

MAGIC FIBER Business

— Application to products that solve water pollution —

September 2020
M-TEchX Inc.



Data on water and sanitation in developing countries released by Tohoku University (Japan) in 2016 showed: It is estimated that one in nine people do not have access to safe water, and 3.5 million people die every year from water-related diseases. More than 80% of diseases in developing countries are caused by poor water sanitation.



[Possible measures for water pollution]

Reuse as household water

Prevention and
elimination of pollutant
spills

Improving purification
capacity of contaminated
water

Reduction of plastic

MAGIC FIBER can be applied not only to wastewater and waste discharged into rivers, but also to products that solve pollution problems such as drinking water pollution, chemical emissions from factories, and microplastics.

1.Improvement of drinking water and household water

MAGIC FIBER
Simple water
filtration filter



2.Measures against sewage and chemical emissions

MAGIC FIBER
Industrial filter



3. Water purification and pollutant removal measures

MAGIC FIBER
Water filters and
contaminant
adsorbents

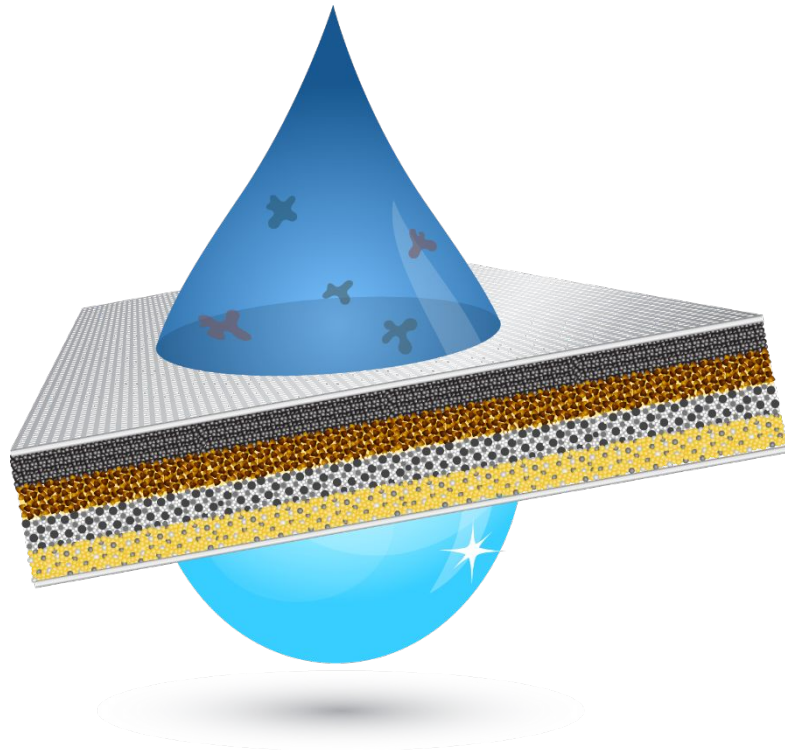


4. Measures against Microplastics

MAGIC FIBER using
biodegradable and
plant-derived materials



To easily desalinate rainwater and muddy water with a water filter.



The MAGIC FIBER filter can filter not only dirt and mud, but also microorganisms such as plankton and bacteria and harmful bacteria.



MAGIC FIBER can be used for simple water purifiers that can be used by individuals.



Point.

I . Changing dirty water into easy-to-drink water

II . Microorganisms can be removed

Nano-level filter can remove minute viruses (Noro, rota, polio, etc.) and pathogenic microorganisms (Cryptosporidium, O -157, cholera, etc.).



