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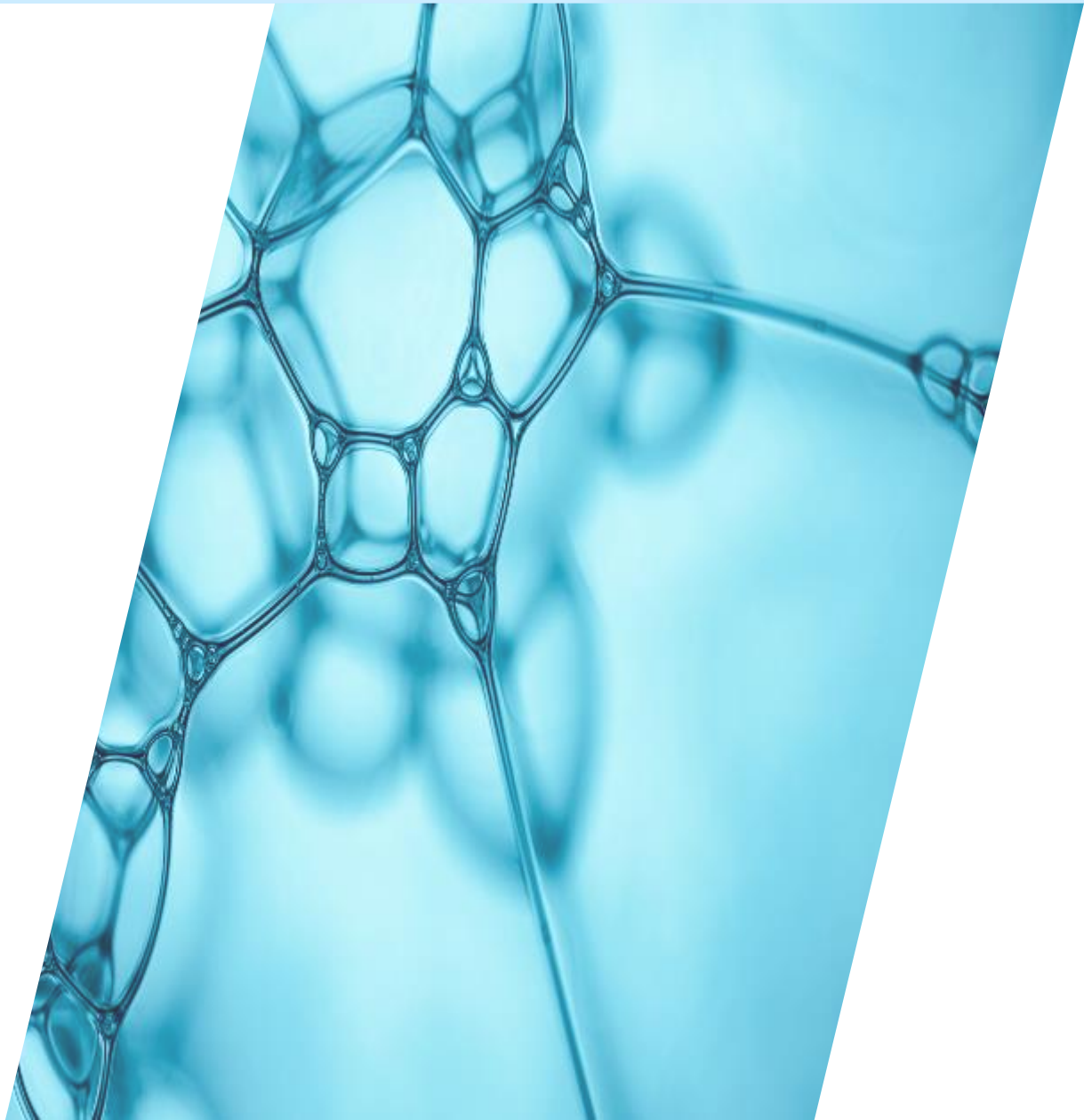
MARUSYO SANGYO CO.,LTD.

Super Hydrophilic Coating Fluid
SELFACECOAT

For Aluminum Fins of Air Conditioner

HP: https://selfacecoat.com/en/



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Highest Hydrophilic Performance

- Beyond the limit -

“**Selfacecoat”** is the only coating agent that has achieved a **long-lasting** hydrophilicity effect in the world.

