PRE READING &
REFERENCE MATERIAL

MAGIC FIBER

Introduction of Oil Absorbents

Product Information ver.5.0

M-TEchX

Magic Fiber Oil Adsorbent
Product Introduction Video

MAGIC FIBER®

OIL ABSORBENT

MAGIC FIBER
OIL ABSORBENT

With nano-sized fibers and special structure

Revolutionizing oil processing.

- Oil absorption several times higher than conventional products
- Absorbs and retains only oil without absorbing water

Can be used for factory and machine oil, grease traps, etc.

This product offers value of dramatically improving work efficiency and contributing to global environmental issues.

WHAT IS MAGIC FIBER OIL ABSORBENT?

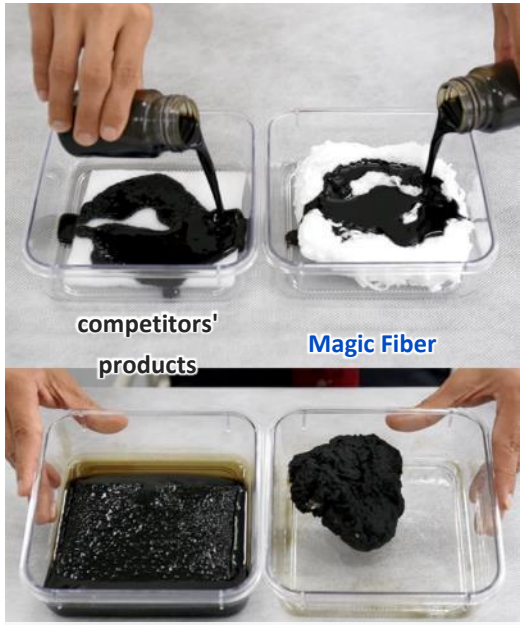
Name	Magic Fiber Oil Adsorbent (for professional use)
Use	Adsorption of oil, including industrial and cooking oil
Specification	20 g per sheet, 30 cm x 30 cm (can be customized upon customer's request)
Raw materials	Polypropylene
Structure	Special structure containing nano-sized fibers.
Performance	Adsorbs about **50 times its own weight** in oil.
Uses	• Disposal of used or leaked oil, e.g. in manufacturing plants • Removal of oil from water • Grease trap oil removal • Oil removal during disasters (oil spills) • Emergency reserves e.g.

FEATURES AND ADVANTAGES

Fiber structure that meets the characteristics required for oil absorbents, with unparalleled performance compared to conventional products.

unparalleled performance

Oil absorption capacity of approx. 50 times its own weight



Compared to conventional products Absorbs five times more oil!

New efficiency

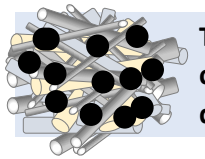
Strong retention

Even when lifted. No oil drips!

new performance

Hydrophobic, ability to absorb oil only.

Conventional products also absorb water. Magic Fiber does not absorb water at all. only absorbs oil efficiently!



The complex fiber structure continues to absorb large quantities of oil only.

BENEFITS

1 Reduced number used

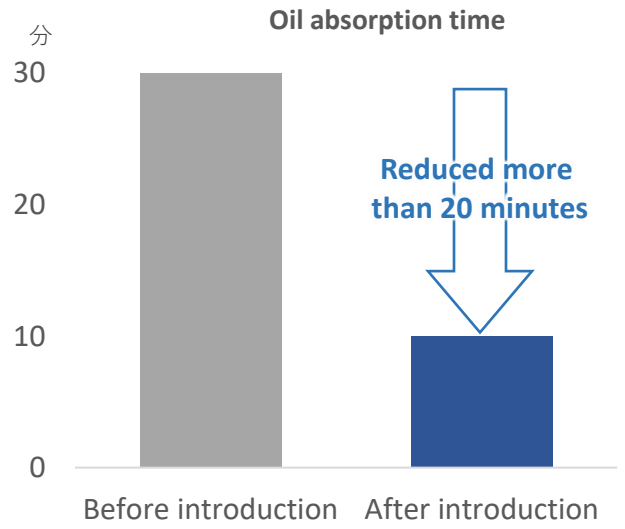
[Number of sheets required to remove 1 litre of oil]

It also reduces the amount of waste.

If the oil absorbent per sheet is the same weight (20 g)

2 Reduced working time

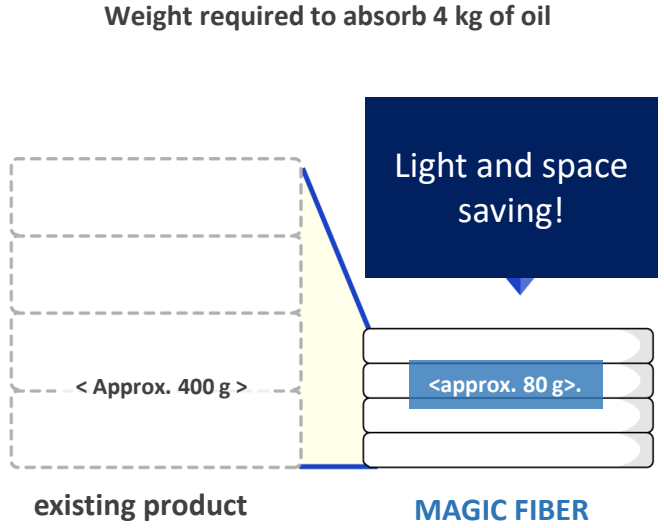
[Time taken to remove oil from grease trap].



Cleaned using conventional products before introduction, own research.

3 Reduced storage and transport costs

[Weight required to absorb the same amount of oil].



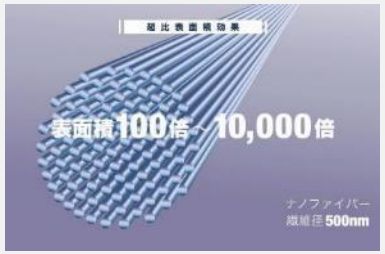
REASONS FOR ULTRA-HIGH PERFORMANCE WHY DOES IT ABSORB LARGE AMOUNTS OF OIL AND NOT DRIP?

