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VITRAFIL®

Hi Tech Glass Filter Media

Anti-Compaction
Technology®



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European sales organisation

HAYWARD® is present throughout the European territory with a strong **commercial and technical team of 50** dedicated people.

**JOIN US AND
FOLLOW US ON OUR
SOCIAL NETWORK**



To contact our Customer Sales service:

- ☎ 00 33 (0)4 74 46 59 62 - 00 34 925 533 025
- ✉ eu-customerservices@hayward.com
- 🕒 Opening hours: 8.30 a.m. – 05.30 p.m.

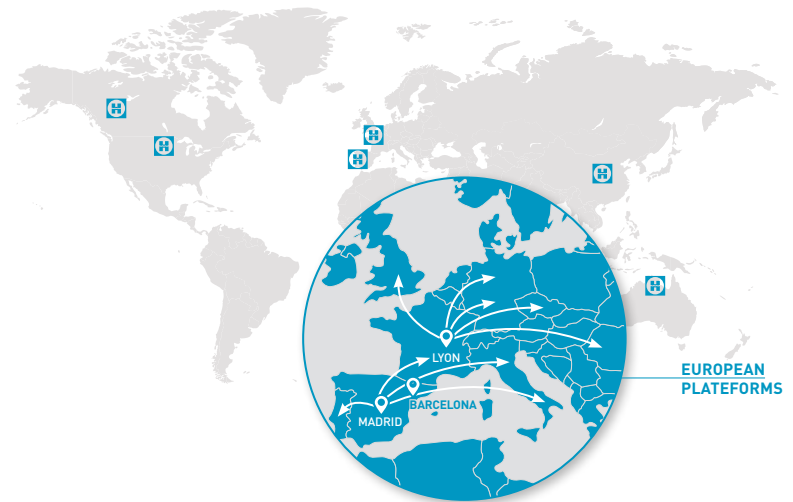
To contact our After-Sales service:

- ☎ 00 33 (0)4 74 46 59 62
- ✉ savi@hayward.fr
- 🕒 Opening hours:
April to September: 8 a.m. - 6 p.m.
October to March: 9 a.m. - 12 p.m. / 1 p.m. - 5 p.m.



Hayward®, leading supplier of pool equipment

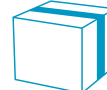
A worldwide presence



\$ 810 MILLIONS
TURNOVER WORLDWIDE



\$ 100 MILLIONS
TURNOVER EUROPE



1 000
SKUS IN EUROPE



10
FACTORIES



2 300
EMPLOYEES WORLDWIDE

MORE THAN
5 MILLION*
POOLS FITTED
WITH HAYWARD®
PRODUCTS



*2020 Hayward® in Europe



What is VITRAFIL®?

It is a **latest generation filter media** based on virgin recycled glass, designed exclusively for water filtration.

Just by changing your current filter media for VITRAFIL® you will maximize every standard filter's performance.

What **advantages** does it achieve?

You will find noticeable advantages in:



PERFORMANCE



EFFICIENCY



HYGIENE AND
BIOSECURITY



DURABILITY



SAFETY

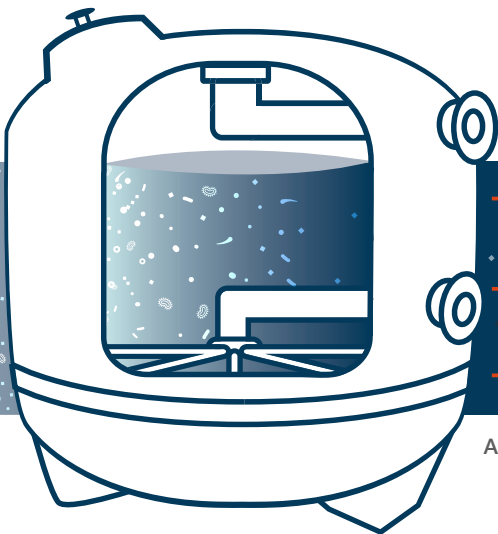




A 4x5 grid of 20 blue dots. The dots are arranged in 4 rows and 5 columns, with equal spacing between them both horizontally and vertically.



