

# Liq-Fiber

Anti-Rust Primer



English Version

NETIS:KT-170078-A



ARTISTIC DECOR

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# Overview of anti-rust primer Liq-Fiber

Anti-rust primer Liq-Fiber protects metallic members such as steel frame, reinforcing bar (including rebar), cubicle type high voltage receiving equipment and steel pipe from rust. It is an inorganic anti-rust primer that mixes, stirs, and applies cement-based compound and special emulsion as solvent. Carbon fiber contained increases the surface strength and improves durability against swelling and peeling.

Liq-Fiber forms stable rust preventive layer by changing the surface of iron with red rust to black rust, due to the strong alkalinity of the main component. It has the same effect for all metals.

You can save a great deal of surface preparation's expenses because the base treatment is usually carried out by Liq-Fiber's Level 3 Cleaning Surface (Surface Preparation) and it is not necessary to peel the existing coating. It is expected to reduce repair expenses such as shortening the construction process and refurbishing.

Not only is the base metal's protective capability excellent, it also has a wide range of temperature characteristics, from 200 °C to minus 100 °C, and it can withstand the harsh conditions. In addition, the surface coating blocks various exposure phenomena from the outside, so it is excellent in weather resistance, acid resistance, salt resistance, etc.

## Features

### 1. Anti-rust / corrosion protection

Liq - Fiber creates a passive - state coating that is a stable anticorrosion layer. Alkaline molecules (pH value about 12.5) of the main component circulate inside the paint film and form magnetite ( $\text{Fe}_3\text{O}_4$ ) called black rust on the iron surface. This stable anticorrosive layer prevents oxygen and water from invading and suppresses corrosion and re-corrosion of steel.

In addition, it can demonstrate long-term rust prevention effect. As a reason, the coating film is stretchy, resistant to cracking, excellent in water barrier, and since it has breathability, it keeps the alkalinity by evaporating moisture adhering to the material.

Conventional antirust paint prevents oxidation of iron by blocking iron surface from air and moisture by its coating film. However, a small amount of moisture remaining between the coating and the material and residual red rust at the end of surface preparation may cause rusting.

### 2. Environment / safety

It is new anti-rust primer made from inorganic, environmentally friendly alkaline inorganic materials. Unlike general organic paints, we do not use petroleum solvents at all, so we can work on environmental measures in river and marine structure construction with confidence.

Also, it has passed "Water Purification Quality Inspection JWWA Standard" and there is no problem even if you have a clear stream at the bottom of a bridge etc. or if you have a fish farm in the downstream area. In addition, there is no problem such as marine pollution because it can be constructed with Liq-Fiber's Level 3 Cleaning Surface (Surface Preparation), existing organic paint

can be applied without peeling off with sandblast etc. (Marpol: The marine pollution prevention treaty is also clear)

### 3. Construction

Iron base treatment is easy with Liq-Fiber's Level 3 Cleaning Surface (Surface Preparation) (please do Liq-Fiber's Level 2 Cleaning Surface (Surface Preparation) depending on the condition of iron). In order to prevent duplicate construction and forgetting to paint, it can be divided into two colors of first gray and second green to manage coating amount and film thickness.

### About the Liq-Fiber



1<sup>st</sup> Coat: Gray (emulsion 10kg + compound 23kg), 2<sup>nd</sup> Coat: green (emulsion 10kg + compound 23kg) is one set.

	Product Name		Packing	Net weight	Liq-Fiber Color
1set	 1st	Emulsion	Plastic container	10kg	Gray
		Compound	Plastic bag	23kg	
	 2nd	Emulsion	Plastic container	10kg	Green
		Compound	Plastic bag	23kg	

#### Emulsion

It is acrylic complex polymer emulsion (water-soluble hardening emulsion). It is strong of waterproof and adhesive. Also it does not decompose active from high temperature of 200 °C to low temperature of -100 °C, and it expands and contracts.

#### Compound

It is tensile strength including carbon fiber.

### About storage of emulsion and compound

- (1) Please store the emulsion in cool places avoiding direct sunlight during summer, in places not freezing in winter, and use it within 12 months from the date of manufacture.
- (2) Please store the compound in a well-ventilated place. Avoid rain and moisture, please do not place the compound directly on the soil etc.

