

## **Materials Testing Laboratory**



Materials Technology Division

Tel: 2788 5538 2788 5541

5th Floor, HKPC Building, 78 Tat Chee Avenue, Kowloon Tong, Hong Kong

電話: 2788 5538 2788 5541 傅真: 2788 5522 香港九龍塘達之路78號生產力大樓5樓

Job Number:

1009C001

Date: 04-10-10

Page 1 of \_2\_

Sample Description:

Pipe

The H.K. & China Gas Co Ltd

14/F., 363 Java Road, North Point, Hong Kong

Fax: 2788 5522

Sampling Done by:

The above company

Receipt Date:

Sample Source:

06-09-10

Test Performing Date:

07-09-10 to 28-09-10

Neutral Salt Spray (Fog) Test for corrosion resistance, as specified by

Nature of Test: ASTM B117-2007

## Test Results:

Neutral Salt Spray (Fog) Test was performed in accordance with conditions laid down in ASTM B117-2007 as follows:

Sodium Chloride (Solution) 5% pH 6.5 - 7.2Chamber Temperature 34°C - 36°C Saturation Tank Temperature  $48^{\circ}\text{C} + 2^{\circ}\text{C}$ Air pressure 16 psi

Sample Code	Corrosion Class	Treatment	Sample Description		
1	3	Nil	1" G.I. Pipe		
2	3	Rust Bullet by Supplier	1" G.I. Pipe		
3	3	Rust Bullet by Technician	1" G.I. Pipe		
4	3	Rust Converter by Technician	1" G.I. Pipe		
5	4	Nil	1" G.I. Pipe		
6	4	Rust Bullet by Supplier	1" G.I. Pipe		
7	4	Rust Bullet by Technician	1" G.I. Pipe		
8	4	Rust Converter by Technician	1" G.I. Pipe		

.../2

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation. This report shall not be reproduced unless with prior written approval from this laboratory.

See Reverse for Test Conditions



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Test Performing Date:

Neutral Salt Spray (Fog) Test for corrosion resistance, as specified by

Nature of Test:

ASTM B117-2007

#### Test Results:

Sample	Result										
Code	<u>24</u>	<u>72</u>	<u>120</u>	<u>168</u>	<u>216</u>	<u>264</u>	<u>312</u>	<u>360</u>	<u>408</u>	456	<u>500</u>
<u>couc</u>	<u>hours</u>										
1	W	W, R									
2	N	R	R	R	R	R	NF	NF	NF	NF	NF
3	N	N	N	R	NF	NF	NF	R	R	NF	NF
4	N	R	R	R	R	NF	R	NF	R	R	NF
5	N	W, R									
6	N	R	R	R	R	R	NF	NF	NF	NF	R
7	N	R	NF								
8	N	R	NF	R	R	NF	NF	NF	NF	NF	NF

R= Rusting was observed

N = No observable change

NF = No further observable change

W = White corrosion spots were observed

Dr. Kinny L.K. Yeung

B.Sc. M.Sc. Ph.D. C.Chem MRSC FIMF. F.I.Ceram FIM

General Manager – Materials Technology Division

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See Reverse for Test Conditions



# Annex of 1009C001



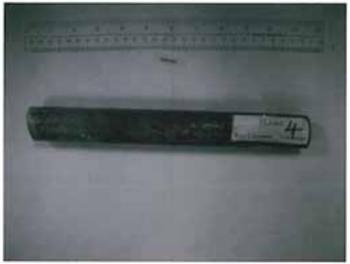
Sample Before Testing (Sample 1)



Sample Before Testing (Sample 2)



Sample Before Testing (Sample 3)



Sample Before Testing (Sample 4)



Sample Before Testing (Sample 5)



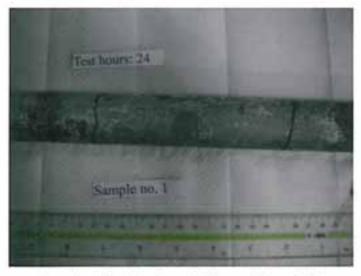
Sample Before Testing (Sample 6)



Sample Before Testing (Sample 7)



Sample Before Testing (Sample 8)



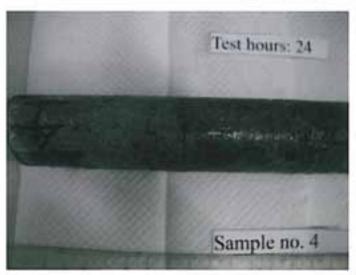
Sample After Testing - 24 hours (Sample 1)



Sample After Testing – 24 hours (Sample 2)



