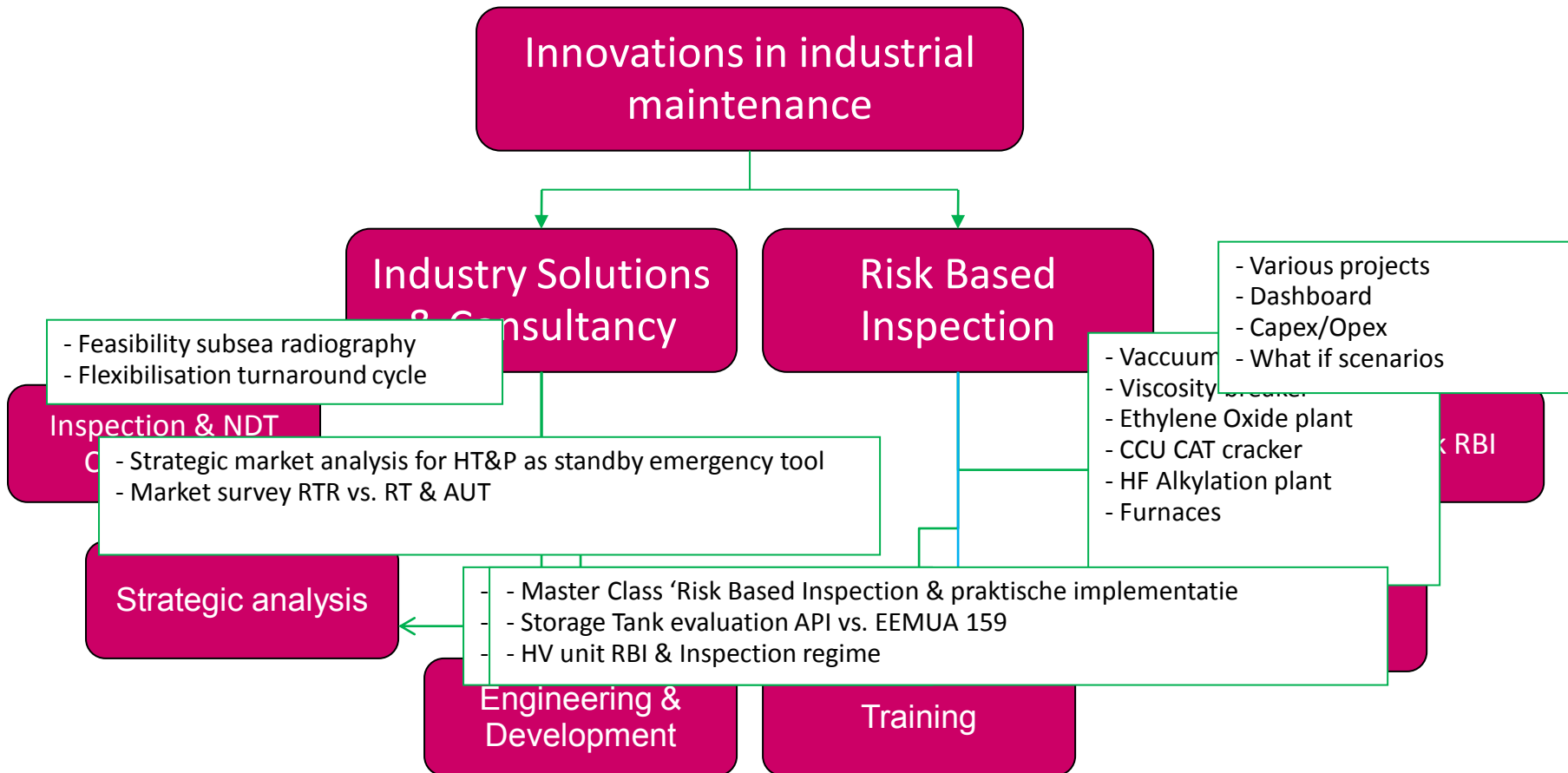


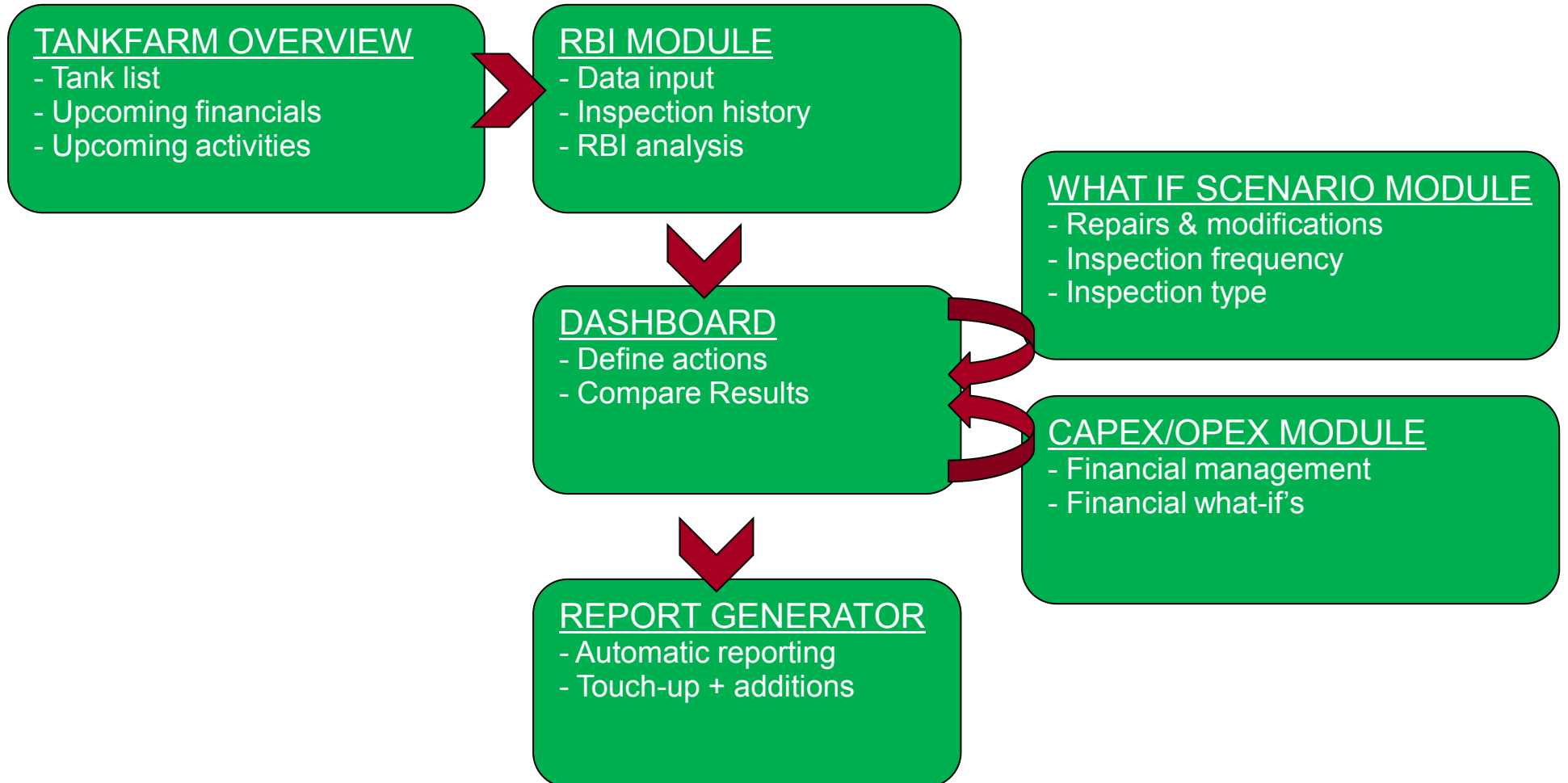


Storage Tank RBI web application

Inventure Activities



Application schematic





Login screen (local network or internet hosted)



A screenshot of a web browser window titled "Beheermodule". The page has a dark background with a red header bar at the top. The login form is centered and consists of the following elements:

- A "Username:" label followed by a text input field containing the text "RBI Tanks".
- A "Password:" label followed by a password input field with ten black dots.
- A "submit" button located below the password field.

The browser's status bar at the bottom left shows the word "Done".

Inventure Technologies Tool

ROTTERDAMSEWEG 103C | 2629 HD | DELFT | 015 2682588

Today: 2010-07-06

TANKFARM OVERVIEW

Search

Tank	Product	Delete tank(s)
100-2		<input type="checkbox"/>
A1	Mogas	
A2	Crude high sulphur content	
A3		<input type="checkbox"/>
A4		<input type="checkbox"/>
LEGE TANK	Crude high sulphur content	<input type="checkbox"/>
TESTTANK	Nafta	
TESTTANK MICHA	test product micha	

Delete tanks


Add a new tank:

Tank name

Add tank

Inventure Technologies Tool

ROTTERDAMSEWEG 183C | 2629 HD | DELFT | 015 2602588



Today: 2010-07-06

- TANK-ARM OVERVIEW
- PRODUCTS LIST
- CLIENT ADMINISTRATION
- LOG OUT

Products

You can change product details by clicking on a product.