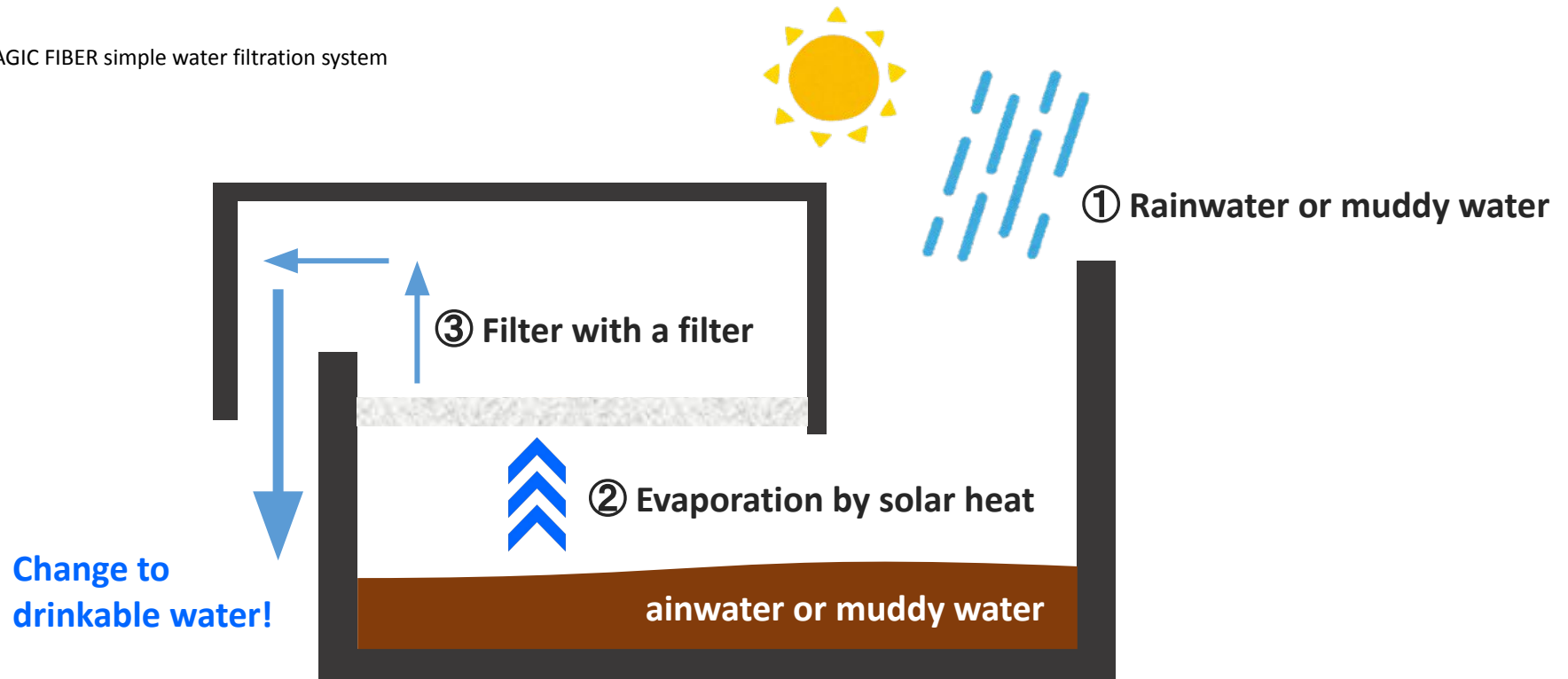
[Difference from filtration equipment]

- Can be carried and used by individuals
- The filtration speed is fast and there is no need to wait for a long time to secure drinking water.

1. Improvement of drinking water and household water

The MAGIC FIBER simple water filtration system makes it possible to easily convert rainwater and muddy water into water that can be used at home and drunk.