Sample After Testing - 24 hours (Sample 3)



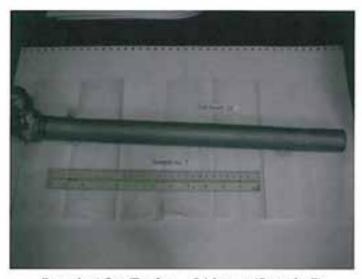
Sample After Testing - 24 hours (Sample 4)



Sample After Testing - 24 hours (Sample 5)



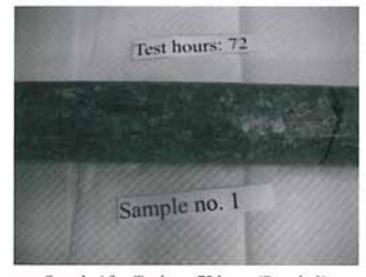
Sample After Testing - 24 hours (Sample 6)



Sample After Testing - 24 hours (Sample 7)



Sample After Testing - 24 hours (Sample 8)



Sample After Testing - 72 hours (Sample 1)



Sample After Testing - 72 hours (Sample 2)



Sample After Testing - 72 hours (Sample 3)



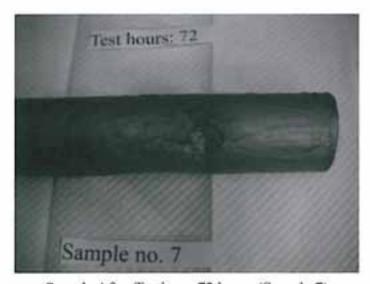
Sample After Testing - 72 hours (Sample 4)



Sample After Testing - 72 hours (Sample 5)



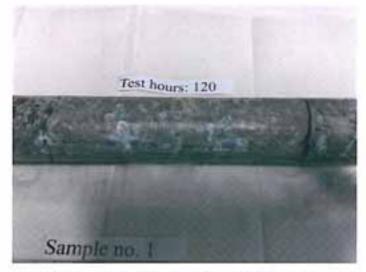
Sample After Testing - 72 hours (Sample 6)



Sample After Testing - 72 hours (Sample 7)



Sample After Testing - 72 hours (Sample 8)



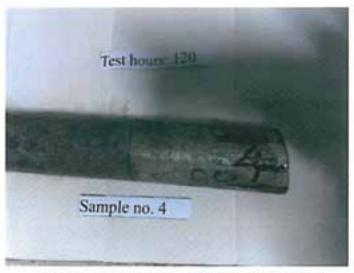
Sample After Testing - 120 hours (Sample 1)



Sample After Testing - 120 hours (Sample 2)



Sample After Testing - 120 hours (Sample 3)



Sample After Testing - 120 hours (Sample 4)



Sample After Testing - 120 hours (Sample 5)

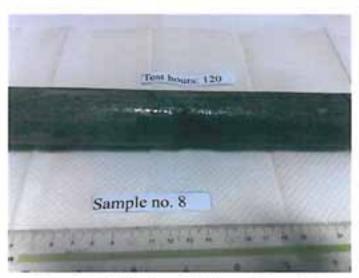


Sample After Testing - 120 hours (Sample 6)

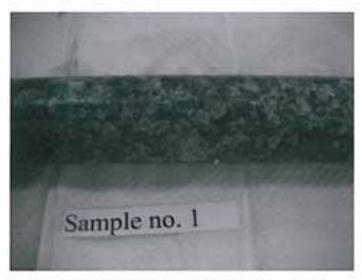




Sample After Testing - 120 hours (Sample 7)



Sample After Testing - 120 hours (Sample 8)



Sample After Testing - 168 hours (Sample 1)



Sample After Testing - 168 hours (Sample 2)

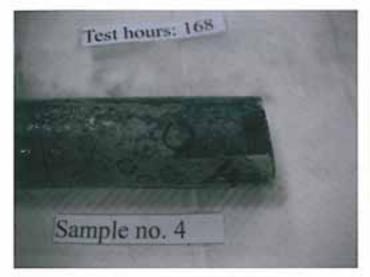


Sample After Testing – 168 hours (Sample 3)



Sample After Testing – 168 hours (Sample 4-1)





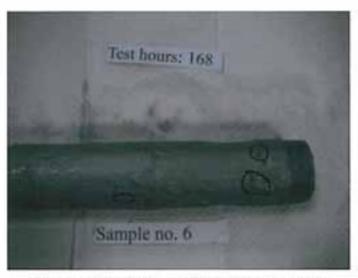
Sample After Testing - 168 hours (Sample 4-2)