Advantages of using VSR-40 aluminum fins

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Applicable place	Purpose	Expected effect	Merit
Heat exchange aluminum fins	Improved heat exchange efficiency	• Improved drying speed of condensed water	• Reduced amount of electricity used • Energy saving effect (SDGs No.7)
	Dirt removal performance	• Dirt washed away by condensed water • Prevention of bacterial growth by antibacterial effect	• Improved maintainability • Reduced cleaning frequency • Eliminating the risk of damage during cleaning • Mold control
	Prevention of splashing water droplets	• Prevention of splashing due to water droplets	• Complaint resolution due to splashing water droplets

High energy saving effect

Depending on the usage environment, water droplets generated or adhered between the fins may block the air flow path by about 20%. However, by using Selfacecoat, the heat exchange rate is improved by ensuring sufficient air flow through the gaps between the fins, leading to energy savings and a reduction in electricity bills.

Water splash prevention

Eliminates the problem of water splashing from the air outlet by preventing the generation and adhesion of water droplets. It also simplifies the design of the water recovery mechanism.

A clean space that prevents the growth of mold and bacteria

The long-lasting self-cleaning effect prevents the growth of mold and bacteria inside the heat exchanger. It also prevents dust from accumulating, keeping the room clean.

Improved heat exchange efficiency

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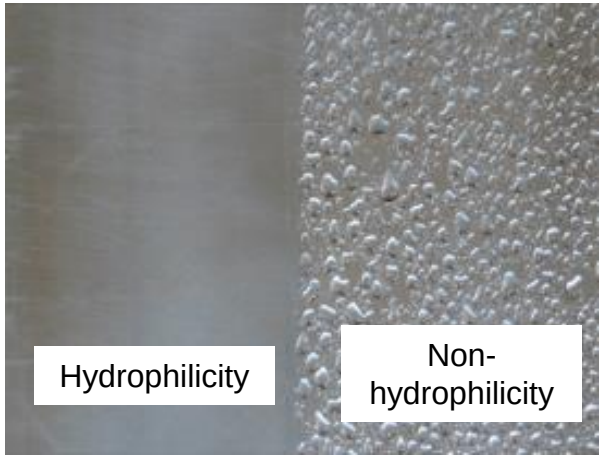
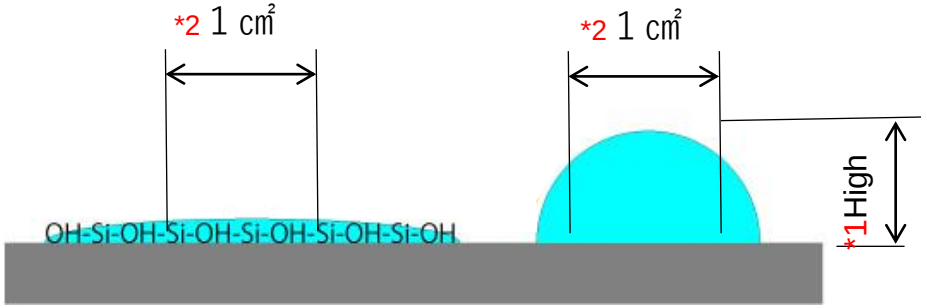
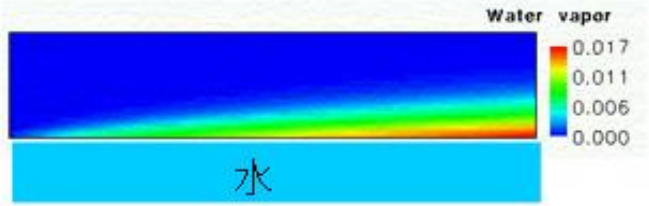
- When water adheres to the hydrophilic aluminum fin surface, the water spreads over the entire surface.
- Hydrophilic surfaces do not produce raised droplets, so the height of the droplets is reduced. *1
- The less water in the same area*2, the faster the water can evaporate.
- Aluminum fins with a hydrophilic surface make it possible to create an "environment that dries easily" = "an environment that easily absorbs the heat of vaporization" by lowering the height of the water due to the spread of wetting.
- These improve the heat exchange rate and reduce the electrical load of the cooling function.