Product	Delete product(s)
Nafta	<input type="checkbox"/>
Crude high sulphur content	<input type="checkbox"/>
Intermediate Feed Distillates	<input type="checkbox"/>
midcrates	<input type="checkbox"/>
Mogas	<input type="checkbox"/>
Jet a1	<input type="checkbox"/>
test product	<input type="checkbox"/>
test product miche	<input type="checkbox"/>
<input type="button" value="Delete products"/>	


Add a new product:


Product:

Done

Inventure Technologies Tool

RÖTTERDAMSEWEG 183C | 2629 HD | DELFT | +31 (0) 20 615 2682568





Today: 2010-07-06

- TANK FARM OVERVIEW
- PRODUCTS LIST
- CLIENT ADMINISTRATION
- LOG OUT

Update product

Product:


Relative Density	0.72
Liquid corrosivity shell	0.3
Vapour corrosivity shell	0.5
Vapour corrosivity roof	0.5
Liquid corrosivity floor	0.6
Product corrosivity group	Group 3, Risk M (EEMUA 159, Vol 2, App. B.3) ▼
Vapour corrosivity group	Group 3, Risk M (EEMUA 159, Vol 2, App. B.3) ▼
Product flammability	Class II(1) product ▼
Product toxicity	Toxic substance ▼
Cleaning costs	43

Stored Product	Tank						
	Bottom		Shell		Fixed roof		Floating roof
	Plates ²	Liquid Exposed Area	Vapour Space Area (2)	Plates	Supporting Structure	Plates	Pontoon / Flm
Crude							
High Sulphur Content	0.4-0.8	0.2-0.4	0.4-0.6	(0.4-0.6)	(0.4-0.6)	0.4-0.6	0.5-0.1
Low Sulphur Content	0.3-0.5	0.1-0.3	0.2-0.4	(0.2-0.4)	(0.2-0.4)	0.2-0.4	0.3-0.5
Intermediate Feed							
Distillates	0.5-0.55	0.5-0.55	0.55-0.85	0.55-0.85	0.55-0.85	(0.5-0.55)	(0.55-0.85)
Fuel oil							
Gas oil	0.1-0.3	0.05-0.25	0.1-0.3	0.1-0.3	0.1-0.3	-	-
Kerosene (Jet A1)	0.1-0.3	0.05-0.25	0.1-0.3	0.1-0.3	0.1-0.3	-	-
Mogas							
Gasoline	0.05-0.25	0.05-0.15	0.05-0.25	0.05-0.25	0.05-0.25	0.05-0.15	0.05-0.25
Naphtha	0.5-0.35	0.05-0.25	0.5-0.35	0.5-0.35	0.5-0.35	0.05-0.25	0.15-0.35
Slaps and Agressive Products							
	0.5-0.8	0.4-0.6	0.5-0.8	0.5-0.8	0.5-0.8	0.4-0.6	0.6-0.8
Chemicals Neutral liquids SpH<8							
Acetone, Acrylate,	0.1-0.3	0.05-0.25	0.1-0.3	0.1-0.3	0.1-0.3		
Alcohol, Methanol,	0.05-0.25	0.05-0.15	0.05-0.25	0.05-0.25	0.05-0.25	0.05-0.15	0.05-0.25
Styrene, Toluene etc.	0.1-0.3	0.05-0.25	0.1-0.3	0.1-0.3	0.1-0.3		
Chemicals Caustic products pH>8							
	0.5-0.8	0.4-0.6	0.5-0.8	0.5-0.8	0.5-0.8	0.4-0.6	0.6-0.8