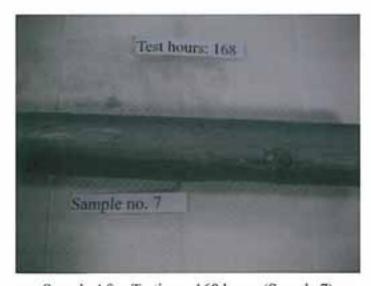
Sample After Testing -168 hours (Sample 5)



Sample After Testing -168 hours (Sample 6-1)



Sample After Testing -168 hours (Sample 6-2)



Sample After Testing - 168 hours (Sample 7)



Sample After Testing -168 hours (Sample 8-1)





Sample After Testing -168 hours (Sample 8-2)



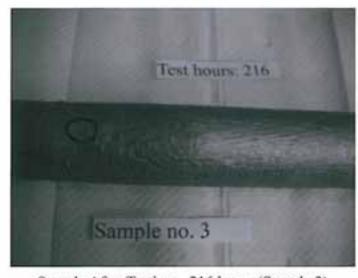
Sample After Testing - 216 hours (Sample 1)



Sample After Testing - 216 hours (Sample 2-1)



Sample After Testing – 216 hours (Sample 2-2)



Sample After Testing – 216 hours (Sample 3)



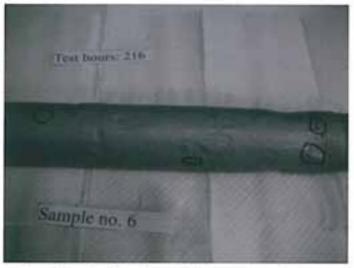
Sample After Testing - 216 hours (Sample 4)



Sample After Testing - 216 hours (Sample 5)



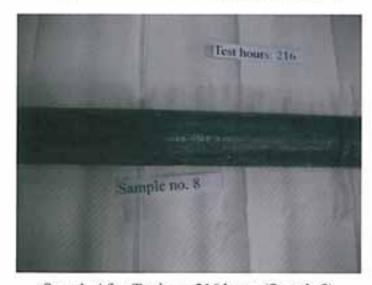
Sample After Testing - 216 hours (Sample 6-1)



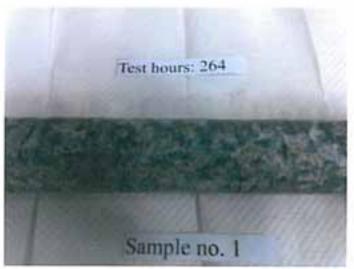
Sample After Testing - 216 hours (Sample 6-2)



Sample After Testing - 216 hours (Sample 7)

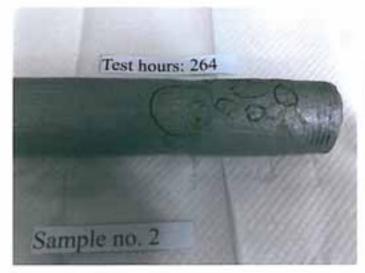


Sample After Testing – 216 hours (Sample 8)

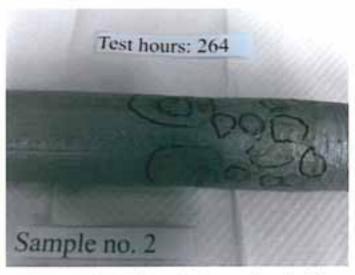


Sample After Testing – 264 hours (Sample 1)

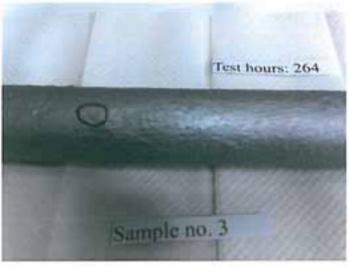




Sample After Testing - 264 hours (Sample 2-1)



Sample After Testing – 264 hours (Sample 2-2)



Sample After Testing - 264 hours (Sample 3)



Sample After Testing - 264 hours (Sample 4)



Sample After Testing – 264 hours (Sample 5)

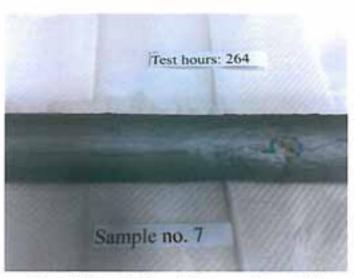


Sample After Testing – 264 hours (Sample 6-1)