Image of MAGIC FIBER simple water filtration system



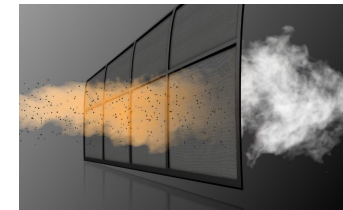
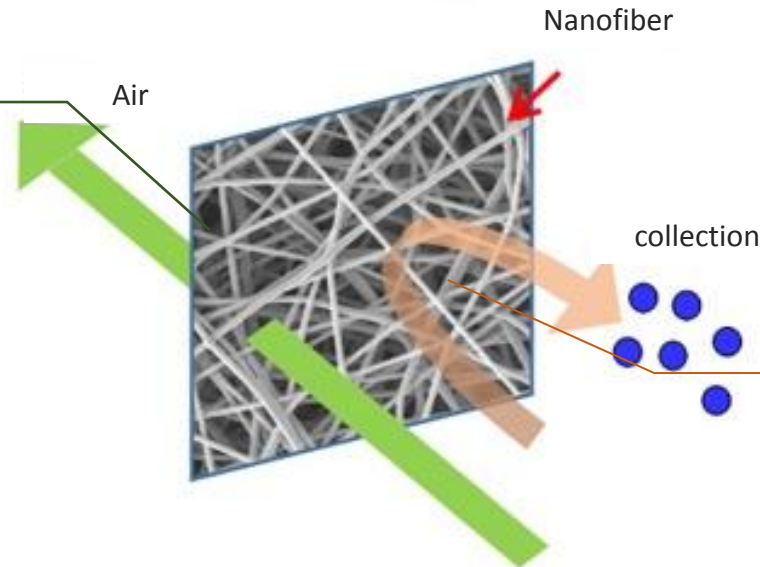
2. Measures against sewage and chemical emissions

[Air filter]

As an extremely high-performance air filter, magic fiber can reduce air pollution and environmental impact.

Reduction of environmental impact

Not only does it prevent the release of contaminated air to the outside air, it also prevents energy loss by preventing pressure loss.

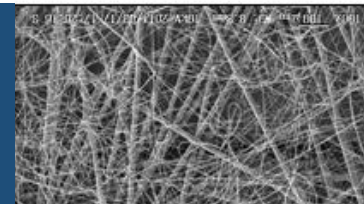


Ultra fine fibers and ultra specific surface area effect (3D solid structure) cut influenza virus, PM 2.5 and smaller particles.

Air pollution control measures

[applied product]

- home appliance filter
- high-performance mask
- clean room
- Exhaust gas from factories, air conditioning filters, etc.



Nanofiber



Used in dust collectors and air conditioning filters

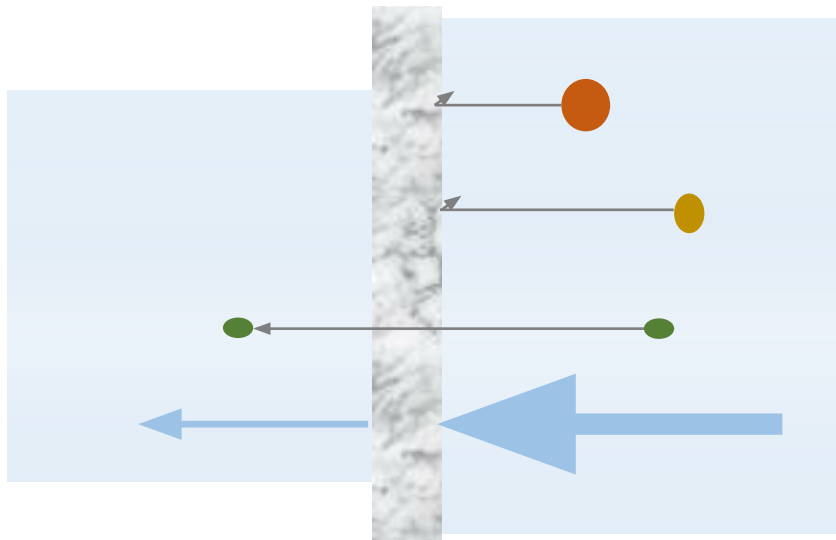
3. Water pollution control measures

[Water filter]

In rivers with low volume of water and polluted water, highly functional water purification systems that introduce clean river water and highly treated water are necessary, and highly functional water filters are essential.