1 SUPER SPECIFIC SURFACE AREA EFFECT AND SPECIAL STRUCTURE

①Nanofiber-specific effects

Specific surface area smaller than microfibers

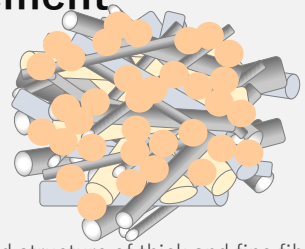
⇒**Because the area adhering to oil is increased Dramatic increase in absorption**



②Complex fiber structure for entanglement

The combination of different fiber diameters results in more powerful capillary action than conventional products.

⇒**Oil is trapped in the numerous crevices, making it difficult to leak.**



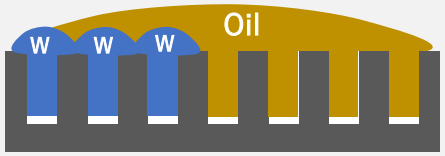
Laminated structure of thick and fine fibers

2 WATER-REPELLENT STRUCTURE THAT ONLY REPELS WATER

By nanofibers Structure as if the surface is water-repellent

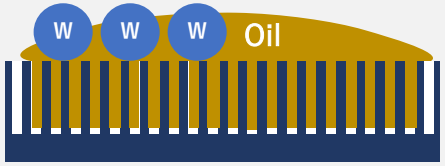
[Surface structure of oil absorbent and image of water repellency]

Conventional product



Large gaps, water that touches the surface is crushed and gets inside.

MAGIC FIBER



The contact area with water droplets is small due to the fine fibers, and the contact angle of water is more than 90 degrees.
Water is not crushed and does not penetrate

*Oil has less surface tension of its own than water, so it crumbles and gets inside

Water Repellent Principle

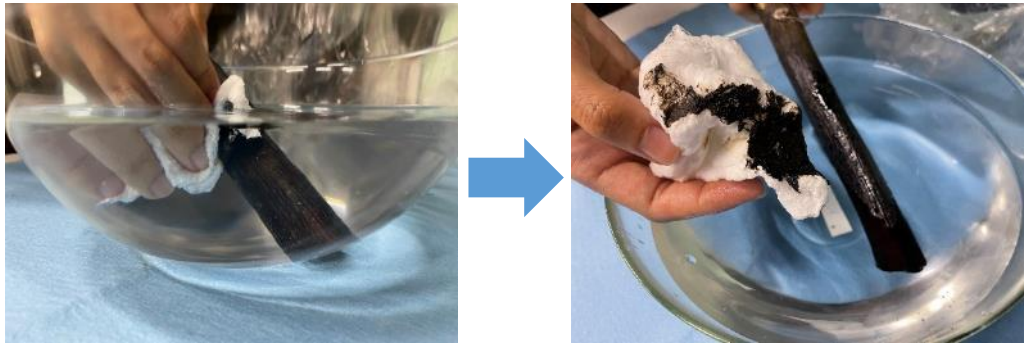
Water repellency occurs when the contact angle between the surface and water is greater than 90 degrees

ADDITIONAL FEATURES

Oil mixed with water.
Absorbs oil on wood and metal

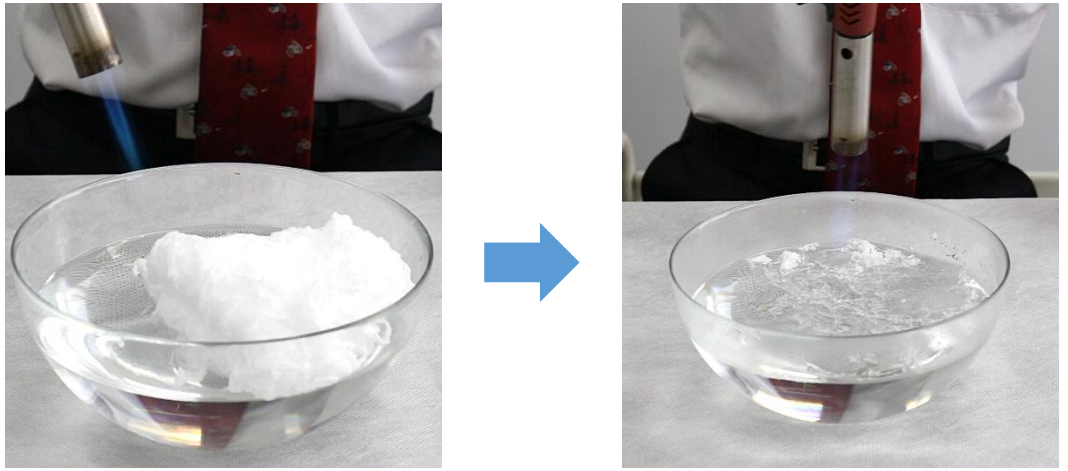
■ Absorbs oil dispersed in water

■Absorption of oil on wood in water.



If a fire starts, it does not spread.

■If the magic fiber is set on fire



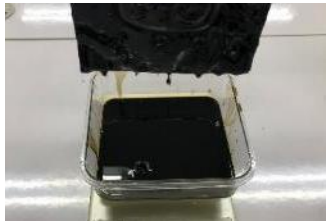
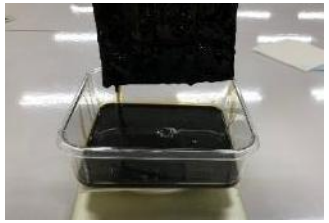
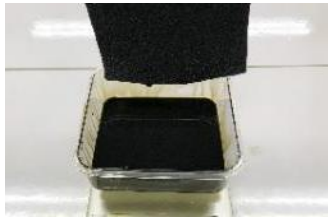
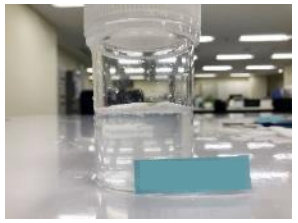
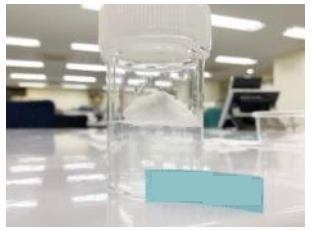
Fibers do not catch fire

Does not burn.
Just melts!

