

Water-swelling friction reducing material

# LUB-CHEMICA<sup>®</sup>



**Nippon Chemical Paint Co., Ltd.**

# LUB-CHEMICA®

LUB-CHEMICA® is a friction-reducing coating developed by Nippon Chemical Paint. When applied and dried to H steel, steel sheet piles, foundation piles, etc., the coating film absorbs moisture and surrounding fixing liquid in the ground to form a swollen body. This swollen body acts as a lubricating layer and significantly reduces friction on the coated surface, making it suitable for the following applications.

- (1) Use on steel sheet piles, H-beams, etc. to prevent adhesion to the ground and facilitate extraction.
- (2) Use on foundation piles to reduce negative friction force and for loading tests.



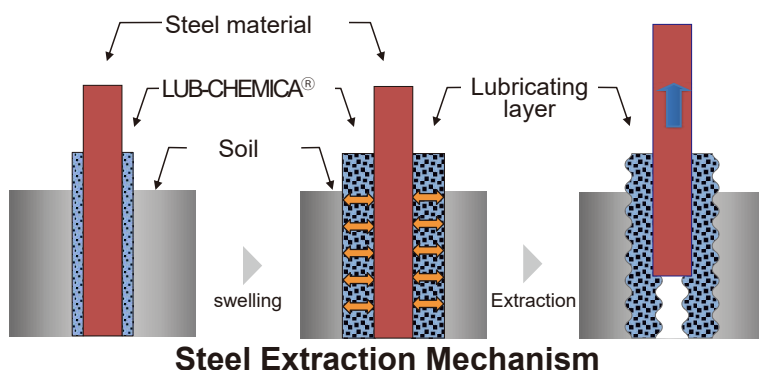
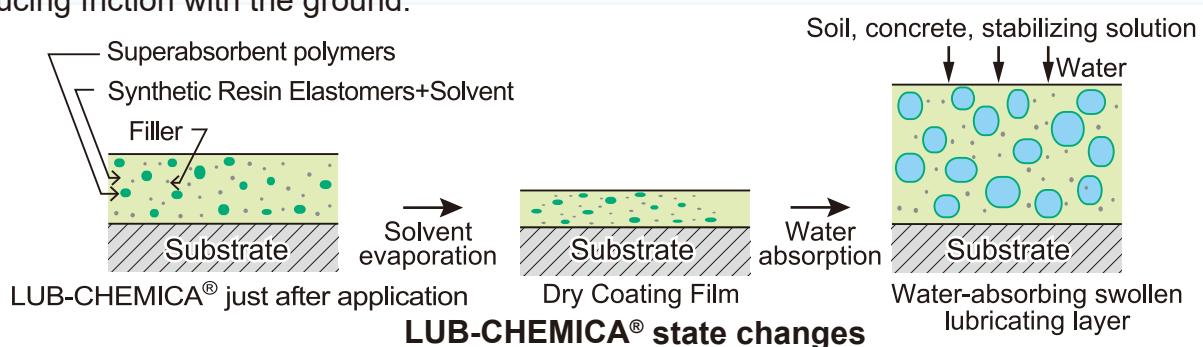
## Special feature

- (1) Easy pile extraction leaves no piles in the underground on site.
- (2) Easy pile extraction results in less soil heaving.
- (3) Easy pile extraction reduces pile deformation and extends pile life.

→ **Contribution to the Global Environment**

## Friction Reduction Mechanism

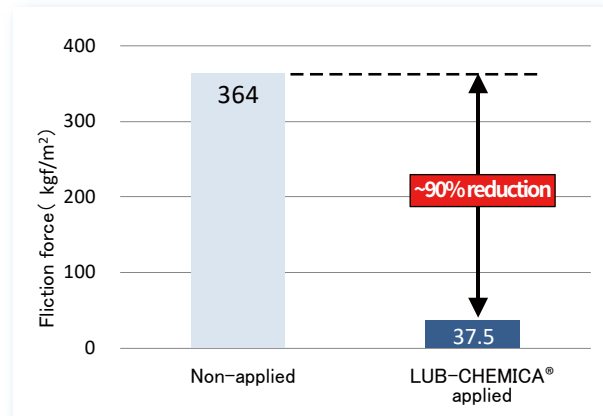
The superabsorbent polymers incorporated in LUB-CHEMICA® absorb moisture from the surrounding soil and swell. This swollen body functions as a lubricating layer, significantly reducing friction with the ground.



Steel surface after extraction



## H-beam Extraction Test Result



Test ground: CSM (Quattro) excavator-formed ground, H-beam used: H300 x 300 x 10 x 15 L = 10.0 m 930 kg/pc  
 Samples: Two types: no treatment and LUB-CHEMICA® application (1.05 kg/m²)  
 Test method: Samples were pulled out 16 hours after casting, and the extracriion load was measured at the point of edge cutting.

## Application amount & drying time

Use	Standard application amount	Drying Time (20°C)
Extraction	1 kg/m <sup>2</sup>	
Loading Test	3 kg/m <sup>2</sup>	1 5 ~ 1 6 hrs
Negative friction reduction	3 kg/m <sup>2</sup>	

※For roller application, 3% loss rate should be expected.  
 ※Drying time varies depending on temperature and humidity. Generally, it dries faster in high temperature, low humidity, and with wind.  
 ※If the surface of the steel is visible, apply additional coats.

