

A swelling watertightness material for the steel sheet-pile.

Pilelock

Patent No.1960223



Pilelock is :

1.It is proud of 3000 and more use result with the swelling watertightness material for the steel sheet-pile.

Pilelock is used for the following work, and evaluated very high.

Debris processing place, shore protection works. The deadline work of the ocean and the river. Then, the excavation work which follows for the building construction and the water pipe plant work.

2.The watertightness of the steel sheet-pile are enhanced remarkably.

The dry paint film of the Pilelock does water absorption swelling. Then, an opening in the steel sheet-pile joint part is filled up, and effect on watertightness is enhanced remarkably.

3.Application can do it if it is painted on the day before blow.

How to use Pilelock is very easy. It is painted in both tabs of the steel sheet-pile, and it dries it for more than 10 hours. Application can do it in the same way as the usual steel sheet-pile, and then high watertightness are shown after that.

4.It is excellent in the removal after the work completion and the cleaning.

Pilelock is excellent in a pulling out to remove steel sheet-pile after the work completion.

Then, it is excellent in the cleaning of the dry paint film which has been used as well.

5.Pilelock acquires a patent in the Japan.

Pilelock is the patent product developed in 1968. Then, the patent which improvement was piled up to is acquired after that as well.

There is Pilelock NS of the solvent-less type in the Pilelock as the sister goods. Refer to a catalog for these goods separately.



Photograph-1, Pilelock and application tool.

I The property of Pilelock.

Composition.

The composition of the Pilelock is as follows. Watertightness material base consisted of synthetic resin elastomer, and high absorption polymer, filler, solvent, and so on were combined in this. It is material with such fluidity.

Watertightness mechanics.

- ① Pilelock is painted in the joint part (tab) of the steel sheet-pile, and it becomes the tenacious dry paint film which has elasticity when it is made to do natural seasoning.
- ② When this is soaked in the water, it begins to do swelling in 1-2 hours, and water absorption swelling is done in about 20 times after 24 hours.

Swelling magnification is dry paint film and the weight ratio of the dry paint film after the swelling.

Refer to chart-1 for the length of the time when dry paint film was soaked and the relations of the swelling weight magnification.

- ③ Pilelock fills up an opening in the steel sheet-pile joint part (tab) due to this swelling. Therefore steel sheet-pile can be watertightnessed, and the performance that it stands the hydraulic pressure of 500kPa [5kgf/cm²](It is equivalent to the pressure of the underwater bottom 50m.) and more is shown.

Photograph-2 showed the water swelling change in state of the dry paint film before and after the retting. Pilelock was painted in the steel sheet-pile tab, and it engaged it after the drying, and soaked for the underwater.

Characteristics.

- ① The dry paint film of the Pilelock has elasticity. Therefore, it is controlled that it exfoliates by the friction with the earth in the case of the steel sheet-pile blow.
- ② Even when Pilelock partly comes off, that piece (Because the swelling rate of the Pilelock is big.) is repaired, and effect on watertightness can be maintained.
- ③ The water extracted from the dry paint film is conformable to the water quality criterion based on the food hygiene law (Japanese domestic law).
- ④ It is the product of the entirety 1 liquid solvent type. Therefore, precipitate is only stirred, and it can be used. If the evaporation of the solvent is prevented, long-term preservation is possible as for the rest of the Pilelocks. Moreover, when solvent in the Pilelock evaporated and viscosity rose, it becomes possible [it is used by adding Pilelock thinner again] . It is economical product.

It corresponds to the Japanese fire fighting law the fourth kind the 2nd petroleum kind with the Pilelock, the Pilelock thinner as well.

- ⑤ Because lubrication is big, the water expansion paint film of the Pilelock is excellent in pulling out of the steel sheet-pile.
- ⑥ The paint film which absorbed water after the steel sheet-pile pulling out is flexible. Therefore, it can be eliminated with the scraper, the water jet, and so on easily.