・燃焼性試験 (FMVSS No.302)に合格 (examined by Kaken Test Center)

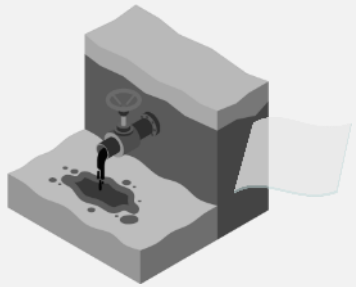
OIL ADSORBENT PRODUCT COMPARISON

* Values published by each manufacturer and researched by the company

Comparison items			Product A	Product B	Product C	M-TEchX MAGIC FIBER
Absorption	Catalog Spec	**Weight**	Approx. 15 times	Approx. 11 times	Approx. 12.5 times	**Approx. 50 times**
		Adsorption amount (per 20g of adsorbent)	300g	220g	250kg	**1000g or more**
Retention power	Measured Value	**Retention Comparison** After absorbing 5g of absorbent and 100g of waste oil, lift it up. Measured 60 seconds later	No retention, drooping 	No retention, drooping 	No retention, drooping 	**Retentive and no droop when lifted** 
		Percentage of oil dripping	Approx. 33% or more of absorption	Approx. 30% or more of absorption	Approx. 35% or more of absorption	**0%**
Water Absorbency	Measured Value	**Water Absorption Comparison** 60 seconds in container Measured after stirring with water	Absorbs water well  More than half submerged	Absorbs water well  More than half submerged	Absorbs water well  More than half submerged.	**Water doesn't absorb.**  **Staying afloat on water**
		water absorption rate	Approx. 50% or more	Approx. 40% or more	Approx. 40% or more	**0%**

Comparison of oil absorption performance No.1

ACTUAL PERFORMANCE DIFFERENCE WHEN USED AT THE SITE OF AN OIL SPILL INTO THE SEA OR A RIVER



Spills into oceans and rivers
When absorbing oil

RESULTS WILL VARY DEPENDING ON THE TYPE OF OIL AND MEASUREMENT METHOD.

ACTUAL ABSORPTION RATE

(in the case of 20g/sheet)

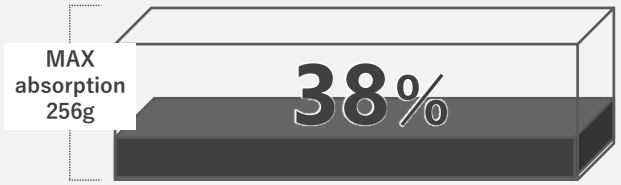
MAGIC FIBER

ALL ABSORB OIL AS PER SPECS.

- EFFICIENTLY ABSORBS OIL WITHOUT DRIPPING.
- ABSORBS ONLY OIL WITHOUT ABSORBING WATER

CAN ABSORB LARGE AMOUNTS OF OIL AS PER SPECS.

Products of other companies (average of 3 companies)



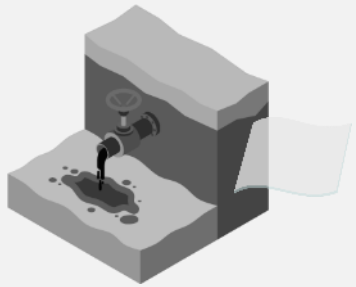
DOES NOT ABSORB MUCH OIL IN THE ACTUAL FIELD

- DRIPPING OIL THAT HAS BEEN ABSORBED
- THE OIL WILL ABSORB WATER, SO IT WILL NOT ABSORB OIL.

THE FACT IS THAT ONLY ABOUT 30% OF THE SPECS CAN BE ABSORBED.

Oil absorption performance comparison No.2

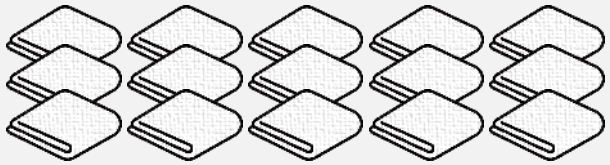
ACTUAL PERFORMANCE DIFFERENCE WHEN USED AT THE SITE OF AN OIL SPILL INTO THE SEA OR A RIVER



Spills into oceans and rivers
When absorbing oil

ACTUAL ABSORPTION AMOUNT

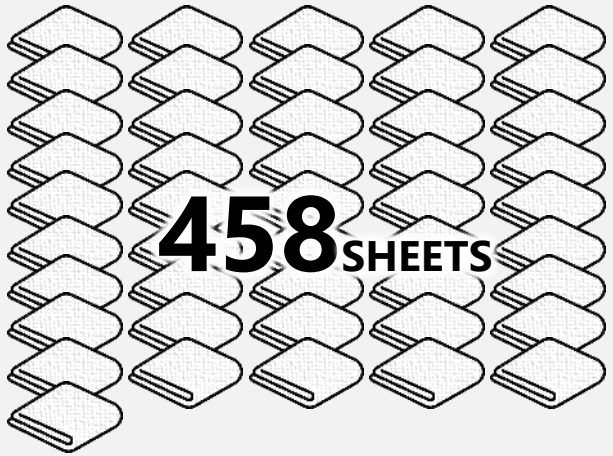
MAGIC FIBER



148 SHEETS

TO ABSORB 1 BARREL OF OIL
NUMBER OF OIL ABSORBENT
SHEETS REQUIRED

Products of other companies (average of 3 companies)



458 SHEETS

Results will vary depending on conditions such as type of oil and measurement method, etc. Calculated based on 1 barrel 159ℓ = 148kg (assuming specific gravity of oil 0.93).

