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Demo Test Report for Furuto's Anti-Corrosion Materials in Oil Refinery (June 28, 2012 ~ June 27, 2014) 2nd Anniversary result Test Result : EXCELLENT (No any corrosion was found)

Test Condition: serious corrosion environment

1. Location: coastal region in Southern west part of Taiwan (Oil Refinery),
Near by the Sea (Harbor) within 20 meters (=serious corrosion environment)
2. UV Index (Annual 80% sunny day in this area): Summer ~ Autumn 8~14, Winter ~ Spring 6~10,
3. Weather Condition:
 - (1) Average Temperature:
Apparent Temperature: Summer ~ Autumn 25~38°C , Winter ~ Spring 6~20°C ,
Object Surface Temperature: Summer ~ Autumn 30~65°C , Winter ~ Spring 3~18°C ,
 - (2) Humidity: Summer ~ Autumn 50~70% RH, Winter ~ Spring 65~85% RH,
 - (3) Wind Blowing (all season): very strong in coastal region (rich contents of Sea Salt and Sand).
 - (4) Northeast Monsoon: very strong in winter season of this area (especially in coastal region).

Object of Demo Test: (Above ground) facilities of Oil Refinery in coastal region)

- (1) Diameter 6 inch Quarter Bend and Straight Pipe (included Weld End)
- (2) Diameter 6 inch Valve and Flange
- (3) Diameter 6 inch Tee Pipe (included Weld End)
- (4) Diameter 80M Oil Tank's Bottom, included Concrete base (partial)
- (5) Diameter 80M Oil Tank's Bottom (Big Nut)
- (6) Steel Construction's Nuts group

Surface Preparation of Object (before test): roughly cleaning the Rust and Paint (by Water Knife or Grinder)

Remark: Demo's Surface Preparation didn't meet the Standard (SIS - Sa2 1/2 and above) for Steel Surface.

Use Furuto Self-Fusing Anti-Corrosion Materials: (for Water tight, Air tight, Anti-Corrosion and Anti-UV)

- (1) #F0: Furuto Primer (Black)
- (2) #F1: Furuto Sealant Material / Tape (Black or Light Gray)
- (3) #F2: Furuto Sealing Tape (Black or Light Gray)
- (4) #F3: Furuto Surface Protection Tape (Sliver or Light Gray)

Test Period: June 28, 2012 ~ June 27, 2014 (two years)

Test Method: Peel off the Furuto Anti-Corrosion Materials, to check the object's Steel Surface

Test Result: **one year and two years after: EXCELLENT** (No any corrosion are found from the test object,
no any cracking or damage found from the surface of Furuto's Anti-Corrosion Materials.
= EXCELLENT Water & Air Immersion Resistance, and UV Resistance.

Demo Test for Furuto's Anti-Corrosion Materials in Oil Refinery (120628 ~ 140627_2nd Anniversary)

(1) 6" Quarter Bend & Straight Pipe (included Weld End in both side): Test Result: EXCELLENT

(after 2 years no any corrosion was found, both Weld End and Pipe's surface is still showing Metallic Luster)

Appearance: in the Beginning (June 28, 2012, when wrapped)



Appearance: One year later (Jun.28,2013)



1 year Demo Test Result: June 28, 2013_Peel-off to check (= No any corrosion) = EXCELLENT Water & Air Immersion Resistance, and UV Resistance.



Tip: Enlarge the PDF file to see the photo in details.

One year no any corrosion (both Weld End and Pipe's surface is still showing Metallic Luster, which same as the original status). Remark: the Brown color was the primer of paint which is the Surface Preparation of pipe did not good enough)

Appearance: 2 years later (June 27, 2014) – before checking



Remark: The surface's Anti-Corrosion Materials did not recovery by Furuto's SOP during one year (2013) checked. (it's just only use a packaging tape for temporary repaired, which couldn't Anti-UV, Water Tight & Air Tight).
 Tip: [Enlarge the PDF file to see the photo in details.](#)

2 year Demo Test Result: June 27, 2014_Peel-off to check (= No any corrosion) = EXCELLENT Water & Air Immersion Resistance, and UV Resistance.



Two year no any corrosion (both Weld End and Pipe's surface is still showing Metallic Luster, which same as the original status).