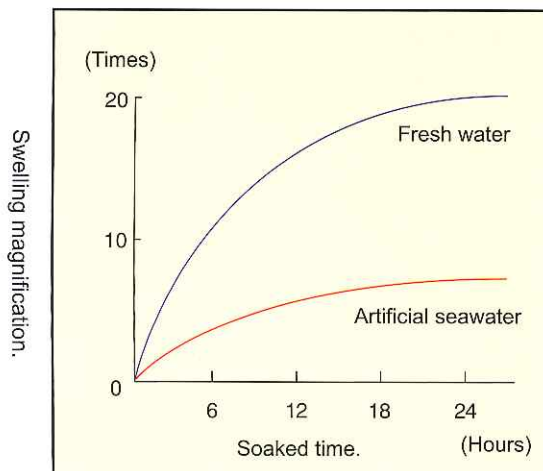
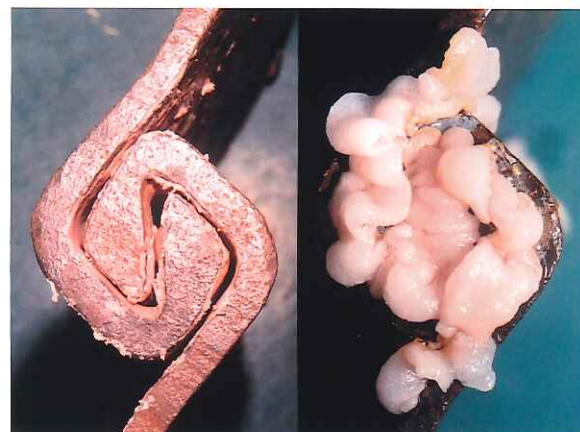


Chart-1. The swelling of Pilelock by the water.



Before the immersion.

After the immersion.

Photograph-2. The swelling of Pilelock.

II The application procedure of the Pilelock.

Even which of the factory, the construction site can do the application job of Pilelock.
The procedure of the application and job contents are mentioned in the following.

◎The procedure of the Pilelock application.

- | | |
|--|----------------------------------|
| 1. The job that bed arranges steel sheet-pile. | 4. Cure (drying). |
| 2. The cleaning job of the joint part (tab). | 5. Blow and main job. |
| 3. Application job. | 6. Pulling out and cleaning job. |

1.The preliminary job of the steel sheet-pile.

The job that bed arranges steel sheet-pile. One sheet is arranged at each of the sides. Or, it is made to bite square timber between the steel sheet-pile as the photograph-4. Then, pile it up so that you can pour a (tab) Pilelock into the joint part.

Be careful of the hardness of the square timber and the site at the time of the pile job. Be careful that there is no side collapse.



Photograph-3. Air blow.



Photograph-4. The example of the way of putting steel sheet-pile.

2.The cleaning job of the joint part(tab).

- ① Do an air blow, and wipe it out with the floorcloth to dry that when water enters in the joint part (tab) of the steel sheet-pile.
- ② Eliminate the float rust of the joint part, the mud with the scraper bar and so on.
- ③ Wipe it out with the thinner when oil, a grease kind stick to the joint part.
- ④ Eliminate it with the file when there is a projection of welding and so on in the joint part.
- ⑤ Eliminate trash, dust, scrap iron, and so on with a wire brush, a brush, the air blow, and so on finally, and clean it.

3.Application job.

- ①Stirring. The can of the Pilelock is opened first. Then, stir it substantially until it becomes homogeneous condition by using the bar and so on. Add Pilelock thinner, and control it when viscosity is too high.

Make volume to add thinner to the Pilelock 0-10%. When more than 10% is diluted, it may not be able to get well drying paint film.

- ②Slushing. It is subdivided in the oil mug, and poured into both tabs of the steel sheet-pile.

Refer to the term of “Ⅲ application volume” of the next page for the slushing volume.

- ③ The procedure that painting is spread.

A poured Pilelock is coated with the brush in the interior and spread. A brush is run at the same time to make the outside from the interior full of the Pilelocks. The Pilelock which it was full of is coated in the outside and spread. Photograph-5 reference.

The application range of the Pilelock was shown by red in the chart-2.