Comparison of oil absorption performance No.3

Basis for numerical comparison of No. 1 and No. 2 (own research)

Performance comparison table per 20g of oil absorbent	Comparison of oil absorption Ability to absorb oil (catalog specs)			Comparison of retention power Ability not to drip oil that has been sucked			Water absorption comparison Water-absorbing performance		Total Capability (Actual absorption rate)
Manufacturer Name	Absorption ratio	Oil absorption (per 20g of oil absorbent)	Real absorption rate	Percentage of oil dripping*1	Real Oil absorption	Real absorption rate	Water absorption*2	Real Oil absorption	Total average absorption performance difference
M-TECHX MAGIC FIBER	**50.0 times**	**1000.0g**	**100.0%**	**0 .0%**	**1000.0g**	**100.0%**	**0 .0%**	**1000.0g**	**100.0%**
Three companies (A, B, C) Average absorption amount	**12.8 times**	**256.0g**	**100.0%**	of oil absorbed Approx.32.7%	**172.0g**	**67.3%**	Water absorption rate Approx.43.3%	**97.0g**	**37.7%**
Company A	15.0 times	300.0g	—	Approx.33.0%	200.0g	—	Approx.50%	101.0g	
Company B	11.0 times	220.0g	—	Approx.30.0%	150.0g	—	Approx.40%	92.0g	
Company C	12.5 times	250.0g	—	Approx.35.0%	160.0g	—	Approx.40%	98.0g	

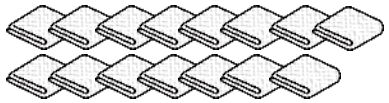
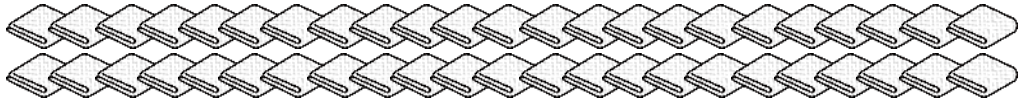
Absorption performance difference of more than X10

This is a simple calculation and comparison of the amount of oil absorbed when oil mixed with water is absorbed. Results will vary depending on conditions such as the type of oil and measurement method.
*1 Approximate percentage of oil volume that drips when the material is lifted and held stationary for 60 seconds after absorption
*2 Approximate water absorption when the oil absorbent is placed in a container filled with water and stirred for 60 seconds

COMPARISON OF OIL ABSORBENT USAGE

For oil adsorption of one drum of oil

1 Barrel
Approx.
159ℓ
148kg

No. of Sheets used	MAGIC FIBER	Approx.148 Sheets (20g/sheet)	
	competitor's products	Approx.458 sheets (100g/sheets)	
Weight in use (waste disposal volume)	MAGIC FIBER	Approx. 3kg (20g/sheet)	
	competitor's products	Approx. 46kg (100g/sheet)	
Number of boxes (Storage space) (Transport volume)	MAGIC FIBER	Approx. 3 boxes (50 sheets/box)	
	competitor's products	Approx.5 boxes (100 sheets/box)	

(our) Own research

*Comparison between a typical competitor's product and adsorption of oil mixed in one drum of water (specific gravity of oil 0.93, 200 l = 186 kg is assumed). Results will vary depending on the type of oil, measurement method and other conditions.

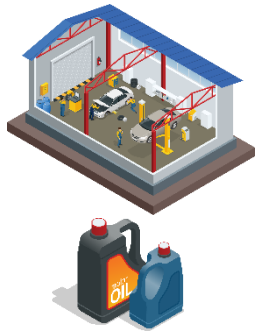
EXAMPLES SHOWCASING THE USE

Examples of Magic Fiber oil absorbent use.

01 Oil treatment in factories

Utilised in factories manufacturing plants and many others that use oil.

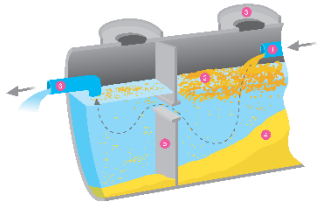
- Manufacturing plants
- Automobile maintenance shops
- Paint shops
- Printing plants
- Metalworking plants
- Oil plants



02 Grease trap

Highly effective for removing oil from grease traps installed in restaurants and factories.

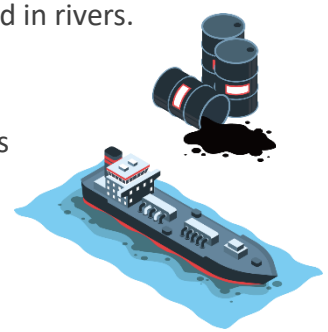
- Restaurants and chain shops
- Hotels
- Food processing plants
- Automobile plants
- Petrol stations



