico! It has learned lessons for superior cleaning performance and PVA has been possible absorbency and drying.

Streak-free. Scratch-free. The unique PVA surface makes it easy to wipe out particles, when dipping and wringing the cloth. No risk for scratching delicate surfaces, plus you have wringing behind too, without water streaks.

High absorbency and very low water uptake – that's the professional PVAmico.

Wipe smooth, fast and gliding. Thanks to the softness, PVAmico is very easy and comfortable to use and will wring, with lower stress on hands. In dry conditions the cloth is comfortable with low water uptake, it sticks to surfaces with water – a really easy and secure catch and feel.

The superior cleaning performance and the absorbency of also drying will make PVAmico the favorite solution for fast and effective wiping!

Guaranteed by Vileda Professional PVAmico is exclusively produced by Vileda Professional (you are probably) knowing our history. You can rest your eyes on developing high quality products that really meet where demands on cleaning results, durability, ergonomics and cost are so high.



PVAmico advantages in brief

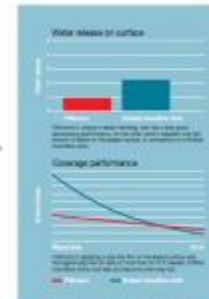
Cleaning performance. The cloth removes almost perfect streaks or smudges of surface – glass, office furniture, stainless steel, ordinary metal.

Streak-free wiping. The microfibre deep good water absorbency, leaving little to dry up without after-wiping.

Durability. PVAmico can be washed repeatedly several times.

Easy to hold. PVAmico holds all three wet patches evenly after wring, compared to ordinary window cleaning cloth.

Coverage Performance. PVAmico is applying a very thin film on the water surface – subsequently over an area of even less than 1 m².



Professional – a part of the Freudenberg Group
Because of our extensive cleaning systems and systems for production process application areas, such as vehicle washing, railroads, tunnels and driveways, with some offices in all major European countries, in South America and with a number of subsidiaries, we are well established around the globe.

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Product	Color	Size	100 x 100	150 x 150	200 x 200
PVAmico	Blue	Medium	1	20	10000
PVAmico	Red	Medium	1	20	10000
PVAmico	Yellow	Medium	1	20	10000
PVAmico	Green	Medium	1	20	10000

Helping you make a difference.

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Thank you
for your attention

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