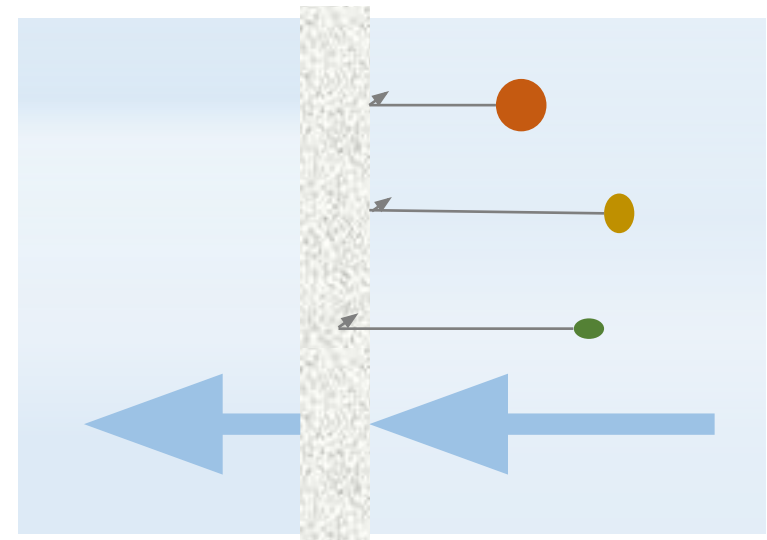
Conventional filter

- separate and collect aquatic organisms of some size
- Infinitesimal plankton cannot be separated and is processed (UV treatment, etc.) in the next process.



Nanofiber filter

- Fine aquatic organisms are also isolated and collected.
- Even if it passes through the surface, it can be captured inside the fiber layer by the laminated structure.
- The water permeation flow rate is high and the efficiency of water treatment is good.



About Nanofiber Filters

A high-performance filter that can cut ultra-fine dust and viruses, and is expected to save energy.

Adopted for air filters

Because of its much finer fiber diameter and complex 3D structure, it is possible to create a high-performance filter that is more powerful in capturing harmful and pollutants.

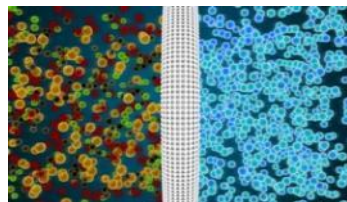
- Prevent the entry of contaminated air into greenhouses and hydroponic facilities
- Prevent leakage to outside air
- Low pressure loss results in energy loss, leading to savings in electricity costs, etc.



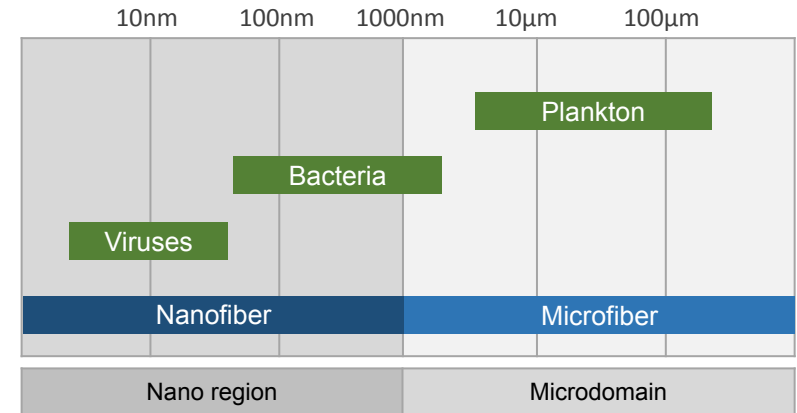
Adopted for water treatment filter

The water treatment filter woven with magic fiber strongly collects harmful substances and microorganisms, and can be removed if it has antibacterial properties.

- powerful filtration function
- Removal of ammonia and heavy metals
- Helping prevent the leakage of pollutants and contribute to environmental measures by incorporating it into the drainage unit



Filter performance



MAGIC FIBER can capture relatively large microorganisms such as plankton and bacteria, as well as particles as small as pm 2.5 or smaller.