Typical particles in an outdoor pool in order of expected mass



99,64%

FILTRATION
PERFORMANCE
IFTS TESTED

06.



Efficiency

Tests conducted by:



Energy Saving

The **Anti-Compaction Hi-Tech®** has been designed to keep the micro channels that form in the filtering mass open, so pressure loss is negligible. Thanks to this, the pump works more smoothly and therefore reduces its consumption:

VITRAFIL®

IFTS test RA_2020_00006470 Point 4.3.

Filtration term: Pressure Drop

Technical term: Differential pressure filtering media (hPa.)

Calculation: INPUT - OUTLET Pressure

d Pressure: -45 hPa

AFM®^{ng}

ACTIVATED FILTER MEDIA

IFTS test RA_2020_00006469 Point 4.3.

Filtration term: Pressure Drop

Technical term: Differential pressure filtering media (hPa.)

Calculation: INPUT - OUTLET Pressure

d Pressure: -110 hPa

145% More compared to **VITRAFIL®**

GLASS PEARLS

Superior filter media

IFTS test RA_2020_00007015 Point 4.3.

Filtration term: Pressure Drop

Technical term: Differential pressure filtering media (hPa.)

Calculation: INPUT - OUTLET Pressure

d Pressure: -93 hPa

107% More compared to **VITRAFIL®**

Water Saving

At the same time as we save energy, due to keeping the micro channels open, **we also manage to save water as we reduce backwashing needs:**