Done

Inventure Technologies Tool

ROTTERDAMSEWEG 183C | 2629 HD | DELFT | 015 2682588



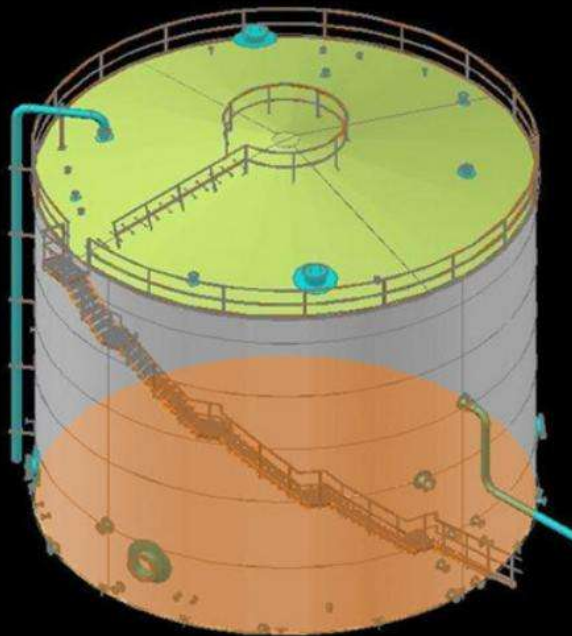
Today: 2010-07-06

- [» TANKFARM OVERVIEW](#)
- [» PRODUCTS LIST](#)
- [» CLIENT ADMINISTRATION](#)
- [» LOG OUT](#)

TANKFARM OVERVIEW » TESTTANK

TANK DETAILS:

Tank name:	TESTTANK
Type:	Low pressure tank
Capacity:	31252 m3
Roof type:	Fixed roof
Diameter:	48 m
Height:	19.2 m
Rings:	8
Date of constr.:	1976-05-04
Design code:	BS2654
Product:	Nafta
Joint efficiency factor:	1
Design pressure:	20
Design vacuum pressure:	7.5
Max filling height :	17.28



- Roof
- Shell
- Floor
- Dashboard
- Inspection

Inventure Technologies Tool

ROTTERDANSEWEG 182C | 2629 HD | DELFT | 015 2682588

TANK FARM OVERVIEW » TEST TANK » **DETAILS SHELL**

Today: 2010-07-06

→ TANK FARM OVERVIEW

→ PRODUCTION LOG

→ CLIENT ADMINISTRATION

→ LOG OUT

PoF Analysis

Internal coating: Internal coating applied and quality is sound

External coating: External coating applied and quality is sound

Storage conditions: Temperature of product < 40 °C

Heating coils: No or Are not used

Product corrosivity: No product data available yet

Vapor corrosivity: No product data available yet

Corrosion under insulation (CUI): Tank is properly insulated and unlikely to occ.

Wind and vacuum load

Number of stiffening rings: 1

Design windspeed: 45.00

Design vacuum pressure: 1000.00

CoF Analysis - Economical

Time to repair: No internal entry required, limited repair, no li

Cost of repair: Negligible, < 5% of capital cost

Magnitude of product loss: No release of product

CoF Analysis - Health & Safety

Likelihood of injury to personnel: No injury or near miss

Product flammability: No product data available yet

Product toxicity: No product data available yet

Location of tank farm: Flat tank farm

CoF Analysis - Environment

Hazard to soil and water: Environmental nuisance affecting neighbour

Vapour emission: No or negligible harmful (toxic) release

Confidence Assessment

NOT method used: Crawler / beetle + US

Frequency of inspections: No or minimal inspection data available

Corrosion wind girders farm: No corrosion on wind girder

Buckles in shell plates: No buckles

Bending moments in shell nozzles: Moments present, no effect on integrity

Fitness for Purpose Analysis

	Material Yield Stress	Ring Height
Ring 1	235	2390
Ring 2	235	2390
Ring 3	235	2390
Ring 4	235	2390
Ring 5	235	2390
Ring 6	235	2440
Ring 7	235	2365
Ring 8	235	2365

UPDATE ALL FIELDS

Done

Inventure Technologies Tool

ROTTERDAMSEWEG 183C | 2629 HD | DELFT | 015 2682588

Inventure technologies

Today: 2010-07-06

TANKFARM OVERVIEW » TESTTANK » INSPECTION

Inspection Date	Ring 1	Ring 2	Ring 3	Ring 4	Ring 5	Ring 6	Ring 7	Ring 8	Membrane	Annular	Roof Plates	Delete Inspections
1987-05-29	21.20	16.60	15.70	13.60	12.00	6.40	8.40	8.50	5.80	8.50	7.00	EDIT
1987-06-29	26.40	22.50	20.00	15.70	12.30	8.80	8.40	8.30	6.20	10.20	7.50	EDIT
1988-11-28									5.80	9.20	7.60	EDIT
1987-10-07									5.85	10.10	7.80	EDIT
1987-06-24	26.90	23.50	19.60	15.80	12.50	8.70	8.30	8.30	5.90	9.90	7.90	EDIT
Construction Date: 1976-05-04	26.30	22.70	19.20	15.60	12.10	8.50	8.00	8.00	6.00	10.00	8.00	Delete

[New inspection](#)
[As built thickness](#)
[Theoretical calc.](#)

Corrosion rates



Done

Visual inspection history

Visual internal inspection 2000-03-01 [\[EDIT\]](#) [\]PICS\]](#)
 In report: yes
 Delete:

The tank was opened for inspection. Floor: UT measurements and visual inspection: welds are in good condition. Shell: UT measurements. Hydrotest was done in august.