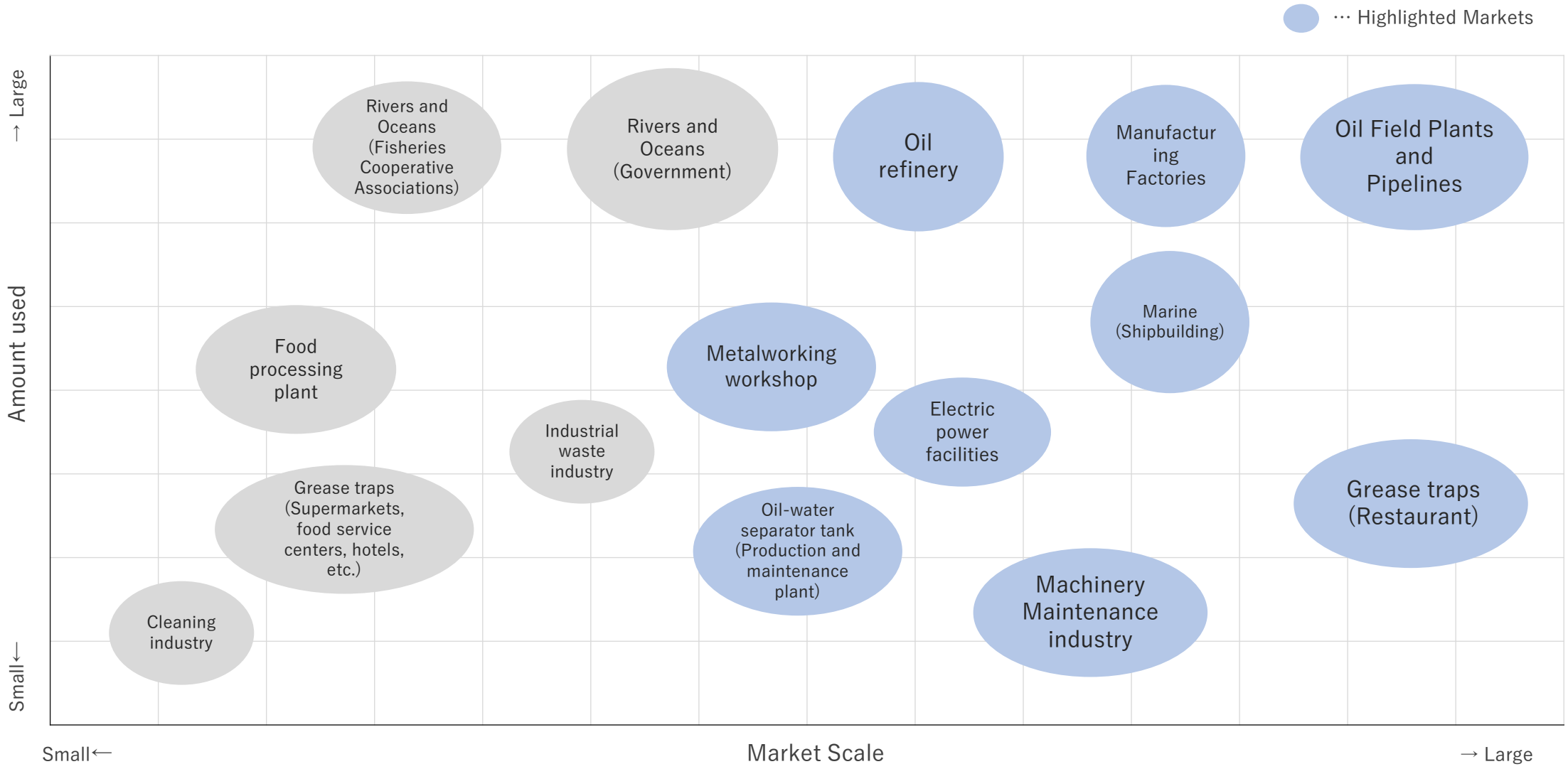
03 Oil spill response/stockpiling

Used for oil removal in the event of oil spills on land, at sea and as a stockpile in case of emergency.

- Oil spill response on land and in rivers.
- Oil spill response on tankers
- Public sector stockpiles
- For stockpiling by companies
- For stockpiling on vessels



FIELD OF APPLICATION



EXAMPLES USES

Sector/Industry	Use	Examples of Company / Industries	Remarks
Restaurants and hotels	Cleaning of oil-water separation layer (grease trap)	• Chinese restaurant chain • Bento chain restaurants • Set meal chain restaurants • Italian restaurants • Ramen noodle restaurants • Steak and yakiniku restaurants • Supermarkets	Absorbs oil by feeding directly into the second layer, etc.
Maintenance (automobiles, elevators, etc.)	Used to treat oil and lubricant leaks during automobile and elevator maintenance	• Automobile maintenance shop • Automobile parts factory	
Construction site	Used for grinding work at construction sites and treatment of oil leaks when using construction equipment	• Heavy equipment and construction equipment rental companies • Industrial waste disposal companies	
Manufacturing Metalworking (steel industry)	Treatment of splashing oil and lubricating oil from machines operating in the factory Removal of oil from metal prior to machining (alternative to wess) Also used for oil-water separation layer	• Industrial machinery manufacturer • Automobile and other manufacturing plants • Chemical plants • Printing plants • Ironworks • Gas stations and refineries	
Power equipment and non-ferrous metals industry	Used to recover insulating oil in substation equipment and power cables	• Electric power companies • Railroad companies • Wire and cable manufacturers • Electrical equipment and electrical engineering companies	Large amounts of oil are used in electric power facilities such as substations, power generation, relay stations, manufacturing and production plants, etc. Absorbent is used to collect oil generated during maintenance, dismantling and new installation. Large cables also use oil, is always generated during maintenance and replacement.
Food processing plant	Oil-water separation layer, etc.	• Food manufacturer	Oil absorbents are often utilized to remove animal oil generated during the production of gelatin and other products, unwanted oil generated during the refining of cooking oil and the production of cup noodles.

OIL TO BE ABSORBED (E.G)

Magic Fiber oil absorbent, oil to be absorbed and degree of absorption by ISO viscosity grade (kinematic viscosity).