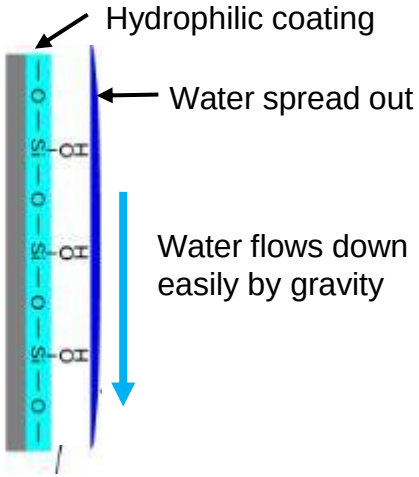


Wet and spread all over due to hydrophilicity



【Simulation of evaporation phenomenon】





Dirt removal performance

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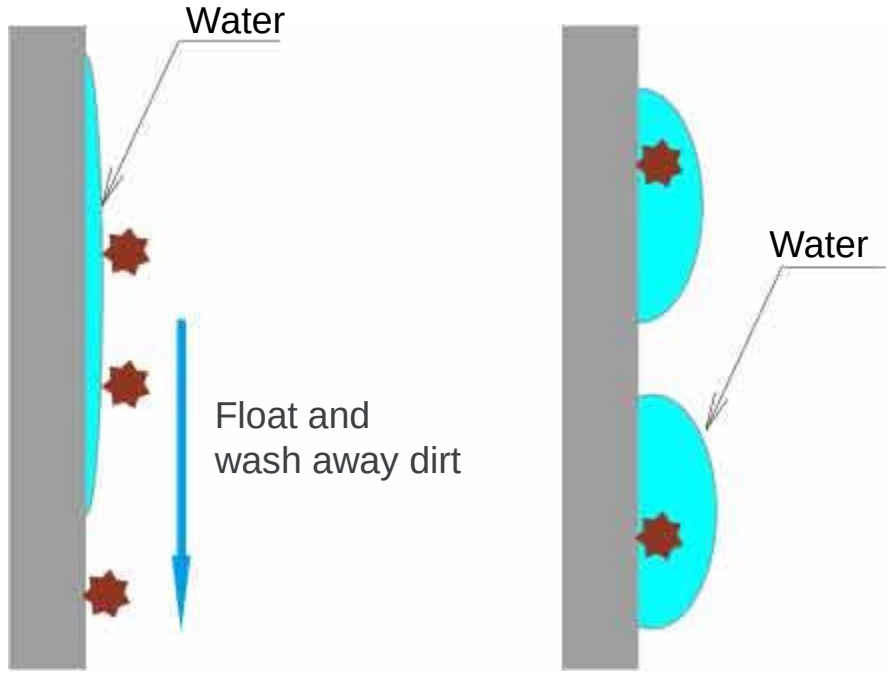
Antifouling measures against dirt and dust by self-cleaning effect

Hydrophilicity　Non-hydrophilicity　Hydrophilicity　Non-hydrophilicity

As a property of hydrophilic property, it has a high affinity, and water becomes spread out evenly. By the property, the spreading water can easily get under the dust and dirt adhering to the aluminum fin surface and let those dust float and remove easily.



Dirt can be removed by hydrophilic effect

Dirt removal is not possible with non-hydrophilic

Prevention of splashing water droplets

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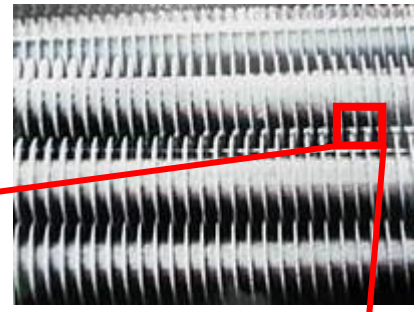
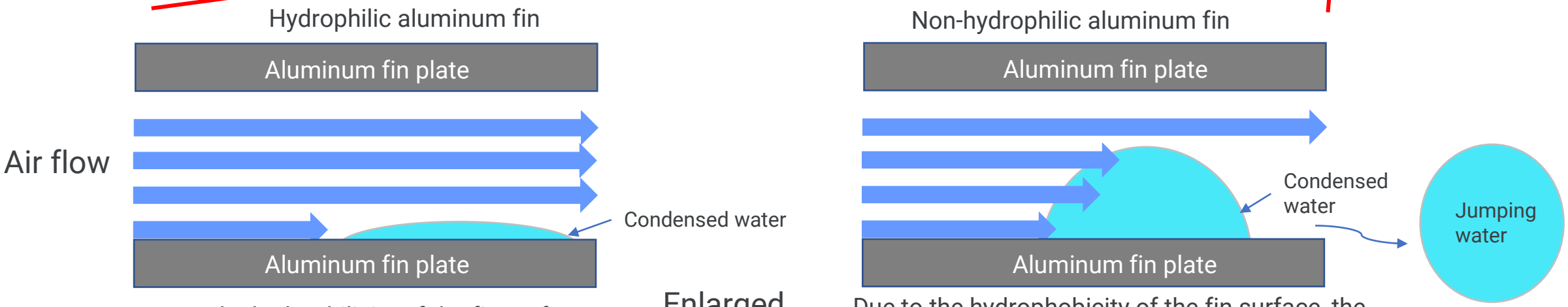
- If there are water droplets in the air passing between the aluminum fins of the heat exchange, they will be pushed out by the air passing between the aluminum fins, causing problems such as scattering of water droplets from the air outlet. . Since water spreads by applying Cell Face Coat, even if there are water droplets on the surface of the aluminum fin, the water droplets will not scatter.