Photograph-5. Application by the brush.

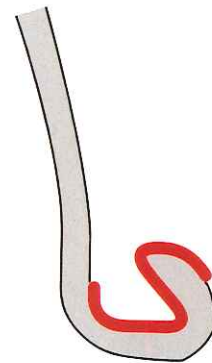


Chart-2. Application range.

4.Cure (drying).

10-16 hours are necessary for the drying of the painted Pilelock. Drying becomes as fast as there is wind again as air temperature is high.

Pour sheet, and cover it after the application in the possible case of the rain-fall.

A decision of a cure end is made as follows. First, paint film is strongly pushed with a finger and a gap of paint film does not arise. Furthermore, it is completion when becoming, because marks remain lightly when a nail is stood.



Photograph-6. Cure (drying)

5.Blow and main job.

Drive steel sheet-pile with the usual blow equipment after the drying. Excavation, drainage works, and so on can be done on the next day which the blow of the steel sheet-pile finished.

(The dry paint film of the Pilelock expands [the water absorption], and watertightness are shown on the next day.)



Photograph-7. Blow.

6. Pulling out and cleaning job.

It can be pulled out with the usual material when steel sheet-pile is pulled out after the main job exit. And, use scraper, water jet, and so on for the cleaning after pulling out.



Photograph-8. Cleaning.

III

Application volume.

The application volume of around the steel sheet-pile 1m appears on the bottom table.

The mold-type of the steel Sheet-pile.	Application volume to the steel sheet-pile both tab.	Application length with Pilelock 18kg(1 can) in the case of (the correction value 1.05).
II · IIw	0.36kg	48m
III · IIIw	0.40kg	43m
IV · IVw	0.40kg	43m
V _L	0.40kg	43m
VI	0.44kg	39m

The application volume of the table is the application volume of both tab totals. For example, a strip tab is painted respectively around 1m 0.2kg, and application is decided to be done in the case of the steel sheet-pile III type in both tab totals 0.4kg.

Reference 1. When Pilelock is poured to the oil jockey, that volume is fitted to the memory, and application volume is controlled. And, the overall length (length × the number of sheets ended in) of the steel sheet-pile which it finished painting when global application volume was managed and the number of use cans are recorded.

Reference 2. Set up correction value in consideration of the adhesion to the application container and other ones for the loss in the range of 1.05 ~ 1.10 when you calculate the use volume of the Pilelock.

Reference 3. The specific gravity of the Pilelock is almost 1.

IV

The job efficiency of the application job.

If it is constructed with 2 people, job efficiency for around 1-hour is about 50m.

When both tabs 0.4kg/m painted III mold steel sheet-pile.

There is a difference in job efficiency by the job circumstance.

V

The volume of the Pilelock and load figure.

Pilelock 18kg Oil can.

Pilelock thinner 16L Oil can.

Designated quantity (Japanese domestic law) in the fire fighting law.

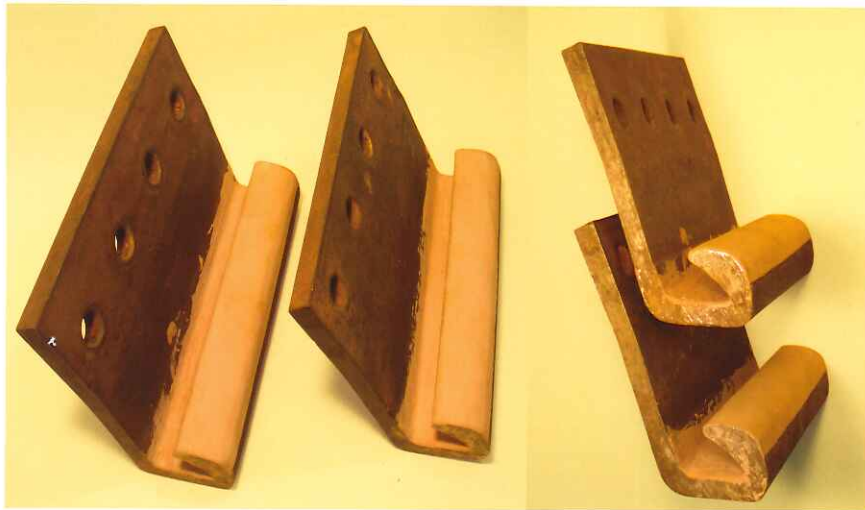
Pilelock Fire fighting law the fourth kind the 2nd petroleum kind.