[conventional filter]

- High pressure loss due to large air circulation
- The power consumption increases accordingly

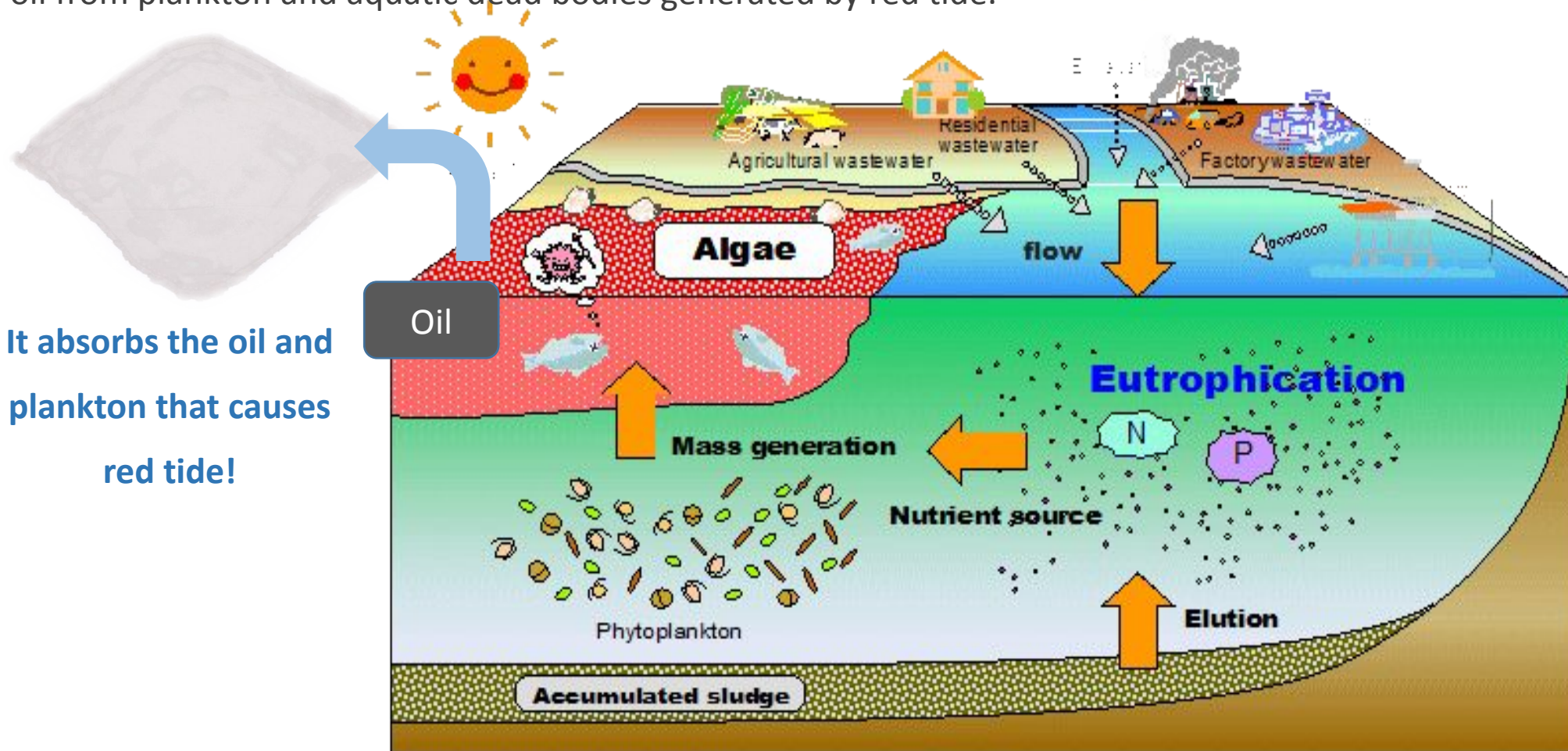
[magic fiber filter]

- Low pressure loss and low power consumption
- The backwash effect is also high, so the life is extended

3. Water pollution control measures

Red tide countermeasure

MAGIC FIBER oil adsorbent is considered to be effective for red tide removal because it can adsorb oil from plankton and aquatic dead bodies generated by red tide.