Remark: the Brown color was the primer of paint which is the Surface Preparation of pipe did not good enough)

Demo Test for Furuto's Anti-Corrosion Materials in Oil Refinery (120628 ~ 140627_2nd Anniversary)

(1) 6" Valve & Flange (included Flange in both side): Test Result: EXCELLENT

(after 2 years no any corrosion was found, the Flange's surface and Gap is still showing Metallic Luster)

Appearance: in the Beginning (June 28, 2012, when wrapped)

Appearance: One year later (Jun. 28, 13)



1 year Demo Test Result: June 28, 2013_Peel-off to check (= No any corrosion) = EXCELLENT Water & Air Immersion Resistance, and UV Resistance.



One year no any corrosion (the Flange's surface and Gap is still showing Metallic Luster, which same as the original status). Remark: the Brown color was the primer of paint which is the Surface Preparation of pipe did not good enough)

Tip: Enlarge the PDF file to see the photo in details.

Appearance: 2 years later (June 27, 2014) – before checking



Remark: The surface's Anti-Corrosion Materials did not recovery by Furuto's SOP during one year (2013) checked. (it's just only use a packaging tape for temporary repaired, which couldn't Anti-UV, Water Tight & Air Tight).

2 year Demo Test Result: June 27, 2014_Peel-off to check (= No any corrosion) = EXCELLENT Water & Air Immersion Resistance, and UV Resistance.



One year no any corrosion (the Flange's surface and Gap are still showing Metallic Luster, which same as the original status). Remark: the Brown color was the primer of paint which is the Surface Preparation of pipe did not good enough) [Tip: Enlarge the PDF file to see the photo in details.](#)

Demo Test for Furuto's Anti-Corrosion Materials in Oil Refinery (120628 ~ 140627_2nd Anniversary)

(3) 6" Tee Pipe (included Weld End): Test Result: EXCELLENT

(after 2 years no any corrosion was found, both Weld End and Pipe's surface is still showing Metallic Luster)

Appearance: in the Beginning (June 28, 2012, when wrapped)



Appearance: One year later (Jun.28,2013)



1 year Demo Test Result: June 28, 2013_Peel-off to check (= No any corrosion) = EXCELLENT Water & Air Immersion Resistance, and UV Resistance.



One year no any corrosion (both Weld End and Pipe's surface is still showing Metallic Luster, which same as the original status). Remark: the Brown color was the primer of paint which is the Surface Preparation of pipe did not good enough) [Tip: Enlarge the PDF file to see the photo in details.](#)

Appearance: 2 years later (June 27, 2014) – before checking



Remark: The surface's Anti-Corrosion Materials did not recovery by Furuto's SOP during one year (2013) checked. (it's just only use a packaging tape for temporary repaired, which couldn't Anti-UV, Water Tight & Air Tight)

2 year Demo Test Result: June 27, 2014_Peel-off to check (= No any corrosion) = EXCELLENT Water & Air Immersion Resistance, and UV Resistance.



Two year no any corrosion (both Weld End and Pipe's surface is still showing Metallic Luster, which same as the original status). [Tip: Enlarge the PDF file to see the photo in details](#)

Remark: the Brown color was the primer of paint which is the Surface Preparation of pipe did not good enough the Light Gray color was the repaired material which wrapped at one year test dated on Jun.28,2013)

Demo Test for Furuto's Anti-Corrosion Materials in Oil Refinery (120628 ~ 140627_2nd Anniversary)
(4) a part of D=80M Oil Tank's bottom (for R Angle reinforce): Test Result: EXCELLENT (Water & Air Tight)
(after 2 years no any corrosion was found, the result same as the original status = No deterioration)

Appearance: in the Beginning (June 28, 2012, before reinforcement)

Remark: This object's surface didn't made any of Surface Preparation before demo test (= had rust),
This demo test is focusing the IMMERSION RESISTANCE (Water Tight & Air Tight) for the reinforcement
between Tank bottom edge's corrosion and Concrete base, with hope it's without deterioration in future.



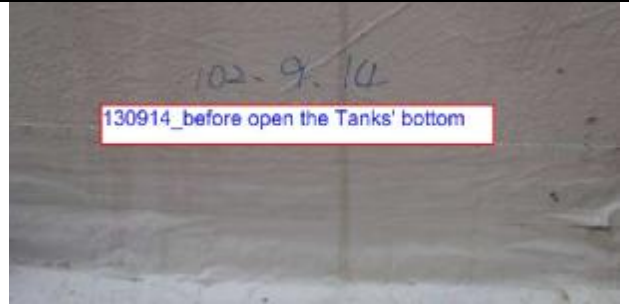
Appearance: in the Beginning (June 28, 2012, during reinforcement – for R Angle = 50mm in both side)



Appearance: in the Beginning (June 28, 2012, finished)



Appearance: One year later (Sep.14,2013)



Tip: Enlarge the PDF file to see the photo in details.