Pilelock thinner Fire fighting law the fourth kind the 2nd petroleum kind.

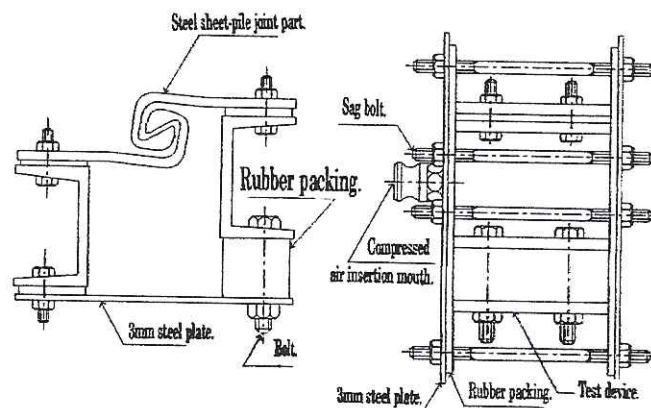
Designated quantity is 1000L in the total fore the above (Japanese domestic law).

Experimental fructification for the watertightness performance confirmation. (Experimental by the pressure water tank.)

- 1) Experimental place. Nippon Chemical Paint Co., Ltd Inside the Totsuka factory.
- 2) Used steel sheet-pile. SP-III type steel sheet-pile. Length 12m.
- 3) The procedure of the application. Brush painting.
- 4) Application volume. The volume which is equal to 0.4kg/m. Both tab totals. Standard application volume.
- 5) Experimental procedure.
 - ① After a steel sheet-pile tab was cleaned, Pilelock was painted with the brush in the range that it was shown in the chart-3, and it dried leaving for 1 night. (Photograph-9 reference.)
 - ② A combined joint part was set on the miniature pressure water tank. Then, it was put in the aq. case for 24 hours, and dry paint film was made to expand. After that, a pressure water tank was made to function the pressure of 500~600kPa[5~6kgf/cm²] (It is the same as the depth of water 50~60m.), and it confirmed that there was no water leakage.
- 6) The fructification of the experimental.
 - ① It confirmed that it stood the hydraulic pressure of 500~600kPa[5~6kgf/cm²] without leakage from the steel plate joint.
 - ② It was the same fructification when it was made to expand with the artificial sea water (3% brine).
 - ③ Watertightness beyond 500kPa were confirmed even when dry paint film came off 50%.



Photograph-9. The steel sheet-pile tab which painted Pilelock and which dried.



Test device.

Pressure water tank.

Photograph-10. Watertightness pressure test system. Chart-3. The pressure water tank unit which a steel sheet-pile tab was set on.

Attached table.

The water quality test inspection results book of the Pilelock.

**Tokyo Food Sanitation Association
Food Research Laboratory**
AUTHORIZED BY THE JAPANESE GOVERNMENT
19-10, 1-CHOME, TOKUMARU, ITABASHI-KU, TOKYO, JAPAN

CERTIFICATE OF ANALYSIS

March 7, 2005

No.03863-1A

Name of sample	The dry PILELOCK (The immersed water with the dry PILELOCK)	
Name of Applicant	NIPPON CHEMICAL PAINT COMPANY LIMITED	
Date of Receipt	February 1, 2005	
Date of Examination	February 4, 2005	
Subject of Examination	Criterion test on water quality according to the Tap Water Law of Japan (50 items), except viable cell counts and <i>Escherichia coli</i> .	
Immersion Condition	The dry PILELOCK weighing 0.09g (size: 1 × 1 cm) was immersed in 2 liter of distilled water at 20 °C for 24 hours.	

