



TEST REPORT ON ABRASION RESISTANCE

Customer Name	Aquafin Pakistan (Pvt) Ltd. Steel House, West Wharf Road, Karachi 74000.	Lab Report No.	WLRP19-2211/1
Contractor	N.G	Sample No.	WSP19-2211/1
Consultant	N.G	Date Received	14/09/2019
Client Reference	N.G	Date Tested	29/09/2019
Project	N.G	Date Reported	29/09/2019
Sample Description	Asodur 3333PW	Test Temperature	23°C
Sample Source	Aquafin Pakistan (Pvt) Ltd.	Relative Humidity	50%
Sample Identification	N.G	Sampling Date/Time	N.G
Test Method	ASTM D4060-14	Conditioning Procedure	23°C at Ambient condition for 7 days
No. of Revolution	1000	Wheel Reference	CS-17
Vacuum Nozzle Height	3mm	Mass Applied on each wheel	1000g
Vacuum Opening Diameter	8mm	Sample Brought in by	Client
Vacuum Suction Force	137 milli bar	Tested By	SI

Test Results

Specimen Number	Unit	Weight Loss
1	mg	87.0
2		96.2
Average		91.6

Legends : N.G – Information Not Given

Remarks: None

Method Deviation: None

Signed for and on behalf of Wimpey Laboratories

A. Umar Farook

Technical Manager

Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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TEST REPORT ON ABRASION RESISTANCE

Customer Name	Aquafin Pakistan (Pvt) Ltd. Steel House, West Wharf Road, Karachi 74000.	Lab Report No.	WLRP19-2211/2
Contractor	N.G	Sample No.	WSP19-2211/2
Consultant	N.G	Date Received	14/09/2019
Client Reference	N.G	Date Tested	29/09/2019
Project	N.G	Date Reported	29/09/2019
Sample Description	Asodur CTR	Test Temperature	23°C
Sample Source	Aquafin Pakistan (Pvt) Ltd.	Relative Humidity	50%
Sample Identification	N.G	Sampling Date/Time	N.G
Test Method	ASTM D4060-14	Conditioning Procedure	23°C at Ambient condition for 7 days
No. of Revolution	1000	Wheel Reference	CS-17
Vacuum Nozzle Height	3mm	Mass Applied on each wheel	1000g
Vacuum Opening Diameter	8mm	Sample Brought in by	Client
Vacuum Suction Force	137 milli bar	Tested By	SI

Test Results

Specimen Number	Unit	Weight Loss
1	mg	139.3
2		128.1
Average		133.7

Legends : N.G – Information Not Given

Remarks: None

Method Deviation: None

Signed for and on behalf of Wimpey Laboratories

A. Umar Farook
Technical Manager

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TEST REPORT ON ABRASION RESISTANCE

Customer Name	Aquafin Pakistan (Pvt) Ltd. Steel House, West Wharf Road, Karachi 74000.	Lab Report No.	WLRP19-2211/2
Contractor	N.G	Sample No.	WSP19-2211/2
Consultant	N.G	Date Received	14/09/2019
Client Reference	N.G	Date Tested	29/09/2019
Project	N.G	Date Reported	29/09/2019
Sample Description	Asodur CTR	Test Temperature	23°C
Sample Source	Aquafin Pakistan (Pvt) Ltd.	Relative Humidity	50%
Sample Identification	N.G	Sampling Date/Time	N.G
Test Method	ASTM D4060-14	Conditioning Procedure	23°C at Ambient condition for 7 days
No. of Revolution	1000	Wheel Reference	CS-17
Vacuum Nozzle Height	3mm	Mass Applied on each wheel	1000g
Vacuum Opening Diameter	8mm	Sample Brought in by	Client
Vacuum Suction Force	137 milli bar	Tested By	SI

Test Results

Specimen Number	Unit	Weight Loss
1	mg	139.3
2		128.1
Average		133.7

Legends : N.G – Information Not Given

Remarks: None

Method Deviation: None

Signed for and on behalf of Wimpey Laboratories

A. Umar Farook
Technical Manager

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TEST REPORT ON ADHESION STRENGTH