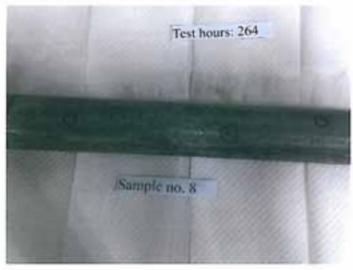




Sample After Testing - 264 hours (Sample 6-2)



Sample After Testing - 264 hours (Sample 7)



Sample After Testing - 264 hours (Sample 8)



Sample After Testing - 312 hours (Sample 1)



Sample After Testing - 312 hours (Sample 2)



Sample After Testing – 312 hours (Sample 3)





Sample After Testing - 312 hours (Sample 4)



Sample After Testing - 312 hours (Sample 5)



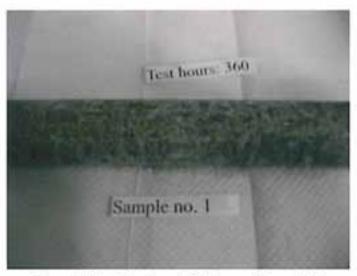
Sample After Testing - 312 hours (Sample 6)



Sample After Testing - 312 hours (Sample 7)

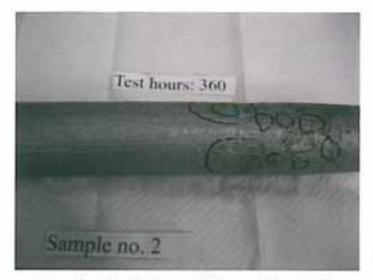


Sample After Testing - 312 hours (Sample 8)

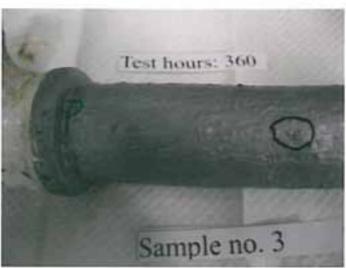


Sample After Testing - 360 hours (Sample 1)

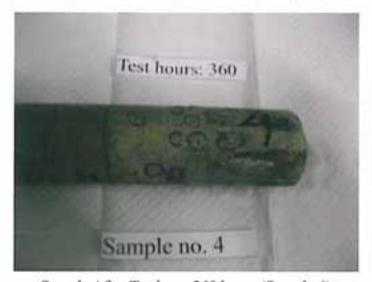




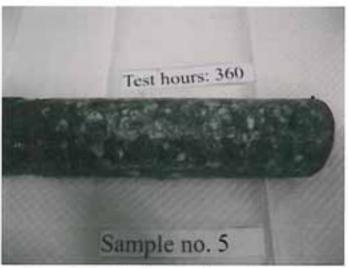
Sample After Testing - 360 hours (Sample 2)



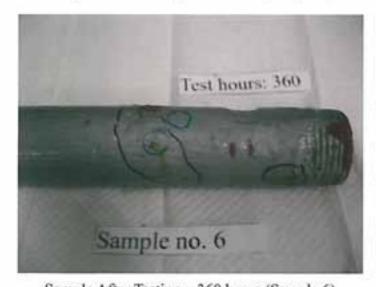
Sample After Testing - 360 hours (Sample 3)



Sample After Testing - 360 hours (Sample 4)



Sample After Testing - 360 hours (Sample 5)



Sample After Testing - 360 hours (Sample 6)



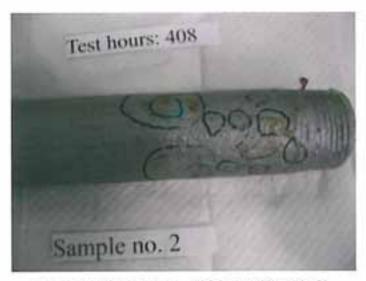
Sample After Testing - 360 hours (Sample 7)



Sample After Testing - 360 hours (Sample 8)



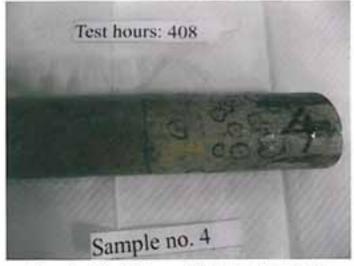
Sample After Testing - 408 hours (Sample 1)



Sample After Testing - 408 hours (Sample 2)



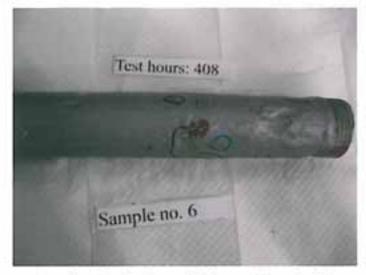
Sample After Testing - 408 hours (Sample 3)