The results of the examination were as follows

Test items	Criteria	Results
Cadmium and its compounds	not more than 0.01mg/L (Cd)	less than 0.001mg/L
Mercury and its compounds	not more than 0.0005mg/L (Hg)	less than 0.0005mg/L
Selenium and its compounds	not more than 0.01mg/L (Se)	less than 0.001mg/L
Lead and its compounds	not more than 0.01mg/L (Pb)	less than 0.001mg/L
Arsenic and its compounds	not more than 0.01mg/L (As)	less than 0.001mg/L
Hexavalent chromium compounds	not more than 0.05mg/L (Cr)	less than 0.005mg/L
Cyanide ion and cyanogen chloride	not more than 0.01mg/L (CN)	less than 0.001mg/L
Nitrate nitrogen and nitrite nitrogen		0.3 mg/L
Fluorine and its compounds	not more than 0.8mg/L (F)	less than 0.08mg/L
Boron and its compounds	not more than 1.0mg/L (B)	less than 0.1mg/L
Carbon tetrachloride	not more than 0.002mg/L	less than 0.0002mg/L
1,4-Dioxane	not more than 0.05mg/L	less than 0.005mg/L
1,1-Dichloroethylene	not more than 0.02mg/L	less than 0.001mg/L
cis-1,2-Dichloroethylene	not more than 0.04mg/L	less than 0.001mg/L
Dichloroethane	not more than 0.01mg/L	less than 0.001mg/L
Tetrachloroethylene	not more than 0.01mg/L	less than 0.001mg/L
Trichloroethylene	not more than 0.03mg/L	less than 0.003mg/L
Benzene	not more than 0.01mg/L	less than 0.001mg/L
Chloroacetic acid	not more than 0.02mg/L	less than 0.002mg/L

Continued on the following page

The water quality test inspection results book of the Quick Drying-Pilelock.

**Tokyo Food Sanitation Association
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AUTHORIZED BY THE JAPANESE GOVERNMENT
19-10, 1-CHOME, TOKUMARU, ITABASHI-KU, TOKYO, JAPAN

CERTIFICATE OF ANALYSIS

March 7, 2005

No.03863-2A

Name of sample	QUICK DRYING-PILELOCK (The immersed water with QUICK DRYING PILELOCK)	
Name of Applicant	NIPPON CHEMICAL PAINT COMPANY LIMITED	
Date of Receipt	February 1, 2005	
Date of Examination	February 4, 2005	
Subject of Examination	Criterion test on water quality according to the Tap Water Law of Japan (50 items), except viable cell counts and <i>Escherichia coli</i> .	
Immersion Condition	QUICK DRYING-PILELOCK weighing 0.1g (size: 1 × 1 cm) was immersed in 2 liter of distilled water at 20 °C for 24 hours.	

The results of the examination were as follows

Test items	Criteria	Results
Cadmium and its compounds	not more than 0.01mg/L (Cd)	less than 0.001mg/L
Mercury and its compounds	not more than 0.0005mg/L (Hg)	less than 0.0005mg/L
Selenium and its compounds	not more than 0.01mg/L (Se)	less than 0.001mg/L
Lead and its compounds	not more than 0.01mg/L (Pb)	less than 0.001mg/L
Arsenic and its compounds	not more than 0.01mg/L (As)	less than 0.001mg/L
Hexavalent chromium compounds	not more than 0.05mg/L (Cr)	less than 0.005mg/L
Cyanide ion and cyanogen chloride	not more than 0.01mg/L (CN)	less than 0.001mg/L
Nitrate nitrogen and nitrite nitrogen		10mg/L
Fluorine and its compounds	not more than 0.8mg/L (F)	less than 0.08mg/L
Boron and its compounds	not more than 1.0mg/L (B)	less than 0.1mg/L
Carbon tetrachloride	not more than 0.002mg/L	less than 0.0002mg/L
1,4-Dioxane	not more than 0.05mg/L	less than 0.005mg/L
1,1-Dichloroethylene	not more than 0.02mg/L	less than 0.001mg/L
cis-1,2-Dichloroethylene	not more than 0.04mg/L	less than 0.001mg/L
Dichloroethane	not more than 0.02mg/L	less than 0.001mg/L
Tetrachloroethylene	not more than 0.01mg/L	less than 0.001mg/L
Trichloroethylene	not more than 0.03mg/L	less than 0.003mg/L
Benzene	not more than 0.01mg/L	less than 0.001mg/L
Chloroacetic acid	not more than 0.02mg/L	less than 0.002mg/L