3. Water pollution control measures

Water purification performance

With the MAGIC FIBER oil adsorbent, all values representing the amount of substances in water decreased. MAGIC FIBER oil adsorbent is expected to improve water quality.

Inspection results of grease traps in restaurants

certificate of measurement

管理 No. C1831840-001 1/1 -1
検査開始日 平成 30年 3月 9日
発行年月日 平成 30年 3月 20日



水道法第20条登録水質検査機関第240号
水道法第34条登録簡易専用水道検査機関第150号
建築物飲料水水質検査業東京都56水第23号
計量証明登録事業所登録第557号(濃度)

株式会社 日本分析

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環境計量士 第3537号 池田 達也



依頼者			
採取日	平成 30年 3月 6日	時刻	15:30
天候	—	温度	気温 — 水温 —
採取者			
試料名	放流水	受付方法	郵送
採取場所	①		

貴殿よりご依頼されました試料の計量結果を下記により証明させていただきます。

計量の対象	単位	計量の結果	計量の 方法
生物化学的酸素要求量(BOD)	mg/L	2300	JIS K 0102 21, 32.3
化学的酸素要求量(COD Mn)	mg/L	700	JIS K 0102 17.
浮遊物質(SS)	mg/L	2700	S46環告第59号付表9
溶存酸素	mg/L	0.5 未満	JIS K 0102 32.1
		以下余白	

Conventional product

certificate of measurement

管理 No. C1831858-001 1/1 -1
検査開始日 平成 30年 3月 9日
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採取者			
試料名	放流水	受付方法	郵送
採取場所	①		

貴殿よりご依頼

計量の対象	単位	計量の結果	計量の 方法
生物化学的酸素要求量(BOD)	mg/L	950	JIS K 0102 21, 32.3
化学的酸素要求量(COD Mn)	mg/L	310	JIS K 0102 17.
浮遊物質(SS)	mg/L	990	S46環告第59号付表9
溶存酸素	mg/L	0.5 未満	JIS K 0102 32.1
		以下余白	

Dramatic reduction in water contamination!

MAGIC FIBER

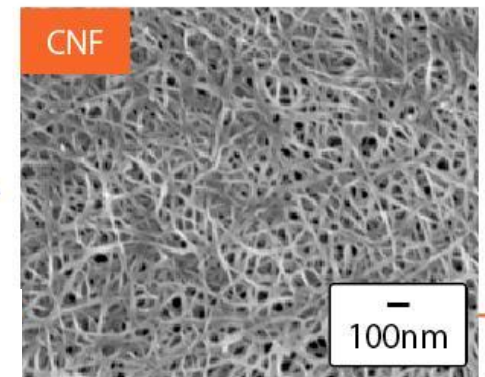
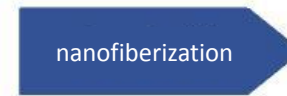
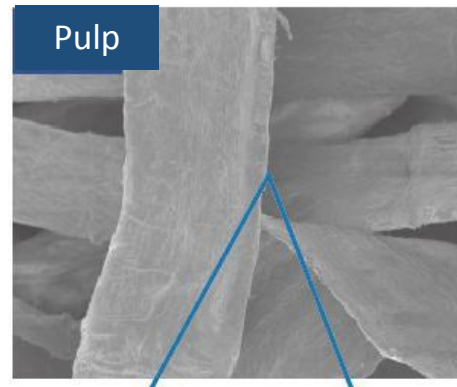
4. Measures against Microplastics

By changing the raw materials of nanofiber products from plastic resins to biodegradable ones, plants, and protein-derived ones, we can create products that are friendly to the sea.



Uses marine biodegradable materials

Example)
Cassava (tapioca) and cellulose are under development.



Made from natural materials such as cellulose

Cellulosic nanofibers are natural fibers extracted from plant biomass and can contribute to the realization of a low-carbon society. Biodegradable plastics have been limited in their use due to their weak strength, but the use of cellulose is said to increase strength and expand applications.