Client	Aquafin Pakistan PVT Ltd P O Box:74000 Karachi ,Pakistan		
Project Name	Not Applicable	Lab Report No.	WLRP19-1158/7
Sample Description	Asodur 3333 PW	Sample No.	WSP19-1158/2
Source	Aquafin Pakistan PVT Ltd	Date Received	18/05/2019
Client's Ref.	N.G	Date Tested	27/05/2019
Test Method	ASTM D4541-17	Date Reported	27/05/2019
Test Type	Type 5-Self Aligning Tester	Cast Date	20/05/2019
Machine Details	Manufacturer: Defelsko Model: Smart Indicator	Sampling Date & Sampling Time	N.G
Location	In-House	Adhesive Used	Two Component Epoxy
Substrate Used	Metal panel	Age of Test	7 Days
Test Temperature & Relative Humidity	23°C & 50%	Coating Thickness	3mm
Sample brought in by	Client	Tested By	SU

Test Results

Description	RESULTS		
	1	2	3
Test Number	1	2	3
Cylindrical Metal Block (Dolly Reference)	1	2	3
Diameter of Metallic Dolly (mm)	20	20	20
Max. Load at Failure (N)	3175	3640	3380
Adhesion Strength (N/mm ²)	10.11	11.60	10.76
Average Adhesion Strength (N/mm ²)	10.8		
Mode of Failure	Sample Failure	Cohesive Failure	Sample Failure

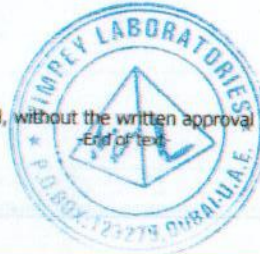
Remarks: None

Signed for and on behalf of Wimpey Laboratories,

Visakh S Nair
Laboratory Supervisor

Test results relate only to the samples tested

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TEST REPORT ON ABRASION RESISTANCE

Customer Name	Aquafin Pakistan PVT Ltd P O Box:74000 Karachi ,Pakistan	Lab Report No.	WLRP19-1158/8
Contractor	N.G	Sample No.	WSP19-1158/2
Consultant	N.G	Date Received	18/05/2019
Client	N.G	Date Tested	08/06/2019
Project	N.G	Date Reported	08/06/2019
Sample Description	Asodur 3333 PW	Test Temperature	23°C
Sample Source	Aquafin Pakistan PVT Ltd	Relative Humidity	50%
Client Reference	N.G	Sampling Date/Time	N.G
Location (Structure Ref)	N.G	Conditioning Procedure	23°C at Ambient condition for 24 hours
Test Method	ASTM D4060-14	Wheel Reference	CS-17
No. of Revolution	1000	Mass Applied on each wheel	1000g
Vacuum Nozzle Height	3 mm	Vacuum Opening Diameter	8 mm
Vacuum Suction Force	137 milli bar	Sample Brought in by	Client
Specimen Thickness	N.G	Tested By	SU

Test Results

Specimen Number	Unit	Weight Lost
1	mg	136.7
2		109.1
Average		123.0

Legends: N.G – Information Not Given

Remarks: None

Method Deviation: None

Signed for and on behalf of Wimpey Laboratories

Visakh S Nair
Laboratory Supervisor

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TEST REPORT ON VOLUME SOLIDS

Client	Aquafin Pakistan PVT Ltd P O Box:74000 Karachi ,Pakistan		
Project Name	Not Applicable	Lab Report No.	WLRP19-1158/6
Sample Description	Asodur 3333 PW	Sample No.	WSP19-1158/2
Source	Aquafin Pakistan PVT Ltd	Date Received	18/05/2019
Client's Ref.	N.G	Date Tested	20/05/2019
Test Method	ASTM D2697-03	Date Reported	27/05/2019
Test Method for determining density of liquid coating	ASTM D1475-13	Cast Date	20/05/2019
Receptacle Used	Plate	Room Temperature	23±2°C
Immersion Liquid Used	Distilled Water	Relative Humidity	50±5%
Type of Air oven used	Hot Air oven	DFT	400 to 500 microns
Method of Coating Receptacle	By Brush	Sample brought in by	Wimpey Lab
Drying Type	Flash dry : 1Hours	Tested By	SU

Test Results

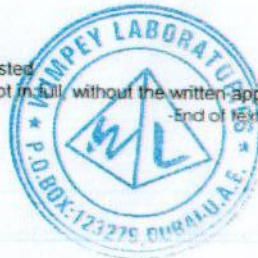
Specimen Number	Unit	Result
1	%	87.26
2		94.5
Average		90.8

Remarks: None.