Heat exchange aluminum fins





Due to the hydrophilicity of the fin surface, condensed water is less likely to become airflow resistance.

Enlarged cross section

Due to the hydrophobicity of the fin surface, the condensed water becomes water droplets, and the water droplets fly off due to the force of the air current.

Hydrophilic treatment method

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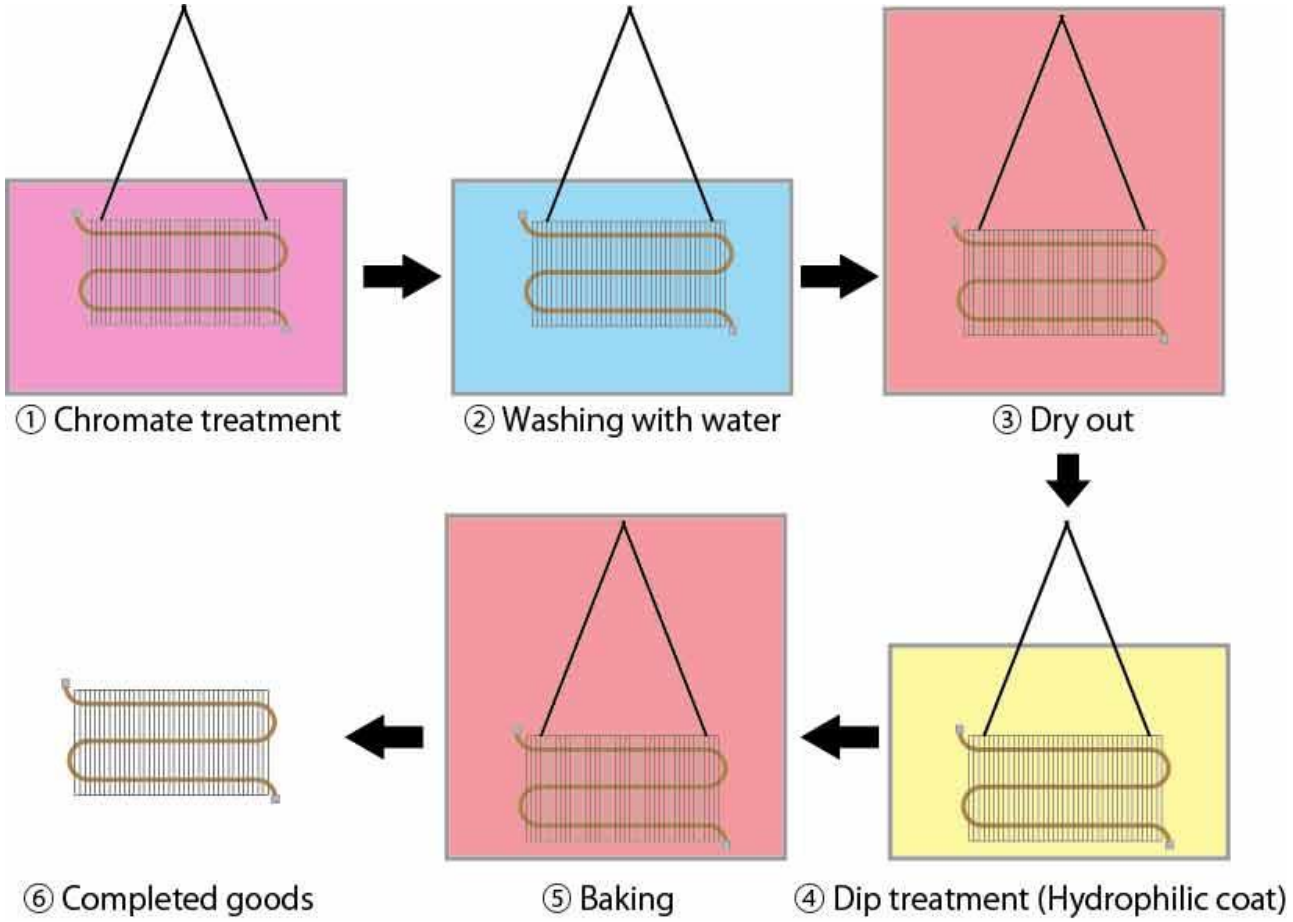
- In the case of aluminum plates processed with rolls (coils), it was not possible to apply anti-corrosion treatment to the edges after processing. Selfacecoat can make the entire molded product hydrophilic by