Continued on the following page

— Page 2 —

The results of the examination were as follows (continued)

Test Items	Criteria	Results
Chloroform	not more than 0.06mg/L	less than 0.001mg/L
Dichloroacetic acid	not more than 0.04mg/L	less than 0.004mg/L
Chlorodibromomethane	not more than 0.1mg/L	less than 0.001mg/L
Bromate ion	not more than 0.01mg/L	less than 0.001mg/L
Total trihalomethanes	not more than 0.1mg/L	less than 0.001mg/L
Trichloroacetic acid	not more than 0.2mg/L	less than 0.02mg/L
Bromodichloromethane	not more than 0.03mg/L	less than 0.001mg/L
Bromoform	not more than 0.09mg/L	less than 0.001mg/L
Formaldehyde	not more than 0.08mg/L	less than 0.008mg/L
Zinc and its compounds	not more than 1.0mg/L (Zn)	less than 0.01mg/L
Aluminum and its compounds	not more than 0.2mg/L (Al)	less than 0.02mg/L
Iron and its compounds	not more than 0.3mg/L (Fe)	less than 0.03mg/L
Copper and its compounds	not more than 1.0mg/L (Cu)	less than 0.01mg/L
Sodium and its compounds	not more than 200mg/L (Na)	1 mg/L
Manganese and its compounds	not more than 0.05mg/L (Mn)	less than 0.005mg/L
Chlorine ion	not more than 200mg/L	less than 0.5mg/L
Calcium, magnesium and so on (hardness)	not more than 300mg/L	less than 5mg/L
Residue on evaporation	not more than 500mg/L	1.9 mg/L
Anion surfactant	not more than 0.2mg/L	0.0 2 mg/L
Geosmin	not more than 0.00002mg/L	less than 0.00002mg/L
2-Methylisoborneol	not more than 0.00002mg/L	less than 0.00002mg/L
Nonionic surfactant	not more than 0.02mg/L	less than 0.005mg/L
Phenols (as phenol)	not more than 0.005mg/L	less than 0.0005mg/L
Organic matters (oxygen consumption)	not more than 10mg/L	3.3 mg/L
pH value	5.8 ~ 8.6	7.6
Taste	not abnormal	normal
Smell	not abnormal	normal
Chromaticity	not more than 5 degree	less than 0.5 degree
Turbidity	not more than 2 degree	less than 0.2 degree

I hereby certify that the results of the examination were as described above.

Director: *Yukihiko Yamashita*
Yukihiko Yamashita

— Page 2 —

The results of the examination were as follows (continued)