## Construction procedure

### 1. Cleaning and washing with water (preparation work)

- ◆ Clean the dirt on the construction surface carefully with detergent etc.
- ◆ If the dirt is severe, perform high pressure cleaning.

### 2. Ground adjustment

- ◆ Please do Liq-Fiber's Level 3 Cleaning Surface (Surface Preparation) (please do Liq-Fiber's Level 2 Cleaning Surface (Surface Preparation) depending on the condition of iron).
- ◆ If fat and oil are adhering to the surface, please use electric tools (Disk Sander, Power Brush etc.) to surface preparation when removing oils and fats.



### 2. Mixing stirring

Basic mixing ratio, emulsion (10 kg): Compound (23 kg) = 1: 2.3

Construction method	Blending weight ratio
Press-in / injection	1:2.0
Brush / Spraying / Drenching	1:2.3~2.5
Iron / adhesion / filling	1:3.0~4.0

Put the required amount of emulsion in a stirring vessel and stir with a hand mixer for **about 5 minutes** while gradually adding the compound. The one stirred is Liq-Fiber. After thoroughly stirring, leave it for 5 to 10 minutes.

\* Precautions on stirring

Please put the emulsion **first** in the container and then stir in the compound.

### 3. Construction method

The coating amount is 500 g / m<sup>2</sup> per one time. The coating amount should be 1.0 kg / m<sup>2</sup> (dry film thickness about 500 microns) by coating two times.

#### Spraying

Adjust the distance between the air outlet of the flexible lysing gun and the tip of the nozzle to about 5 mm and work with the nozzle bore size of 4 to 5 mm and compressor air pressure of about 6 to 8 kg / cm<sup>2</sup>



#### Brush painting

It is used on detailed part or small parts where spraying is impossible.

#### Troweling

Used for flat surface that cannot be sprayed.

#### Top Coat

- ◆ In principle, the top coat have to be water based paint.
- ◆ Work is done after curing and drying Liq-Fiber.
- ◆ The coating work should be performed at least 2 times.
- ◆ Please follow instructions on handling by paint manufacturers.
- ※ If solvent is used for the top coat, its oil component erodes the Liq-Fiber's polymer and degrades its performance, so please use water based paint.

# Rust prevention method



## 防錆工法 (Rust Prevention Method)

### Rust prevention method

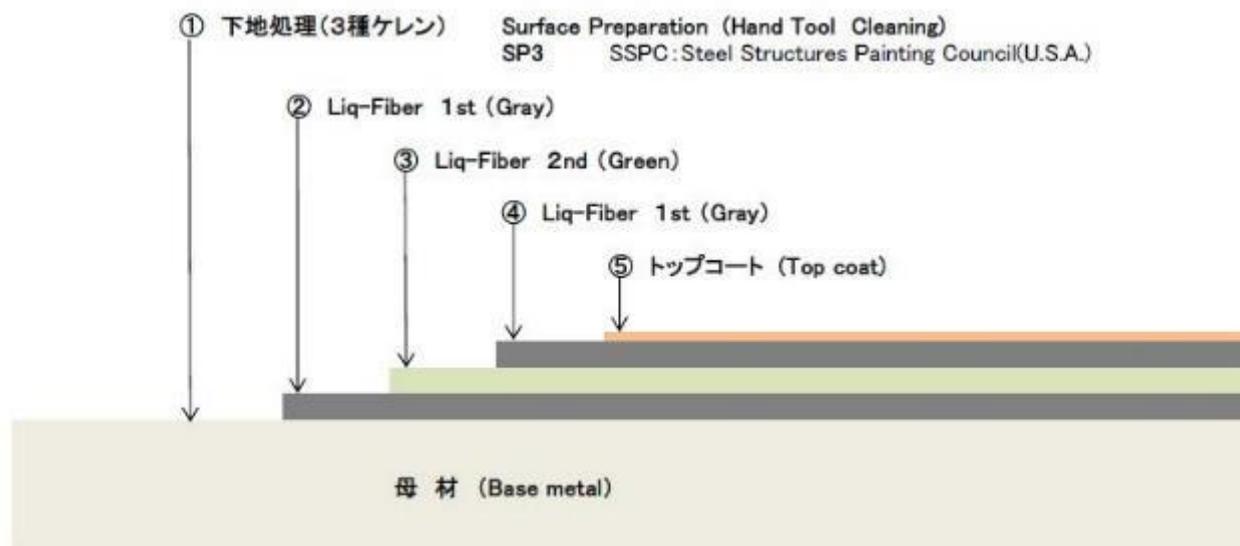
Process	Coating thickness mm	Mixing ratio E:C	Material requirements g/㎡	Remarks
① Surface treatment				1. Three species Keren or more (blast depending on circumstances) 2. Complete removal of fats and oils
② Liq-Fiber 1st ③ Liq-Fiber 2nd	0.5mm or more	1:2.3	(Example) Coating thickness: 0.5mm E: 300 C: 690	1. Spray, Brushing 2. Use a free-form lysing gun for spraying 3. Clean construction surface before coating
④ Top coat More than one application	More than 0.07mm			1. Select use paint by site conditions and environment however, the use of water-based paint