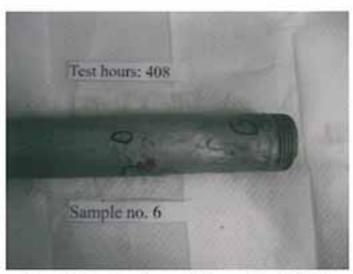
Sample After Testing - 408 hours (Sample 4)



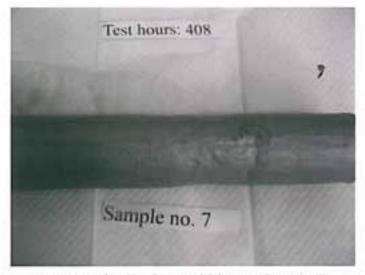
Sample After Testing - 408 hours (Sample 5)



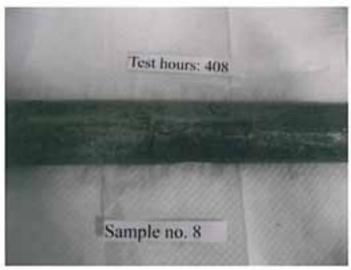
Sample After Testing - 408 hours (Sample 6-1)



Sample After Testing - 408 hours (Sample 6-2)



Sample After Testing - 408 hours (Sample 7)



Sample After Testing - 408 hours (Sample 8)

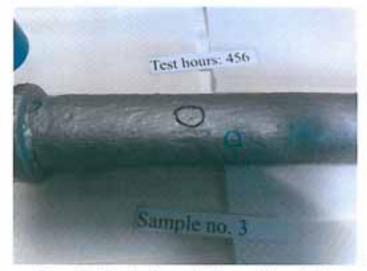


Sample After Testing – 456 hours (Sample 1)

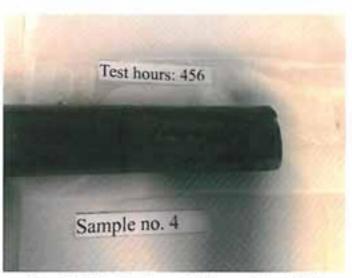


Sample After Testing – 456 hours (Sample 2)





Sample After Testing - 456 hours (Sample 3)



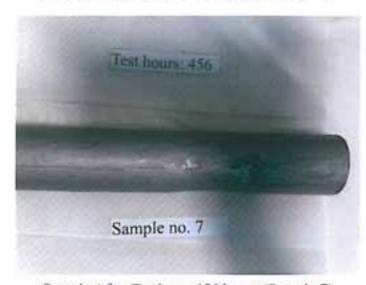
Sample After Testing - 456 hours (Sample 4)



Sample After Testing - 456 hours (Sample 5)



Sample After Testing - 456 hours (Sample 6)



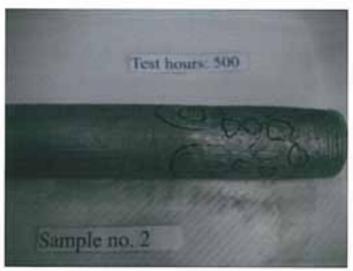
Sample After Testing - 456 hours (Sample 7)



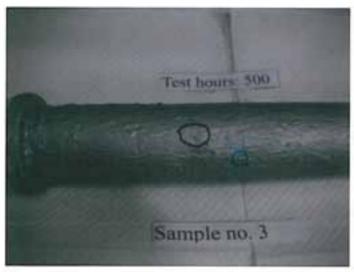
Sample After Testing - 456 hours (Sample 8)



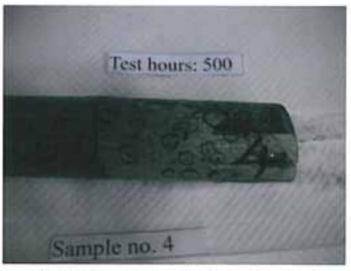
Sample After Testing - 500 hours (Sample 1)



Sample After Testing - 500 hours (Sample 2)



Sample After Testing - 500 hours (Sample 3)



Sample After Testing – 500 hours (Sample 4)



Sample After Testing - 500 hours (Sample 5)

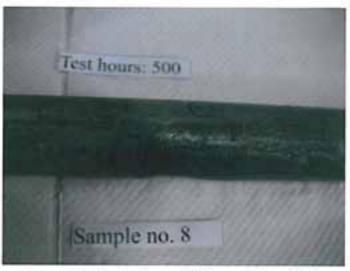


Sample After Testing - 500 hours (Sample 6)









Sample After Testing - 500 hours (Sample 8)