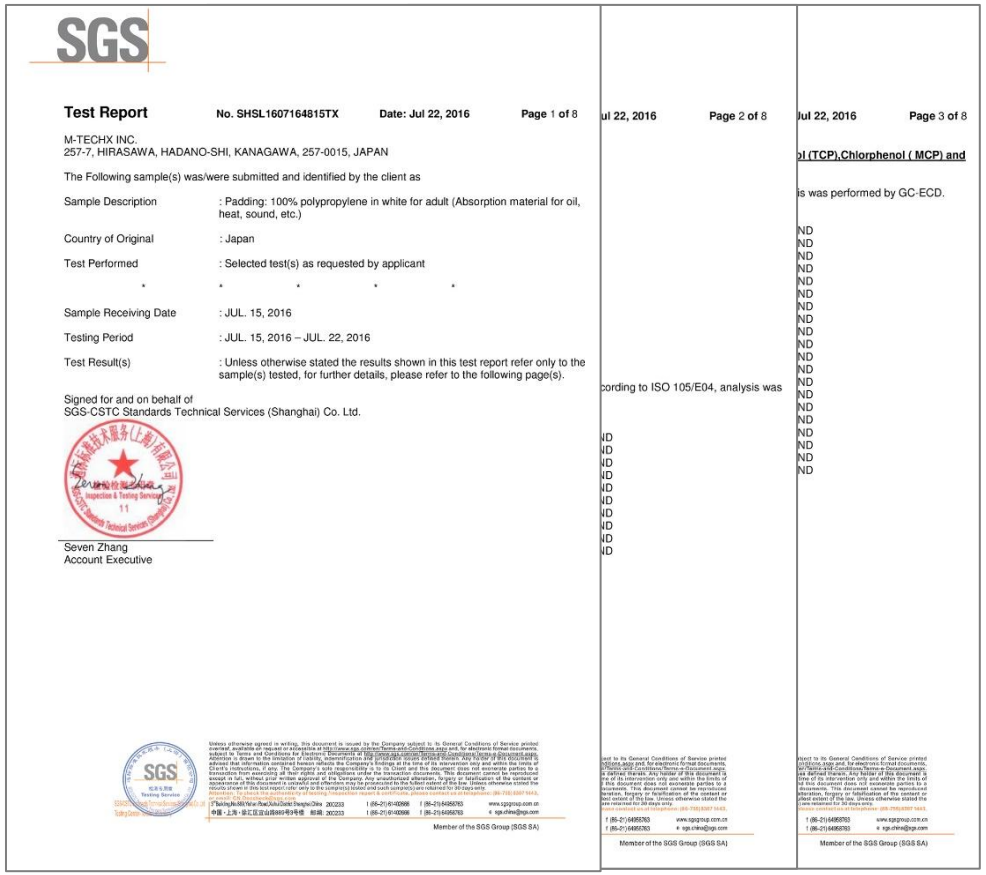
classification	ISO viscosity grade	Kinematic viscosity range (mm2/s)	Name	use	Absorption degree		Remarks	Viscosity image
Ultra low viscosity	Less than VG-2	1.50～2.00	Paraffin	Industrial use	**difficult to absorb**	★☆☆	Absorbs but susceptible to leaks	
	VG-10	9.00～11.0	spindle oil	Industrial use	**difficult to absorb**	★☆☆	Absorbs but susceptible to leaks	(cow's) milk
low viscosity	VG-15	13.5～16.5	thread-cutting oil	Industrial use	**Absorption**	★☆☆	Absorbs but susceptible to leaks	
	VG-22	19.8～24.2	multi-purpose oil (e.g. palm oil, pine oil)	Industrial use	**Absorption**	★★☆	leak a little	beer
	VG-32	28.8～35.2	Industrial lubricants	Industrial use	**Well absorbed**	★★★		lactic fermenting beverage
			compressor oil	Industrial use	**Well absorbed**	★★★		
			Gear oil	Industrial use	**Well absorbed**	★★★		
	VG-36	32.4～39.6	Hydraulic fluid (VG36)	Industrial use	**Well absorbed**	★★★		
	VG-42	37.8～46.2	Hydraulic fluid (VG42)	Industrial use	**Well absorbed**	★★★		
	VG-46	41.4～50.6	Lubricating oil base oil + lubricating oil additives	Industrial use	**Well absorbed**	★★★		
Medium viscosity	VG-68	61.2～74.8	Salad oil	Edible	**Well absorbed**	★★★		
			Olive Oil	Edible	**Well absorbed**	★★★		
High viscosity	VG-320	288.0～352.0	Heavy fuel oil	Industrial use	**Absorption**	★★☆	Difficult to absorb into the absorbent	

ISO viscosity grade VG refers to the viscosity grade defined in the international standard, with the number after it representing the viscosity index.
The higher the number, the sludgier and more viscous the oil is, while the lower the number, the more silky and low viscosity the oil is.

SAFETY CERTIFICATION

SGS

We have obtained "Safety Certification" from SGS, the world's largest international inspection and certification organization.



SGS

Test Report No. SHSL1607164815TX Date: Jul 22, 2016 Page 1 of 8

M-TECHX INC.
257-7, HIRASAWA, HADANO-SHI, KANAGAWA, 257-0015, JAPAN

The Following sample(s) was/were submitted and identified by the client as

Sample Description	: Padding: 100% polypropylene in white for adult (Absorption material for oil, heat, sound, etc.)
Country of Original	: Japan
Test Performed	: Selected test(s) as requested by applicant
Sample Receiving Date	: JUL. 15, 2016
Testing Period	: JUL. 15, 2016 – JUL. 22, 2016
Test Result(s)	: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested, for further details, please refer to the following page(s).

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co. Ltd.

Seven Zhang
Account Executive

ul 22, 2016 Page 2 of 8

cording to ISO 105/E04, analysis was

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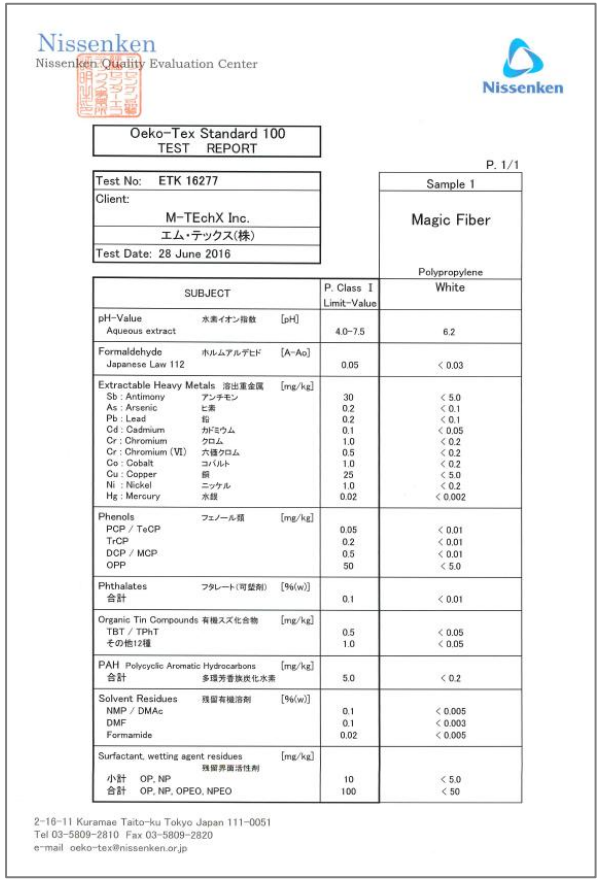
Nissenken Quality Assessment Center

Meets the strictest Product Category I standards of the Ecotec Standard 100. Contains no formaldehyde, arsenic, mercury, chromium or other substances harmful to the human body.