Order	Temperature and working time
1	40°C × 90sec
2	At normal temperature × 30sec
3	120°C x 5-10min
4	At normal temperature × 60sec
5	120°C x 15min

The previous hydrophilic performance

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When it comes to saying “Hydrophilic coating” so far, it means the coating that has very short-lasting hydrophilic performance and everybody has accepted common sense. Because there are no products that show long–lasting performance.

【The test result of the standard hydrophilicity coating agent】

① Running water test *1

Immerse the coated aluminum plate in running water for a certain time, and wash and dry out the plate, then measure the water contact angle.

	Initial	250hr	500hr
	Contact Angle	Contact Angle	Contact Angle
Specimen 1	12.7	45.9	48.0
Specimen 2	12.0	55.2	57.5
Specimen 3	13.1	42.8	46.9
Contact angle (Average of 3 points)	12.6	47.9	50.8 *2

← Not Hydrophilicity

② Wet and dry cycle test

Immerse the coated aluminum plate in running water for 8 hours, then after that hung up this plate in the 80 deg C of the temperature-controlled bath for 16 hours per one cycle. The cycle is repeated in 5 or 10 times.

	Initial	5cycles	10cycles
	Contact Angle	Contact Angle	Contact Angle
Specimen 4	12.6	32.6	36.7
Specimen 5	12.7	32.6	41.4
Specimen 6	12.2	36.6	44.4
Contact angle (Average of 3 points)	12.5	33.9	40.8 *2

← Not Hydrophilicity

NOTE *1 :This durability performance test is the accelerated test and **500hr equals about 6 years**.
*2 : Definition of Hydrophilicity → **Water contact angle is less than 30 deg C.**

New World Standard

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Through years of research and development, “Selfacecoat” has succeeded as the only super hydrophilic coating agent that exhibits long-lasting hydrophilicity retention.”
Now, the market tends to adopt this long-lasting specification for aluminum fins.

【The test result “Selfacecoat”】

① Running water test *1

	Initial	300hr	530hr	2700hr
	Contact Angle	Contact Angle	Contact Angle	Contact Angle
Specimen 1	8.0	6.5	8.0	12.0
Specimen 2	8.0	6.0	10.0	13.0
Specimen 3	8.0	6.8	10.0	13.0
Contact angle (Average of 3 points)	8.0	6.8	9.3 *2 Super hydrophilicity	12.7 Hydrophilicity

②Wet and dry cycle test

	Initial	5cycles	10cycles
	Contact Angle	Contact Angle	Contact Angle
Specimen 4	8.0	8.0	7.0
Specimen 5	8.0	7.0	8.0
Specimen 6	8.0	8.0	10.0
Contact angle (Average of 3 points)	8.0	7.7	8.3 Super hydrophilicity

NOTE *1: This durability performance test is an accelerated test and **2700hr equals about 30 years.**
It means the Selfacecoat covers the standard life span of AC very easily.
NOTE *2:Definition of **Super Hydrophilicity** → **C**ontact angle is **less than 10 deg C.**
Definition of **Hydrophilicity** → **C**ontact angle is **less than 30 deg C.**

Salt spray test (corrosiveness test)

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There is no corrosion of the aluminum plate even after 500 hours of salt spray test, ensuring a high level of hydrophilic performance. A high level of hydrophilic performance is maintained for a long period of time even in poor environments, so you can fully enjoy the functions of hydrophilicity.

Condition after 500 hours of salt spray test

Untreated aluminum plate

VSR-40 treated plate

Specimen 7	Initial value	500 hours later	Result
	Contact angle	Contact angle	
Point 1	8	12	Good
Point 2	8	10	Good
Point 3	8	10	Good
Contact angle (3 points average)	8	10.7	Good

Experience the benefits of Selfacecoat!