VITRAFIL®

backwashing needs*

1 monthly

AFM®^{ng}

ACTIVATED FILTER MEDIA

backwashing needs*

4 monthly

300% More compared to **VITRAFIL®**

GLASS PEARLS

Superior filter media

backwashing needs*

4 monthly

300% More compared to **VITRAFIL®**

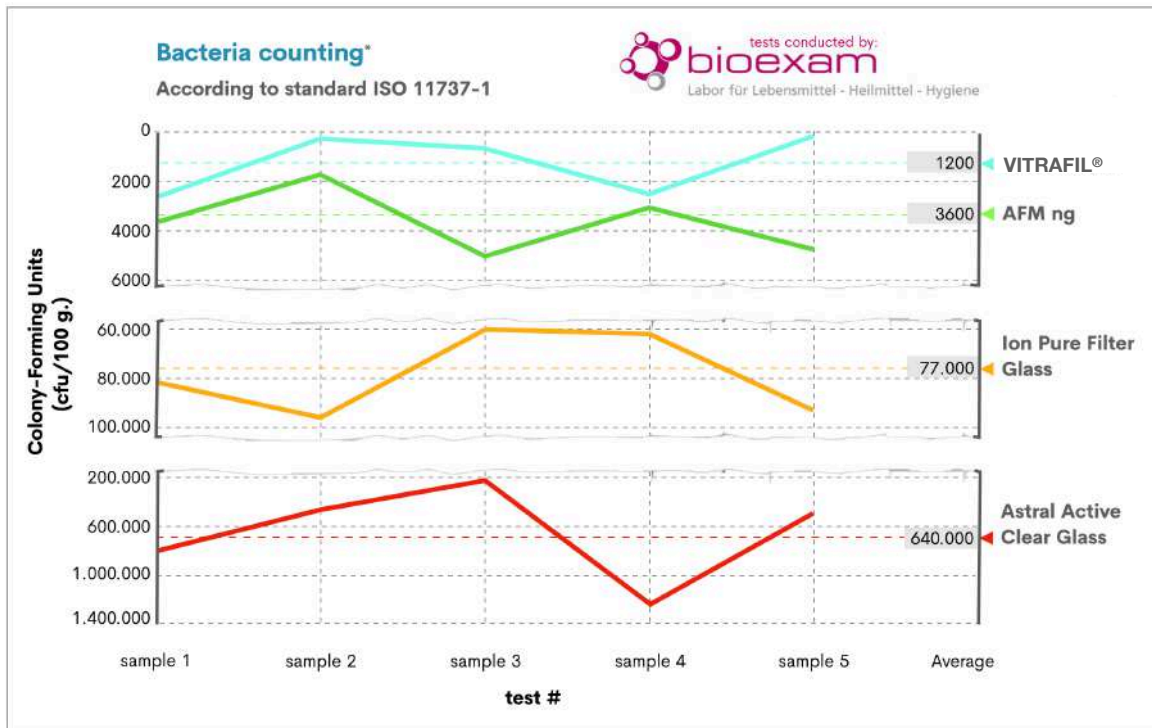


Hygiene

Bio-Security is no longer just an option yet a professional responsibility

In an effort to keep users duly informed, we have gone to the **Swiss labs Bioexam AG**, who have proceeded to do a test battery of bacterial presence. This way we can check the different levels of Bio-Security of the most representative/outstanding brands on the market:

*Tests carried out on brand new products:

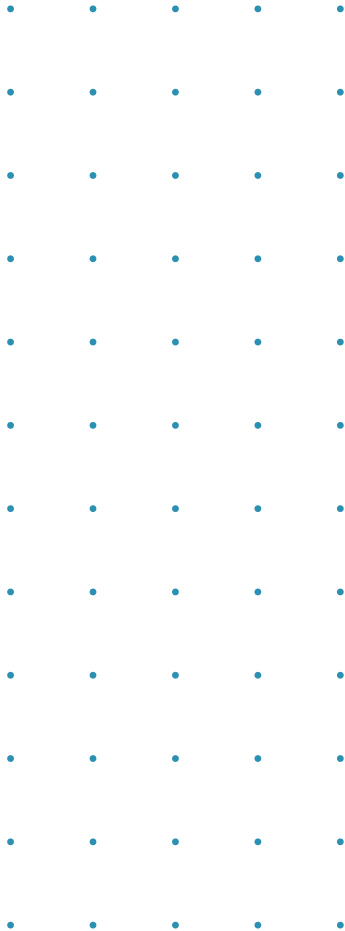


Graphic composition produced by VITRAFIL®

VITRAFIL® Glass Filter Media stands out for having results **very close to zero bacterial presence**, offering the highest level available in terms of Bio-Security.



Hygiene



Accredited **Absence of Biofilm**

The aseptic properties and the Anti-Compaction Technology[®] of VITRAFIL[®] avoid the formation of **biofilm**. This important characteristic is accredited by accreditation laboratories.

Biofilm is responsible for chloramines, clogging and channeling in the filter mass. With the use of VITRAFIL[®] you will find a difference straight away.

Certified **Absence of Free Silica**

The crystal silica is a compound mineral that can be found in rocks and sand and may be found in filtration sand. A long term exposure to this compound could lead to various lung problems.

VITRAFIL[®] avoids this hazard as it has no Free Silica in its composition. **Certified by Bureau Veritas**
Certification number BV ES026775-A-CPI

Anti-Compaction Technology®

Most of the filter medias available on the market come to the end of their useful life prematurely due to the effect of compaction (caking), a process where the segregation of fine and thick grains block the microchannels of the filtering mass

In order to avoid this result, VITRAFIL® has developed the Anti-Compaction Technology®, **a precise selection of the calibre of the grain, designed to extend the useful life of the media indefinitely.**



A single layer to achieve maximum durability

VITRAFIL® only needs a single layer, with only one grain size, to offer a maximum performance, unlike other filter media that require multiple layers of different grains to be effective

This means VITRAFIL® can be used time and time again. In the case of having to be taken out for any reason, such as damage to the filter or changing the water traps, you just take it out and reuse it in a safe and easy way.