Nissenken
Nissenken Quality Evaluation Center

Nissenken

Oeko-Tex Standard 100
TEST REPORT

P. 1/1

Test No: ETK 16277
Client:
M-TEchX Inc.
エム・テックス(株)
Test Date: 28 June 2016

SUBJECT			P. Class I Limit-Value	Sample 1 Magic Fiber Polypropylene White
pH-Value Aqueous extract	水素イオン指数	[pH]	4.0–7.5	6.2
Formaldehyde Japanese Law 112	ホルムアルデヒド	[A-Ao]	0.05	< 0.03
Extractable Heavy Metals	溶出重金属	[mg/kg]		
Sb : Antimony	アンチモン		30	< 5.0
As : Arsenic	ヒ素		0.2	< 0.1
Pb : Lead	鉛		0.2	< 0.1
Cd : Cadmium	カドミウム		0.1	< 0.05
Cr : Chromium	クロム		1.0	< 0.2
Cr : Chromium (VI)	六価クロム		0.5	< 0.2
Co : Cobalt	コバルト		1.0	< 0.2
Cu : Copper	銅		25	< 5.0
Ni : Nickel	ニッケル		1.0	< 0.2
Hg : Mercury	水銀		0.02	< 0.002
Phenols	フェノール類	[mg/kg]		
PCP / TeCP			0.05	< 0.01
TrCP			0.2	< 0.01
DCP / MCP			0.5	< 0.01
OPP			50	< 5.0
Phthalates 合計	フタレート(可塑剤)	[%(w)]	0.1	< 0.01
Organic Tin Compounds	有機スズ化合物	[mg/kg]		
TBT / TPhT			0.5	< 0.05
その他12種			1.0	< 0.05
PAH Polycyclic Aromatic Hydrocarbons 合計	多環芳香族炭化水素	[mg/kg]	5.0	< 0.2
Solvent Residues	残留有機溶剤	[%(w)]		
NMP / DMAc			0.1	< 0.005
DMF			0.1	< 0.003
Formamide			0.02	< 0.005
Surfactant, wetting agent residues	残留界面活性剤	[mg/kg]		
小計 OP, NP			10	< 5.0
合計 OP, NP, OPEO, NPEO			100	< 50

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Tel 03-5809-2810 Fax 03-5809-2820
e-mail oeko-tex@nissenken.or.jp

FREQUENTLY ASKED QUESTIONS.

Q **Can I dispose of the oil in burnable waste after it has been absorbed?**

A Dispose of products after oil (oil) adsorption after consulting a specialist disposal contractor according to the type of oil (oil) adsorbed. Follow local government regulations where applicable.

Q **Is there an expiry date? How should it be stored?**

A Not particularly, but avoid extreme temperatures and humidity, etc. and use the product as soon as possible. The product is made of polypropylene and will deteriorate over time. Avoid direct sunlight and exposure to ultraviolet rays.

Q **Are toxic substances produced when burning?**

A As MAGICFIBRE itself is 100% polypropylene, no toxic substances are generated when it is burnt. However, depending on the type of oil (industrial) adsorbed, toxic substances may be generated from the oil itself, and care must be taken when processing oil designated as specific industrial waste, such as volatile oils, kerosene and diesel oil.

Q **Is there a risk of damaging the incinerator if it is burnt?**

A If the incinerator contains water or seawater, it will damage the incinerator and needs to be treated. However, Magic Fiber basically does not absorb water or seawater (unless it contains surfactants), so there is less risk of damaging the furnace. It has been evaluated as such by industrial waste contractors.

USAGE AND PRECAUTIONS.

USAGE RULES

Remove from box/bag

Not required for bulk types as they are not in bags

Unwind the oil absorbent.

Fluffing increases absorption.

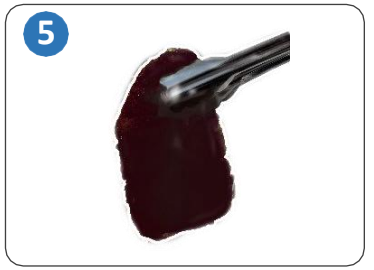
*No problem if you don't unwind.

Make contact with oil

Put the product over the oil.
Throw in or wipe off

Absorption until coloured.

Absorbs floating oil, as well as oil on floors and metal



Recovery

Collected when the fibers have been absorbed to the point where the white colour of the fibers is no longer visible.

* Depending on the amount of oil to be absorbed, tear off an appropriate amount of oil absorbent.

Precautions

- Do not use in hot oil (above 60° C).
- Do not place near fire, throw or place near a heat source.
- Not edible.
- Do not sniff the product or strike the product in such a way as to cause powder to fly about.
- If water contains surfactants, water may be absorbed together with the oil.
- Store away from direct sunlight.

Collection and disposal methods

- Disposal as industrial waste.
- Special disposal treatment is required depending on the oil absorbed.
- Dispose of in accordance with the instructions of local authorities and laws and regulations.

PRODUCT LINEUP

Sheet type				
Product type	**30 sheets** (individually wrapped)	**30 sheets** (not individually wrapped)	**50 sheets** (individually wrapped)	**50 sheets** (not individually wrapped)
Image				
Absorption amount (self-weight multiplier)	**Approx. 1.0 kg** (approx. 50 times)/**sheet**			
Size	**Approx. 30cm x 30cm/sheet**			
Weight	**Approx. 20g/sheet**			
Material	**Polypropylene**			
Packaging	**30/box** (pre-packaged 1 piece at a time)	**30/box**	**50/box** (pre-packaged 1 piece at a time)	**50/box**
Remarks		Anti-snagging paper is inserted between each sheet.		Anti-snagging paper is inserted between each sheet.