1 year Demo Test Result: Sep 14, 2013_Peel-off to check (= No Deterioration) – for R Angle = 50mm
(= No any corrosion) = EXCELLENT Water & Air Immersion Resistance, and UV Resistance.



102 年 09/14 Tank 與水泥直角拆除



102 年 09/14 Tank 與水泥直角拆除後近照

Appearance: 2 years later (June 27, 2014) – before checking (for right hand area)



Remark:

- (1) A (defect point): it's been peel-off the tape for checked one year before, but did not recovery the Tape as Furuto's SOP, caused the inside steel surface was rust and found the rust water marks in outside.
- (2) B (steel base of big nut) inside did not used Furuto's Anti-Corrosion materials= it's been found the serious problem of rust water marks in outside.

(NOTE: the right hand area = no rust water marks found)

2 year Demo Test Result: June 27, 2014_Peel-off to check (= No any deterioration for corrosion)

(= No any corrosion) = EXCELLENT Water & Air Immersion Resistance, and UV Resistance.



Two year no any corrosion (both Tank bottom edge and Concrete base, No any deterioration for the corrosion, which same as the original status = Excellent Water Tight & Air Tight by the reinforcement) = EXCELLENT IMMERSION RESISTANCE.

Tip: Enlarge the PDF file to see the photo in details

Demo Test for Furuto's Anti-Corrosion Materials in Oil Refinery (120628 ~ 140627_2nd Anniversary)

(5) Big Nut & Bolt of Diameter 80M Oil Tank's bottom: Test Result: EXCELLENT

(after 2 years no any corrosion was found, Bolt's surface is still showing Metallic Luster)

Appearance: in the Beginning (June 28, 2012, when wrapped) – Use Furuto #F1



Appearance: One year later (Jun.28,2013)
(outside's White Paint was by customer)



1 year Demo Test Result: June 28, 2013_Peel-off to check (= No any corrosion) = EXCELLENT Water & Air Immersion Resistance, and UV Resistance.



One year no any corrosion (top of Bolt surface is still showing Metallic Luster, which same as the original status).

Tip: Enlarge the PDF file to see the photo in details

Remark: the Brown color was the primer of paint which is the Surface Preparation of steel did not good enough

2 year Demo Test Result: June 27, 2014_Peel-off to check (= No any corrosion) = EXCELLENT Water & Air Immersion Resistance, and UV Resistance.



Tip: Enlarge the PDF file to see the photo in details

Two year no any corrosion (top of Bolt surface is still showing Metallic Luster, which same as the original status). Remark: the Brown color was the primer of paint which is the Surface Preparation of steel did not good enough; the Light Gray color was the repaired material which wrapped at one year test dated on Jun.28,2013)

Demo Test for Furuto's Anti-Corrosion Materials in Oil Refinery (120628 ~ 140627_2nd Anniversary)