## Packaging



LUB-CHEMICA® 1 8 kg/can  
 LUB-CHEMICA®thinner 1 6 L/can

## Coating operation



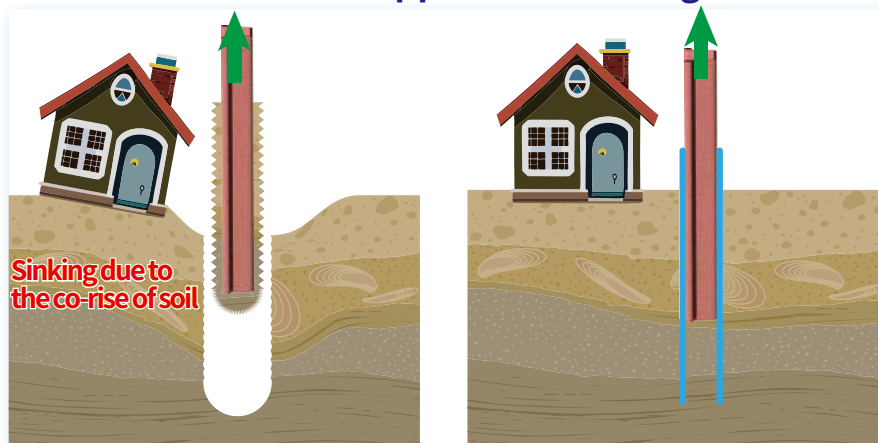
- (1) Put the object to be coated in the painting location. Remove dust, dirt, oil, water, etc. and let it dry.
- (2) Put the right amount of LUB-CHEMICA® on with a roller or brush.
- (3) Let it dry in a place without rainwater. Look at the area to make sure it's dry.
- (4) Until you pour, cover the area with blue sheets, etc. to protect it from rainwater and condensation.

※Cleaning up after extraction: Most of the LUB-CHEMICA remains in the soil, and no LUB-CHEMICA® or sediment adheres to the surface of the steel sheet pile or H-beam after pulling. If dried LUB-CHEMICA® remains, it can be easily removed with a scraper or water jet after re-swelling with water.

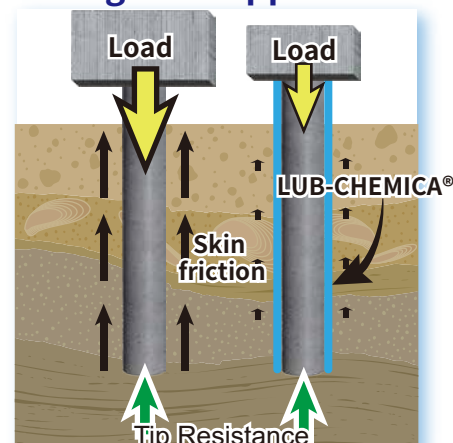
※Please order the application and installation instructions, Safety Data Sheet (SDS), and installation performance chart.

## Example of LUB-CHEMICA® usage

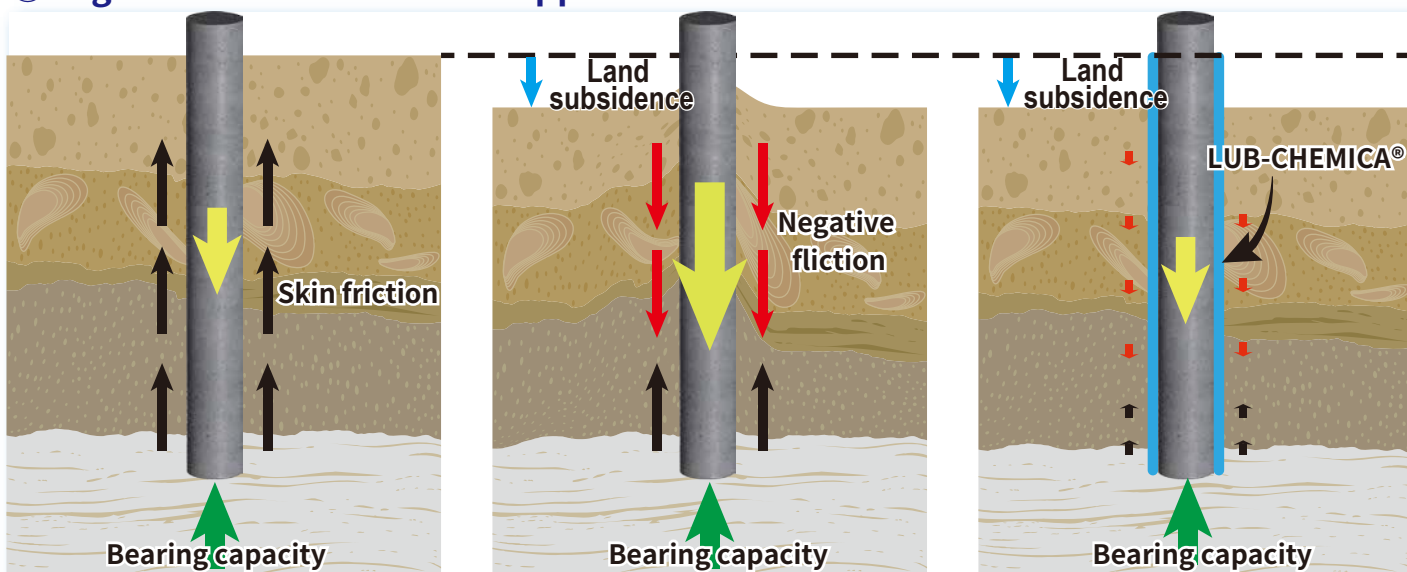
## ①Friction reduction application during extraction



## ② Loading tests application



### ③ Negative friction reduction application



## Safety



The water from the dried coating film of LUB-CHEMICA® meets groundwater standards in Japan.

- 1) Test method: Ministry of the Environment Notification No. 18, 2003, Japan
- 2) Test items: Soil Contamination Countermeasures Law groundwater items
- 3) Test results: No detection of 26 items including cadmium



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This catalog is based on our research and is accurate, but may change for product improvement.

QD240425096