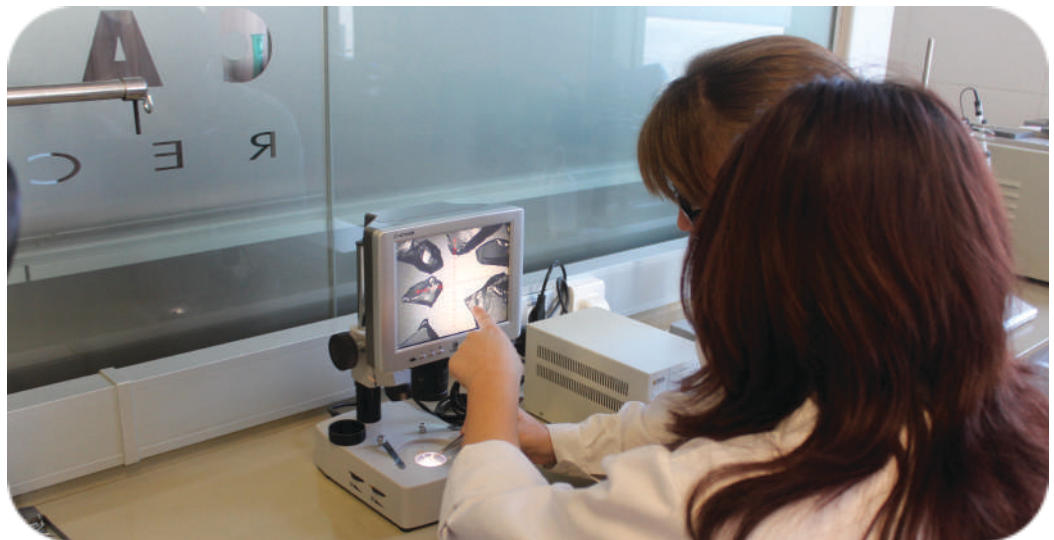


Safety

Safety, a **basic quality**

Safety is a basic quality when it comes to products used for water treatment for human use. For this reason at VITRAFIL® we subject our glass to an advanced micro grinding to eliminate sharp and cutting edges.

With this process we obtain **a glass that is harmless and completely safe to handle.**



Certifications, Accreditations and Tests

VITRAFIL® properties are backed by Bureau Veritas Certifications and by Biofilm Absence Accreditation. We guarantee the highest quality standards in all of our production batches by carrying out a thorough control of the whole production process:



IFTS laboratories testings

- 99,64% Filtration Performance
- Energy and water reduction



Accredited Absence of Biofilm



Certificate N° ES026775-CPI

- Product features
- Whole production process control
- Traceability
- Absence of Free Silica

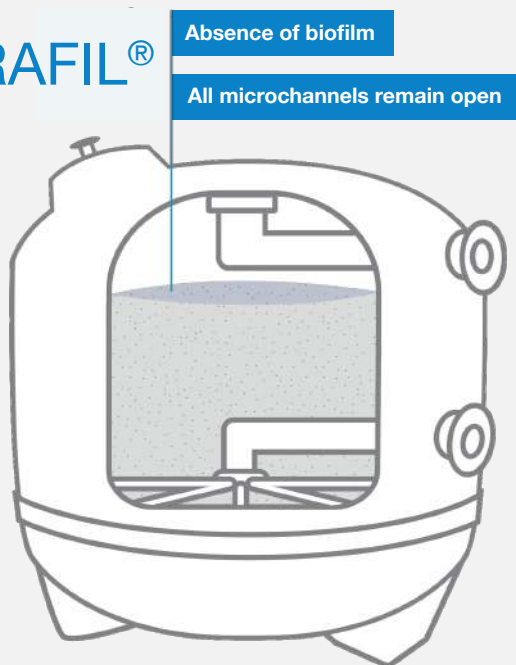


Certificate N° ES026775-A-CPI

- Fresh Water Treatment authorization according to UNE EN 12.904 normative

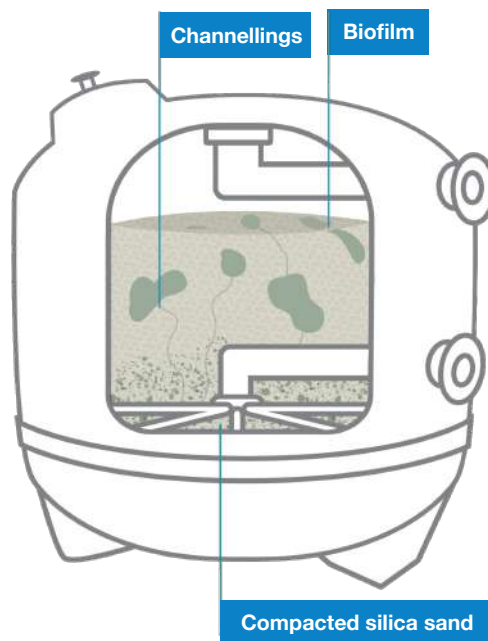
Advantages over silica sand

VITRAFIL®



Advantages of VITRAFIL®

- Absence of Free Silica Bureau Veritas Certified
- Accredited Absence of Biofilm
- Extreme durability
- Minimum energy, chemicals and water consumptions.
- High filtration quality
- Negligible loss of pressure