(Note) compounding ratio = weight ratio E: Emulsion C: Compound

This construction method is the standard construction method. Please correspond according to the situation of the site.

The Liq - Fiber material requirement does not include material loss etc at the time of construction at all.

# Heavy corrosion protection method



## 重防食工法 (Heavy Corrosion Protection Method)

Heavy duty construction method

Process	Coating thickness mm	Mixing ratio E:C	Material requirements g/m <sup>2</sup>	Remarks
① Surface treatment				1. Three species Keren or more (blast depending on circumstances) 2. Complete removal of fats and oils
② Liq-Fiber 1st ③ Liq-Fiber 2nd ④ Liq-Fiber 1st	0.5mm or more	1:2.3	(Example) Coating thickness 0.5mm E: 300 C: 690	1. Spray, Brushing 2. Use a free-form lysing gun for spraying 3. Clean construction surface before coating
⑤ Top coat More than one application	More than 0.07mm			1. Select use paint by site conditions and environment however, the use of water-based paint

(Note) compounding ratio = weight ratio E: Emulsion C: Compound

This construction method is the standard construction method. Please correspond according to the situation of the site.

The Liq - Fiber material requirement does not include material loss etc at the time of construction at all.

## Notes on construction etc.

- ◆ Dry confirmation is done with finger touch.
- ◆ Drying time varies depending on coating thickness and weather, but it is 30 to 60 minutes as a guide.
- ◆ Regardless of the coating thickness, Liq-Fiber performs coating two or more times.
- ◆ The coating is done after confirming the dry touch of the coated surface.
- ◆ Avoid outdoor work in rainy weather.
- ◆ If rain is expected, curing the construction surface with a sheet etc.
- ◆ Avoid work when there is a possibility that the temperature will be below 5 °C during Liq-Fiber construction and curing drying.

## Handling method

Liq-Fiber's mixing and retaining time (Usable time)

Summer : About 2~4 hours

Winter : About 4~6 hours

\* For the Liq-Fiber which has become hard, add the emulsion, mix well and adjust the viscosity.

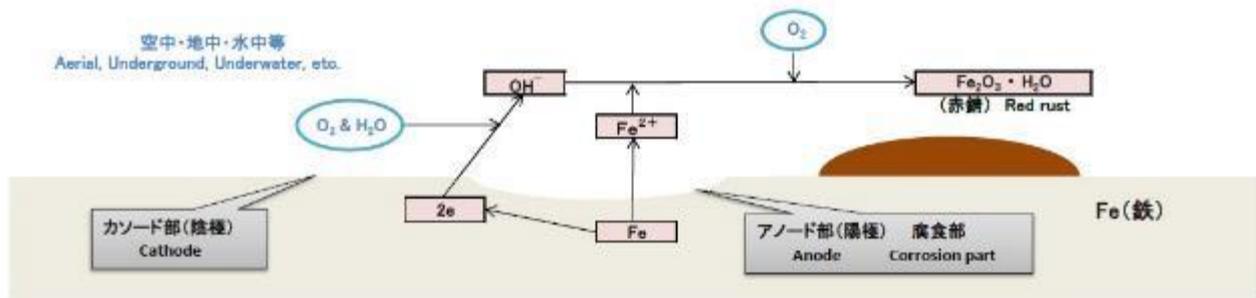
## Care of the working tool

- ◆ Interruption of work, at the end of work, we will promptly wash the tool.
- ◆ Avoid using fats and oils on the part where the Liq - Fiber comes into direct contact when cleaning work tools and machinery.