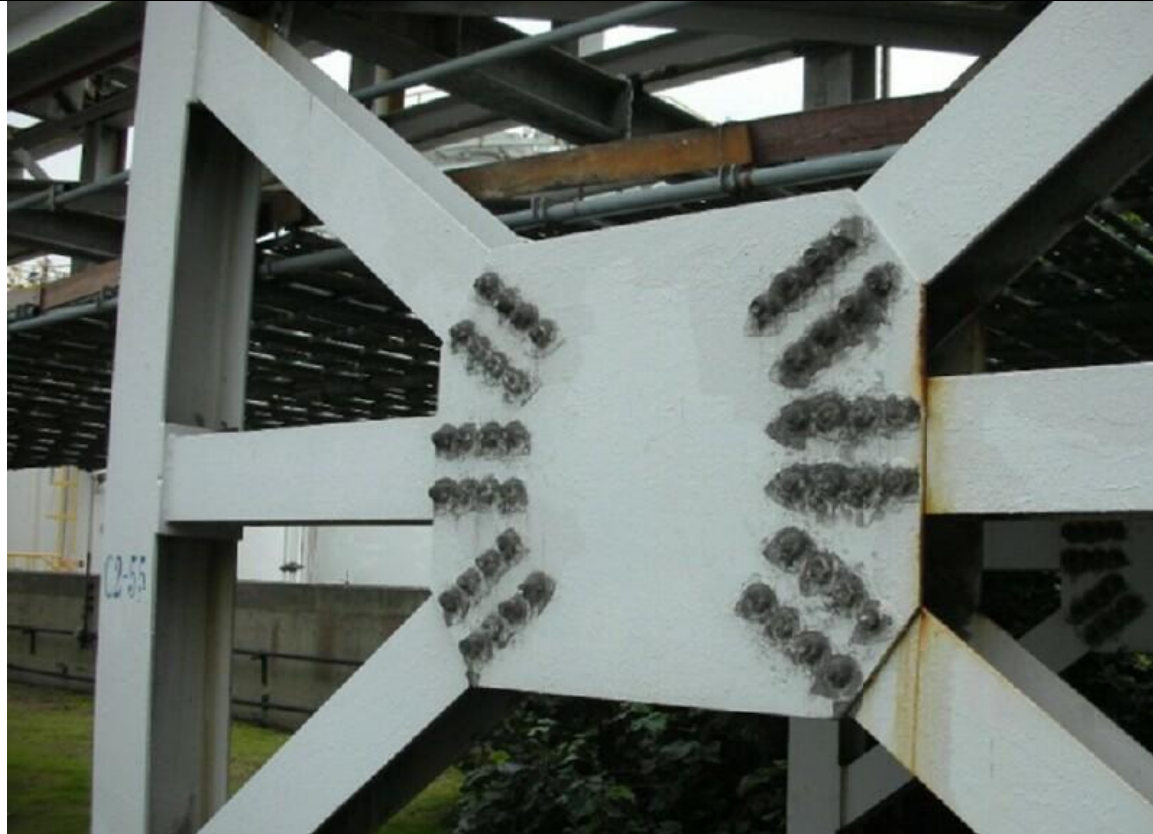
(6) Steel Construction's Nuts Group, Test Result: EXCELLENT (Water & Air Tight)

(after 2 years no any corrosion was found, the result same as the original status = No deterioration)

Appearance: in the Beginning (June 28, 2012, before reinforcement)

Remark: This object's surface didn't made any of Surface Preparation before demo test (= had Paint),

In normal condition, the Paint cannot Anti-Corrosion within half or one year in the coastal region (= serious corrosion environment). This demo test is focusing the IMMERSION RESISTANCE (Water Tight & Air Tight) for the reinforcement to Nut group and for Anti-Corrosion. (and required easy to be apply)



Appearance: in the Beginning (June 28, 2012)

Furuto product = easy to be apply



Appearance: in the Beginning (June 28, 2012) Finished

Appearance: One year later (Jun. 28, 2013)



Remark: **Correct Demo: upside** sample (white and black) appearance good and easy to be apply.
Incorrect Demo: downside (= Wrong method, different with Furuto's SOP), it's no need the #F3 Surface Protection Tape (Sliver color), because the appearance was no good and not easy to be apply.

1 year Demo Test Result: June 28, 2013_Peel-off to check (= No any corrosion) = **EXCELLENT Water & Air Immersion Resistance, and UV Resistance.**



One year no any corrosion

Tip: Enlarge the PDF file to see the photo in details.

Remark: This object's surface didn't made any of Surface Preparation before demo test (= had Paint),
In normal condition, the Paint cannot Anti-Corrosion within half or one year in the coastal region (= serious corrosion environment). **This demo test is focusing the IMMERSION RESISTANCE (Water Tight & Air Tight) for the reinforcement to Nut group and for Anti-Corrosion. (and required easy to be apply)**

2 year Demo Test Result: June 27, 2014_Peel-off to check (= No any corrosion) = EXCELLENT Water & Air Immersion Resistance, and UV Resistance.



Tip: Enlarge the PDF file to see the photo in details.



Remark: This object's surface didn't made any of Surface Preparation before demo test (= had Paint), In normal condition, the Paint cannot Anti-Corrosion within half or one year in the coastal region (= serious corrosion environment). This demo test is focusing the IMMERSION RESISTANCE (Water Tight & Air Tight) for the reinforcement to Nut group and for Anti-Corrosion. (and required easy to be apply)