✓Capable for various aluminum fins

Ex: Air conditioner heat exchangers,

Radiators, and Evaporators

✓Easy implementation

(Recommend usage method: Dipping)

✓Increasing your sales and profit

If you need an anti-corrosive coat, we will provide the measures as well.

Contact Now!

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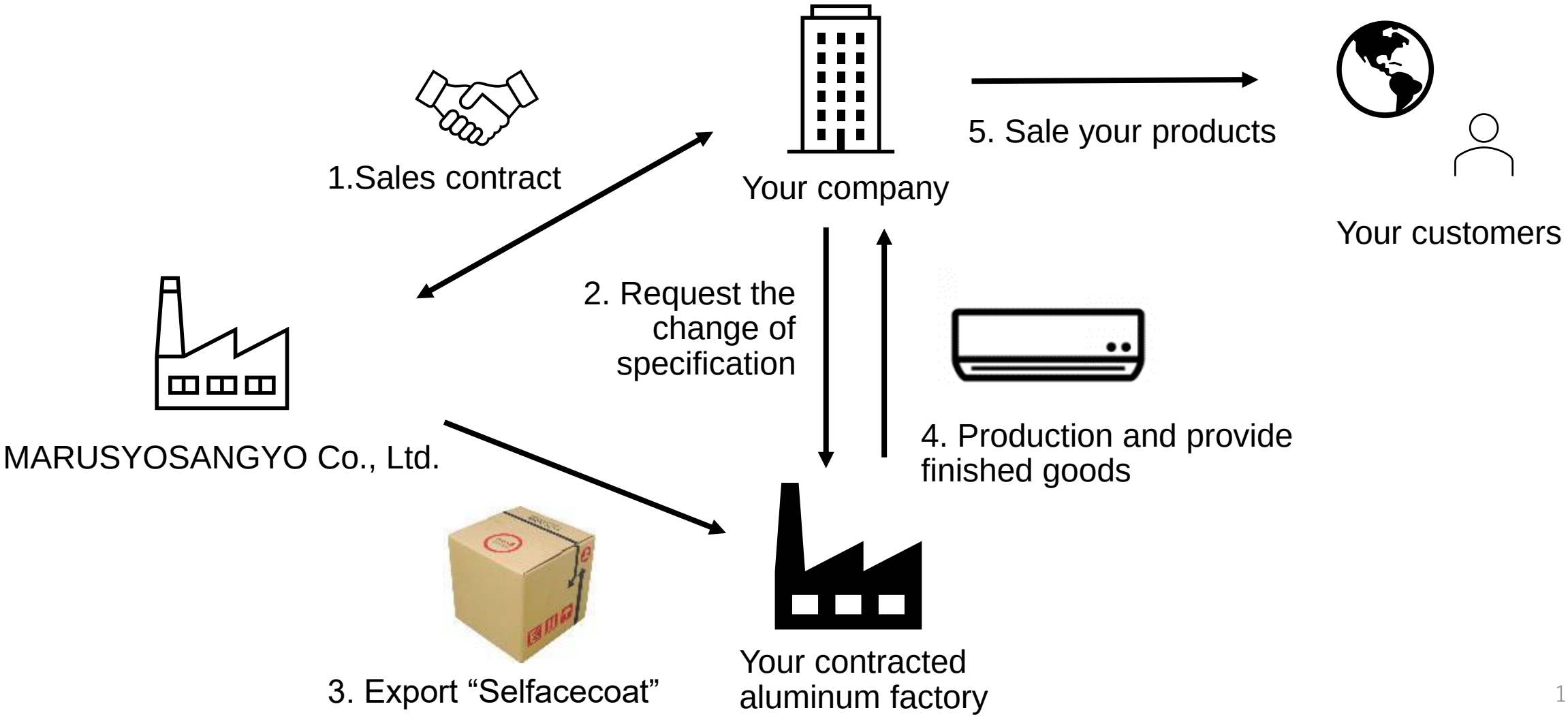
【The process of product sales】

We have lots of experience to export our product to other countries. Pleas feel free to contact us, first!



Company profile

丸昌産業株式会社
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Company:	MARUSYO SANGYO CO.,LTD.
Initiation:	1. April. 1923
Foundation:	1. July. 1983
Capital:	10 million JPY
Address:	171, Tajimacho, Sanoshi, Tochigi, 3270031, Japan. Phone: +81-283-22-1901
Description of business:	• Textile Produce/Development • Chemical Produce/Development • Eco product R&D • OEM R&D

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