Visual external inspection 1997-11-01 [\[EDIT\]](#) [\]PICS\]](#)
 In report: yes
 Delete:

The painting on the roof is quite good. The stairs are oxidised. Shell: quite good condition, no deformation. Painting still good. Stairs outside are in general good condition. Earthing ok. Floor: annular is corroded underneath and half of the thickness is gone. There is external scaling of 1 cm thick on the annular and some oxidation, but it is still good. Tank base ok. A gap is seen between the tank pad and the annular, water ingress under the tankfloor is very likely. Basin quite clean. Pipeline supports in the basin, there is some oxidation starting. Drains and sumps in the basin are full of sand.



Visual internal inspection 1990-04-01 [\[EDIT\]](#) [\]PICS\]](#)
 In report: yes
 Delete:

Scaffolding was built inside the tank to take UT measurements on the shell inside. Also wallthickness measurements were taken on the floor. The floor was cleaned, no severe corrosion was detected for both shell and floor. On the shell they found general quite heavy corrosion on the central ring (3rd or 4th ring). The sump needs maintenance. In July 1990 they took some UT measurements on the shell. Some maintenance was required for stairs from the road to the basin.

Visual Inspection results 1986-10-01 [\[EDIT\]](#) [\]PICS\]](#)
 In report: yes
 Delete:

Painting ok, some safety devices need to be maintained, The drain system (sump) is full of oxidation. Shell is ok. Floor: ok, but the annular has a little settlement. The tiles on the tank shoulder have gaps in between them, there is therefore water ingress in the foundation. This could lead to underside corrosion of the tankfloor.



Visual external inspection 1984-06-01 [\[EDIT\]](#) [\]PICS\]](#)
 In report: yes
 Delete:

General condition of the roof is good. Painting ok. Shell: good outside, corrosion inside. Rest ok. Floor: the annular has some oxidation and starting corrosion. On the basin there is some sand and stones that need to be removed to facilitate the water evaporation and draining.



Delete notes

Dashboard shell

Inventure Technologies Tool

NOTTINGHAMSHIRE JOCC | 2007-01 | DRIFT |

Inventure technologies

Topic: 2007-07-06

Probability Factor

P	Rating
≥ 3.00	H
2.50 - 3.00	M
2.15 - 2.50	L
< 2.15	N

Consequence Factor

C	Rating
≥ 3.00	H
2.00 - 3.00	M
2.00 - 2.50	L
< 2.00	N

Risk assessment matrix

Probability	H	M	L	N
H	Red	Red	Red	Red
M	Red	Yellow	Yellow	Yellow
L	Yellow	Yellow	Green	Green
N	Green	Green	Green	Green

Risk factor: 0-1000

Risk factor	0-1000
0-100	0.0
100-200	0.1
200-300	0.2
300-400	0.3
400-500	0.4
500-600	0.5
600-700	0.6
700-800	0.7
800-900	0.8
900-1000	0.9

Confidence Rating:

- 0.1
- 0.2
- 0.3
- 0.4
- 0.5
- 0.6
- 0.7
- 0.8
- 0.9

	Process for Service	Allowed Thickness	As Built Thickness	Current Thickness	Corrosion Rate	Thickness Allowance	Remaining Lifetime
	Maximum Allowable Stress	MPa	Tensile (MPa)	Tensile (MPa)	CR (mm/yr)	Ta (mm)	R/L (Yr)
Ring 1	100.00	17.25	18.50	18.50	0.00	0.00	0.75
Ring 2	100.00	14.50	15.75	15.75	0.00	0.00	1.50
Ring 3	100.00	12.00	13.25	13.25	0.00	0.00	1.50
Ring 4	100.00	10.00	11.25	11.25	0.00	0.00	4.50
Ring 5	100.00	7.50	8.75	8.75	0.00	0.00	30.00
Ring 6	100.00	5.00	6.25	6.25	0.00	0.00	1.50
Ring 7	100.00	2.50	3.75	3.75	0.00	0.00	30.00
Ring 8	100.00	1.75	3.00	3.00	0.00	0.00	30.00

Corrosion rates