## Rust Principle

Iron is corroded due to electrochemical reaction under the condition of water and oxygen. When electrolytic solution such as water adheres to iron surface, oxidation reaction (anode reaction) and reduction reaction (cathode reaction) occur simultaneously. A local battery consisting of an anode (anode) and a cathode (cathode) is formed and corrosion progresses.

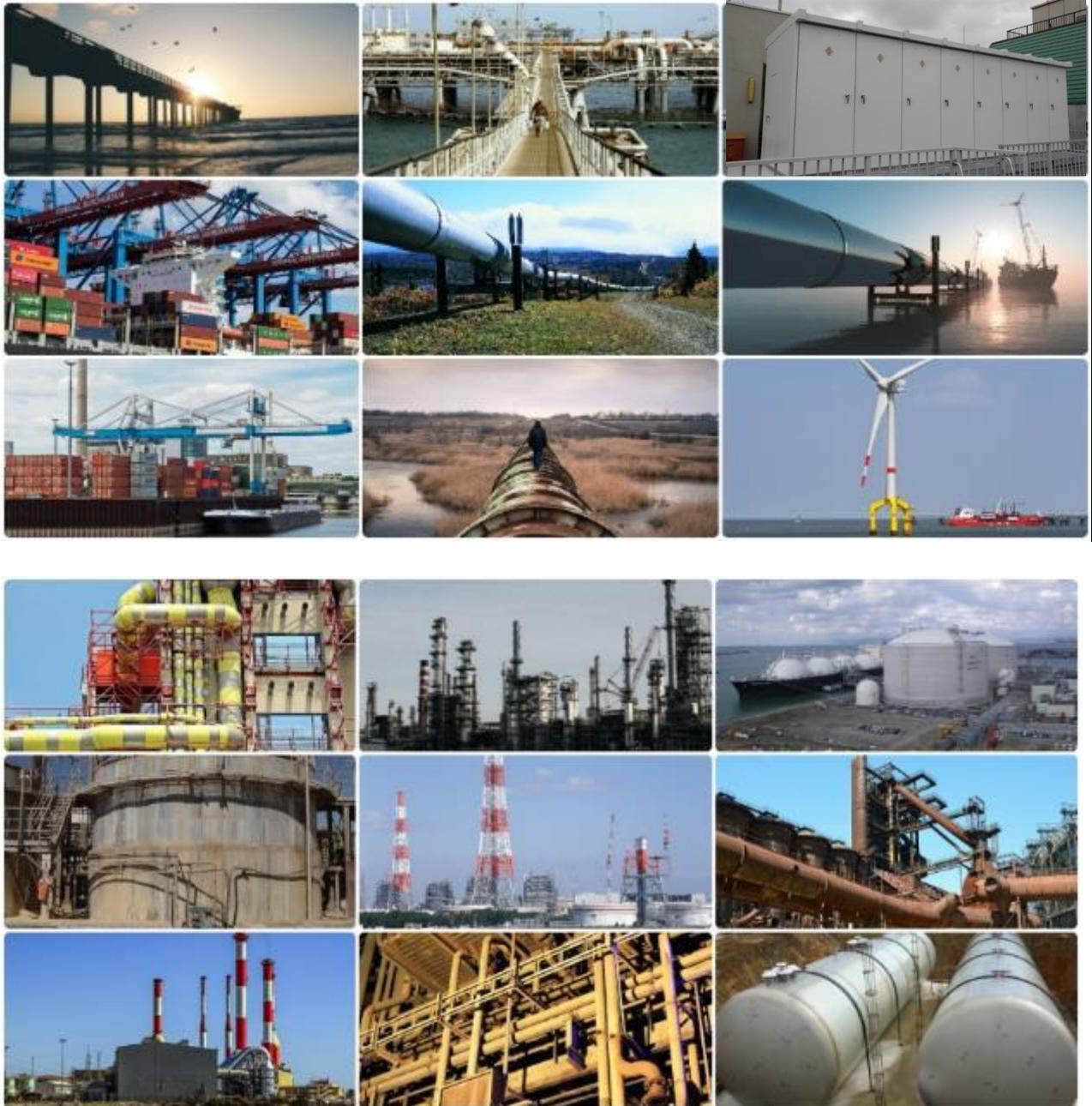
Anti-corrosion measures must block "corrosion" factors "moisture" and "oxygen".