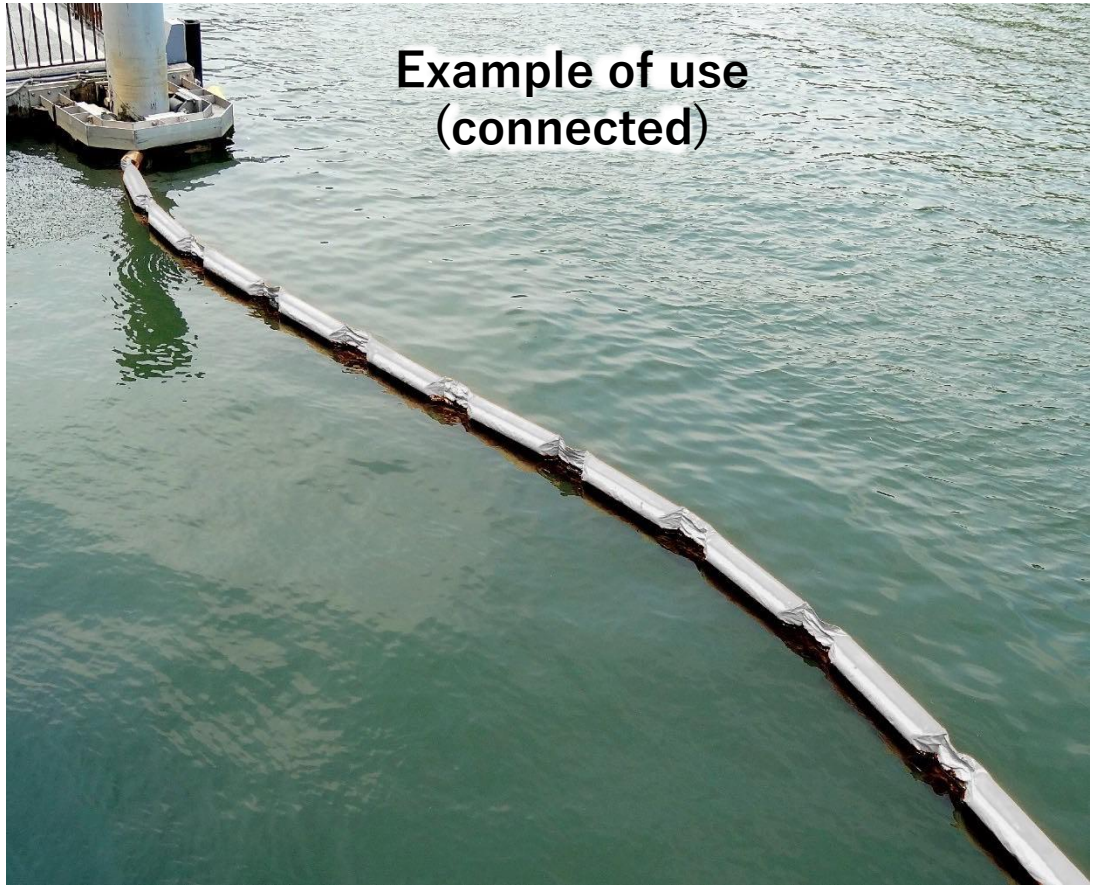
PRODUCT LINEUP

Tube Type (Simplified oil fence)				
Product Type	**ϕ5.0 x 100cm** Narrow diameter type	**ϕ10.0×100cm** Standard type	**ϕ10.0×300cm** Standard and long type	**ϕ20.0×300cm** Long and thick diameter type
Image				
Suction volume[*1] (Self-weight multiplier)	**17.5kg** (Approx. 50 times)	**32.5kg** (Approx. 50 times)	**100.0kg** (Approx. 50 times)	**207.5kg** (Approx. 50 times)
Size	**Φ5.0×100cm** / piece	**Φ10.0×100cm** / piece	**Φ10.0×300cm** / piece	**Φ20.0×300cm** / piece
Weight[*2]	**350g**	**650g**	**2,000g**	**4,150g**
Material	**Polypropylene**			
Packaging[*2]	**Pack of 12**	**Pack of 10**	**Pack of 5**	**Pack of 3**
Remarks	Used for wrapping around machinery, etc., or preventing oil leakage on the surface of water or ground. It is designed to be connected with hooks and can be used as a simple oil fence.		Dam floating oil in overseas, rivers, lakes, swamps, drainage pools, etc, It can be used as a simple oil fence for damming and collecting floating oil overseas, rivers, lakes, swamps, drainage pools, etc., by connecting it with a hook.	

*1 Maximum absorption capacity is described by the absorption performance of the inner material (magic fiber) itself.
*2 Weight and quantity per box may change in the future.

ABOUT TUBE TYPE（SIMPLE OIL FENCE）

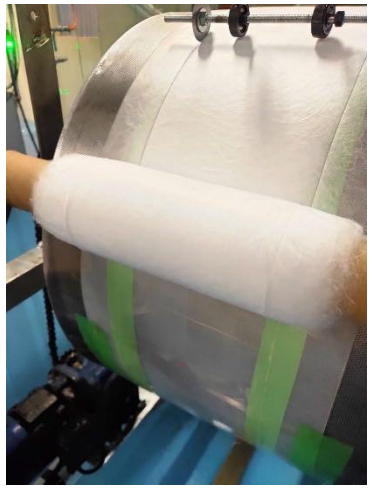
Tube (boom) type comes with hooks that allow tubes to be connected to each other. Can be used as an oil fence by connecting them together. 。



CUSTOMIZED PRODUCTS

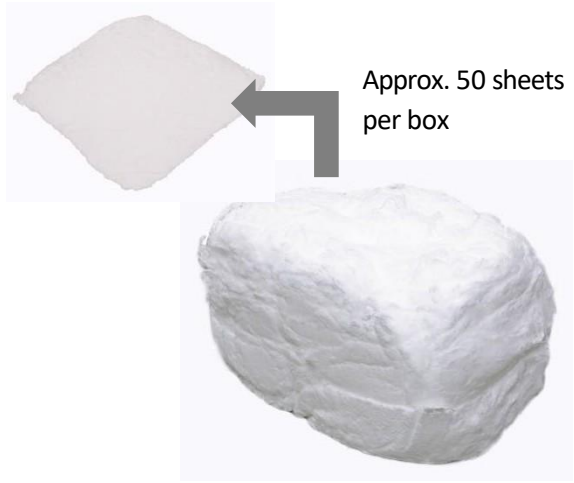
Customization is possible according to requirements and issues.

Roll Type



- Made of ultrafine fibers, including nano-order fibers
- Assumed width: 400 to 500 mm, length: several tens of meters
- Thin specification, can be made in required lengths
- Ideal for use in a wide range of applications

Bulk type (can be provided)



- 1 box of cotton weighing approximately 25g per sheet, packed with approximately 1.2kg of MAGIC FIBER
- Can be torn off one sheet at a time
- Ideal for large amounts of spraying oil in leaky areas