Test Items	Criteria	Results
Chloroform	not more than 0.06mg/L	less than 0.001mg/L
Dichloroacetic acid	not more than 0.04mg/L	less than 0.004mg/L
Chlorodibromomethane	not more than 0.1mg/L	less than 0.001mg/L
Bromate ion	not more than 0.01mg/L	less than 0.001mg/L
Total trihalomethanes	not more than 0.1mg/L	less than 0.001mg/L
Trichloroacetic acid	not more than 0.2mg/L	less than 0.02mg/L
Bromodichloromethane	not more than 0.03mg/L	less than 0.001mg/L
Bromoform	not more than 0.09mg/L	less than 0.001mg/L
Formaldehyde	not more than 0.08mg/L	less than 0.008mg/L
Zinc and its compounds	not more than 1.0mg/L (Zn)	less than 0.01mg/L
Aluminum and its compounds	not more than 0.2mg/L (Al)	less than 0.02mg/L
Iron and its compounds	not more than 0.3mg/L (Fe)	less than 0.03mg/L
Copper and its compounds	not more than 1.0mg/L (Cu)	less than 0.01mg/L
Sodium and its compounds	not more than 200mg/L (Na)	1 mg/L
Manganese and its compounds	not more than 0.05mg/L (Mn)	less than 0.005mg/L
Chlorine ion	not more than 200mg/L	less than 0.5mg/L
Calcium, magnesium and so on (hardness)	not more than 300mg/L	less than 5mg/L
Residue on evaporation	not more than 500mg/L	1.9 mg/L
Anion surfactant	not more than 0.2mg/L	0.0 3 mg/L
Geosmin	not more than 0.00002mg/L	less than 0.00002mg/L
2-Methylisoborneol	not more than 0.00002mg/L	less than 0.00002mg/L
Nonionic surfactant	not more than 0.02mg/L	less than 0.005mg/L
Phenols (as phenol)	not more than 0.005mg/L	less than 0.0005mg/L
Organic matters (oxygen consumption)	not more than 10mg/L	3.6 mg/L
pH value	5.8 ~ 8.6	7.2
Taste	not abnormal	normal
Smell	not abnormal	normal
Chromaticity	not more than 5 degree	less than 0.5 degree
Turbidity	not more than 2 degree	less than 0.2 degree

I hereby certify that the results of the examination were as described above.

Director: *Yukihiko Yamashita*
Yukihiko Yamashita

* Precaution point to deal with it.

Use it for the safety in accordance with the precaution specified by a catalog and the label of the can.

Detailed contents is to request material safety data sheet (MSDS) in the essential case.

《Precaution》Keep the following precaution for handling because the health of intoxication others is likely to be injure when it is inhaled.

1. Don't use that it is the place to have fire.
2. Set up a local exhaust gas device and so on in the inside job office.
3. Improve ventilation during the time of the application job and the drying, and try not to inhale vapor.
4. Prevent Pilelock from touching skin as much as possible during the application job. Wear a mask for the organic gas or a special mask, protection gloves, apron, and so on if necessary.
5. Wipe it out with the floorcloth, and store it in the container which water was spread in when Pilelock spills.
6. Put the floorcloth which coating material stuck to, and coating material trash, on the water until it is disposed.
7. Wash your hand after handling, and do a gargle fully.
8. Wash it with large quantities of soapsuds, and take it when it sticks to the skin. Then, see a physician's doctor when it aches and or there is gradation in the appearance.
9. Wash it with large quantities of water, and see a physician's doctor as fast as possible when it is within eyes.
10. Lie quietly in a place to be the clarification of the air, and see a physician's doctor if necessary when you inhale vapor, gas, and so on and come to feel sick.
11. See a physician's doctor as fast as possible when you swallow it by accident.
12. Use carbon dioxide, a bubble, dust fire extinguisher at the time of the fire.
13. Decide the fixed place of the sunlight where it doesn't hit it, and do a cap well, and store it.
14. Store it in the place where a child doesn't reach it.
15. Decide the fixed place of 40 °C and under, and keep it away from the fire, the heat source, and store it.
16. Dispose it after you finish using contents.
17. Don't use the sniffing paint thinner, the soil chute except for the original application.

* Other handling. Precaution to store it.

- 1) Be substantially careful when you open the can of the Pilelock when you put it long under the sunlight. Because, the thinner that it evaporated, and contents sometimes spout.
- 2) Seal it up completely when the Pilelock which opened a can is saved.
Add Pilelock thinner, and control it when viscosity is too high at the time of the re-use.

* Precaution to the steel sheet-pile blow.

Cover painted steel sheet-pile total with sheet in the possible case that it touches rain-fall and moisture before you hammer steel sheet-pile after the Pilelock application.

* Precaution before the re-use of the steel sheet-pile.

Tear off a Pilelock promptly, and drop a Pilelock after you pull out steel sheet-pile because it is soft and it can be eliminated easily while water absorption expands.

* Other precaution.

Effect on watertightness by the Pilelock may vary according to the quality of the application, the blow method of construction, the condition (in such cases as the hardness of the ground) of the nature of the soil greatly. Please, take it into account, and do work carefully.