Disadvantages of silica sand

- Free silica presence
- It becomes bio-hazardous due to biofilm presence
- Limited durability
- High chemicals, water and energy consumptions
- Preferential channeling presence that reduces filtration quality
- High use of pump pressure

VITRAFIL® over other glass for filtration: **origins**

Origin of VITRAFIL®

Origin: virgin glass obtained from flat glass. Bacteria & Contaminant free.

It is brand new glass, that has never been transformed nor in touch with urban waste.









Origin of all other glass for filtration

Origin: Bottles, jars, pieces of glass from urban glass banks and urban waste

Expected contaminants: bacteria, ceramic, plastic, lab materials, metals, light bulbs, fluorescent tubes...



Comparative table over competitor glasses:

	VITRAFIL® Specially developed for water treatment for human use	Other glasses Used as filter media
 PERFORMANCE	<ul style="list-style-type: none"> Maximum transparency of the water. Accredited absence of biofilm. Reduction of the levels of chloramines and THMs. Fresh Water Treatments certified. 	<ul style="list-style-type: none"> Different results.* No accreditation of absence of biofilm. Absence of certification for Fresh Water Treatments.
 EFFICIENCY	<p>Significant reduction in the consumption of:</p> <ul style="list-style-type: none"> Water Energy Chemical products 	<ul style="list-style-type: none"> Less savings in all fields.
 HYGIENE AND BIOSECURITY	<ul style="list-style-type: none"> Guaranteed bacteria & contaminant free. VITRAFIL® has a purity level of 99,999% or higher, certified by Bureau Veritas. 	<ul style="list-style-type: none"> Expected presence of bacteria and other contaminant. Absence of purity degree certification of any kind.
 DURABILITY	<ul style="list-style-type: none"> The Anti-Compaction Technology® allows an unlimited lifespan and being able to use a single layer makes it possible to be re-used indefinitely. 	<ul style="list-style-type: none"> Multiple layers needed, limiting its lifespan in the case of having to fix the filter. Not reusable.
 SAFETY	<ul style="list-style-type: none"> Micro polished particle free of sharp edges and pores. Completely safe to handle. 	<ul style="list-style-type: none"> Hazardous edges when it comes to handling, especially during installation and removal.
 PACKAGING	<ul style="list-style-type: none"> Environmentally friendly recyclable packaging. Made from paper with FSC certificate. 	<ul style="list-style-type: none"> Plastic as main packaging material.

** Its performance depend on the manufacturing batch, because of an uncontrolled grain curve.*

Our grain curve is perfectly controlled, even each fraction is strongly defined following the requirements of the Anti-Compaction Technology®

Our Bureau Veritas Certification of Product, Whole-Production-Process & Traceability, allow us to guarantee our products features

How much VITRAFIL® glass will I need for my filter?

Why does VITRAFIL® offer **better results than silica sand**?
(see page 16)

The absence of biofilm plus Anti-Compaction Technology® makes VITRAFIL® **one of the most efficient filter medias on the market.**

Yes, all standardized filters allow the use of VITRAFIL®.
If your filter does not have the worldwide harmonized nozzle opening size [0,35 +/- 0,015 mm], we recommend you change the nozzles for standard ones.

Why does VITRAFIL® **only need one layer?**

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The combination of layers with different sized grains inside the filter is needed when the filter media has not Anti-Compaction Technology®, in order to delay clogging and be able to do a correct backwashing.

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Thanks to its High-Calibrated filter media grain curve, VITRAFIL® does not need different layers in any kind of filter. This also ensures an indefinite shelf life.