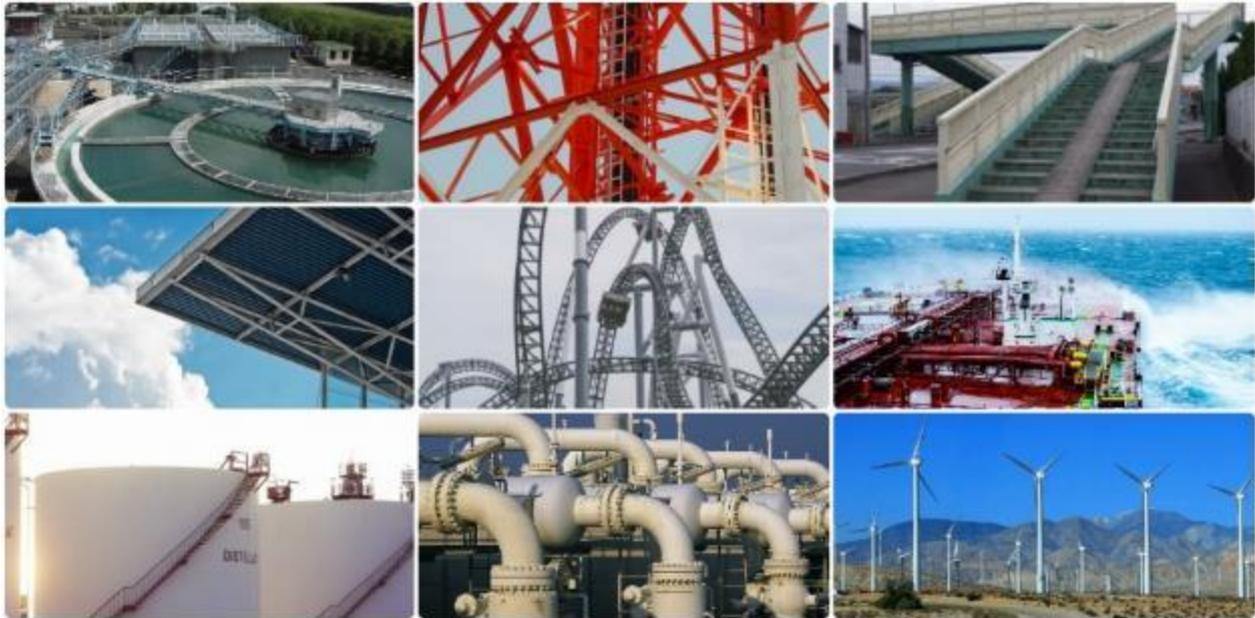


# Application example Reference example

It can correspond to the following anti-rust use.

Steel structure, cubicle type high voltage receiving equipment, Oil-related facilities, marine structures, railway bridge, footbridge, external stairs, handrails, pipelines, port facilities, tankers, expressway(highway), viaduct, pier, factory, warehouse, various pipes, tank.





## Other features

### 1. Adhesiveness

It can adhere to all base materials excluding oily matter. It is effective for adhesion with iron, various metals, and concrete. It is also effective for adhesion with various materials which were considered impossible in the past. Weak materials such as tinplate, glass, stainless steel, ALC, porcelain tile, synthetic resin, wood, vinyl chloride, and Styrofoam can also be constructed without damaging them.

At the same time, it is also possible to adhere / join different materials like those mentioned above which was a concern in the past. How to use it is diverse. In addition, it can respond to bending, twisting, expansion and contraction as a cushioning material. It also prevents tearing and peeling.

### 2. Repair / Reinforcement

It prevents cracking of concrete structure which tends to be insufficient in load withdrawal, it can improve life prolongation and strength. The reason is excellent adhesive strength, it is resistant to elasticity, tension and compression. It is most effective for repairing and reinforcing concrete structures in the civil engineering field.

It prevents fracture and prevents deterioration due to inelasticity and freezing because it is reinforced with carbon fiber. In addition, it prevents neutralization (weathering) of concrete, it keeps strength by cutting salt and moisture. Therefore, once it is constructed, it will exhibit its effect for a long time and it is efficient in terms of cost without having to repetitively repair it.



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