Pilelock execution results 1.

Construction name :	The second Aichi water repair work.
Orderer :	Water Resources Development Public Corporation.
Construction company :	Shiraisi Co., Ltd. , Yahagi Construction Co., Ltd. , Ohmoto Co., Ltd., Fudo Construction Co., Ltd. Saeki Construction & industrial Co., Ltd.
Term of works :	Started in 1948.
Construction summary :	Partition off an irrigation canal in half in a Pilelock application steel sheet pile. And, repair other half through water in one waterway and perform this in turn. Deadline irrigation canal construction to repair entirely in this way.
Type of steel sheet pile :	An example of Saeki construction : 1,488 pieces of SP II type 6-8m.
Application place :	A steel sheet pile supply supplier factory.
Dry time :	After application about 16 hours.
The depth of the water :	3m.
Period to drawing :	Four months.
Watertightness is in a state :	Good.



Photograph-11 A deadline method of construction.



Photograph-12 A caisson foundation.

Pilelock execution results 2.

Construction name :	Higashi Kanto Expressway, Tonegawa Bridge, Other 2 under a bridge department mechanic.
Orderer :	Japan Highway Public Corporation Tokyo Daiichi Kensetsu station.
Construction company :	Daiho, Ohmoto JV.
Term of works :	From June, 1948 to April, 1950.
Construction summary :	Build a supporting beam in a caisson foundation.
Type of steel sheet pile :	400 pieces of SP III type 10m.
Dry time :	After application more than 16 hours.
The depth of the water :	2m.
Watertightness is in a state :	There was the point where water bled partially, but was good generally.

Pilelock execution results 3.

Construction name :	Hokuriku Electric Power Co. Nanao thermal power station. bank construction.
Orderer :	Hokuriku Electric Power Co.
Construction company :	Toyo construction Co. Goyo construction. Toa construction industrial. Maeda construction. Maeda construction.
Term of works :	From June, 1949.
Construction summary :	Used 10m steel sheet pile left 3m above the ground and assumed it ramming down, a reservoir.
Quantity of application :	0.4kg/m
Type of steel sheet pile :	SP III type 10m.
Dry time :	After application more than 16 hours.
The depth of the water :	5m.
Period to drawing :	4 months.
Watertightness is in a state :	Good.



Photograph-13 Sand guards method of construction.

Pilelock execution results 4.

Construction name : Yoshikawa-shi, Saitama last disposal ground Construction.
 Orderer : Yoshikawa-shi, Saitama.
 Construction company : Shimizu construction Co., Ltd.
 Term of works : From April, 1992 to June, 1994.
 Construction summary : Edogawa where the water level was high was near, water seal was necessary. The ramming down used a bi-blow hammer. Used sand guards method of construction. Anti-subsidence measure of the neighborhood of house.
 Type of steel sheet pile : 1,700 pieces of SP III type 15m.
 Consumption : 18kg×570 cans.
 Dry time : After application more than 16 hours.
 Period to drawing : Eternal use.
 Watertightness is in a state : Good.



Photograph-14 Sand guards method of construction.

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平成7年 平成7年
期間 3月16日~12月10日

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長野建設事務所



Photograph-15 A water sealed wall method of construction.

Pilelock execution results 6.

Construction name : Tobu processing ground construction.
 Orderer : Sapporo city sewer station.
 Construction company : Taisei JV, Toda JV, Maeda JV, Tisaki JV.
 Term of works : From May, 2000 to March, 2003.
 Construction summary : The water level was high in the spot in a peat bog, and sealing water was necessary. Used silent-pile. It was adopted to all total the 4 mechanic wards.
 Type of steel sheet pile : 2000 pieces II type 12m.
 Consumption : 18kg×600 cans.
 Application place : The construction sight.



Photograph-16 A water sealed wall method of construction.



The Centrair airport rainwater drainage pipe institution construction.
Orderer: Central Japan International Airport Co., Ltd.
Construction company: Kumagai / Nishimatsu / Tokura JV



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