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Why is VITRAFIL® **transparent?**

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VITRAFIL® has been designed and produced specifically for use in water filters. **To ensure maximum purity only virgin glass is used**, it's the only glass with controlled origin and guaranteed not to have been in touch with bacteria or any other contaminating materials.

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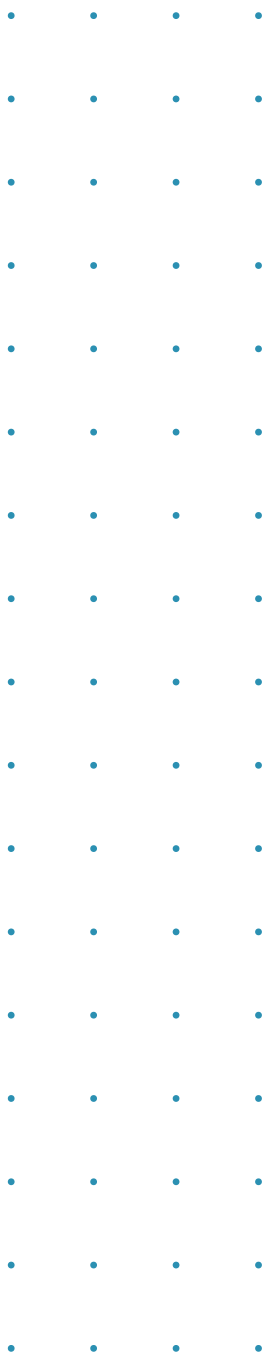
Unlike other glass filter media, it does not come from urban glass banks and therefore is the only one suitable for water filtration for human consumption.

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Is **colored glass** just as efficient as the transparent one?

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Glass obtains its color when its being manufactured due to different chemicals, metals and oxides being added to achieve each color. **As it is encapsulated at a molecular level, this does not change any of the glass properties**, nor does it affect the filtering process. However, as the glass used for the colored filter media comes from glass banks, not directly from the manufacturer, it may have all sorts of bacteria and contaminants that can end up in the water, which makes it risky to use in water filters for human consumption.



In **which sectors** may VITRAFIL® be used ?

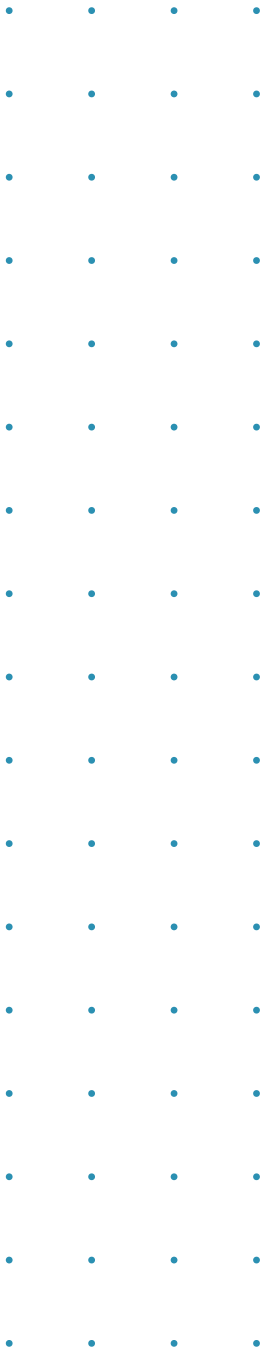
Thanks to its advantages and technical characteristics VITRAFIL® is now **used in over 100.000 installations all over the world**. Used mainly in:

- Private pool
- Public pool
- Advanced industrial installations such as purification plants, water parks, nuclear installations, desalination plants and aquaculture circuits among others.

Is VITRAFIL® **“activated”**?

By definition, **filtration is a mechanical process where no other forces intervene**, unwanted particles are retained in a filter due to the interaction of the water flow and the filter media. Due to its insulant nature, glass does not allow the free circulation of electrons, and therefore it is not possible to “charge” or “activate”.

Some other manufacturers claim that their glass is “activated” yet this feature has not been backed up by any studies or demonstration.



Learn more:



VITRAFIL®

Hi Tech Glass Filter Media

Anti-Compaction
Technology®