Signed for and on behalf of Wimpey Laboratories

Visakh S Nair
Laboratory Supervisor

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TEST REPORT ON POTABLE WATER STORAGE

Client	Aquafin Pakistan PVT Ltd P O Box:74000 Karachi ,Pakistan		
Project Name	N.G	Lab Report No.	WLRP19-1158/9
Contractor	N.G	Sample No.	WSP19-1158/2
Consultant	N.G	Date Received	18/05/2019
Sample Reference	N.G	Date Tested	22/05/2019-11/06/2019
Sample Description	Asodur 3333 PW	Date Reported	11/06/2019
Source	Aquafin Pakistan PVT Ltd	Relative Humidity	50%
Test Method	BSEN 1062-3:2008	Sample brought in by	Client
Test Temperature	23°C	Tested By	NI

Test Results

Test	Unit	Result
Potable Water Storage (Liquid water Permeability)	Kg/m ² -h ^{0.5}	0.03

Remarks: None.

Signed for and on behalf of Wimpey Laboratories

Visakh S Nair
Laboratory Supervisor

Test results relate only to the samples tested

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TEST REPORT ON VOLUME SOLIDS

Client	Aquafin Pakistan (Pvt) Ltd. Steel Hours, West Wharf Road, Karachi 74000.		
Project Name	N.G	Lab Report No.	WLRP19-2211/3
Sample Description	Saniflex Universal	Sample No.	WSP19-2211/3
Source	Aquafin Pakistan (Pvt) Ltd	Date Received	14/09/2019
Client's Ref.	N.G	Date Tested	08/10/2019
Test Method	ASTM D2697-03	Date Reported	16/10/2019
Test Method for determining density of liquid coating	ASTM D1475-13	Cast Date	08/10/2019
Receptacle Used	Plate	Room Temperature	23°C
Immersion Liquid Used	Distilled Water	Relative Humidity	50%
Type of Air oven used	Hot Air oven	DFT	400 to 500 microns
Method of Coating Receptacle	By Brush	Sample brought in by	Wimpey Lab
Drying Type	Flash dry : 1Hours	Tested By	SI

Test Results

Specimen Number	Unit	Result
1	%	66.4
2		67.8
Average		67.1

Remarks: None.

Signed for and on behalf of Wimpey Laboratories

Visakh S Nair
Laboratory Supervisor

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TEST REPORT ON TENSILE STRENGTH & ELONGATION

Client	Aquafin Pakistan (Pvt) Ltd. Steel Hours, West Wharf Road, Karachi 74000.		
Sample Description	Saniflex Universal	Lab Report No.	WLRP19-2211/4
Source	Aquafin Pakistan (Pvt) Ltd	Sample No.	WSP19-2211/3
Client's Ref.	N.G	Date Received	14/09/2019
Curing and test condition	Temperature: 23°C Relative Humidity: 50%	Casting Date	08/10/2019
Sampling Method	ASTM D412-16	Curing Time	7 days
Test Method	ASTM D412-16	Date Tested	15/10/2019
Specimen Type	Test Method A – Die C	Date Reported	19/10/2019
Rate of Speed	500 mm/minute	Tested By	SI

Test Results

Specimen Number	Width (mm)	Thickness (mm)	Maximum Force (N)	Tensile Strength (N/mm ²)	Elongation (%)
1	6.0	0.22	5.58	4.23	90.6
2	6.0	0.19	4.57	4.01	84.0
3	6.0	0.23	5.58	4.05	86.1
4	6.0	0.20	4.91	4.09	63.2
5	6.0	0.16	4.00	4.16	76.4
Average				4.11	80.0

Remarks: None.

Signed for and on behalf of Wimpey Laboratories

Visakh S Nair
Laboratory Supervisor

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TEST REPORT ON PULL-OFF STRENGTH

Client	Aquafin Pakistan (Pvt) Ltd. Steel Hours, West Wharf Road, Karachi 74000.		
Project Name	N.G	Lab Report No.	WLRP19-2211/5
Sample Description	Saniflex Universal	Sample No.	WSP19-2211/3
Source	Aquafin Pakistan (Pvt) Ltd	Date Received	14/09/2019
Client	N.G	Date Tested	15/10/2019
Consultant	N.G	Date Reported	19/10/2019
Contractor	N.G	Cast Date	N.G
Test Method	BS 1881-1992 Part 207	Sampling Date & Sampling Time	N.G
Test Type	Type 2- Fixed Alignment Adhesion Tester	Substrate Used	Concrete
Machine Details	Manufacturer: Matest Model: E142-01 Serial Number: E142/AC/0390	Adhesive Used	Two Component Epoxy
Location	In-House	Age of Test	11 Days
Test Temperature	23°C	Tested By	SI

Test Procedure

The general pull-off test is performed by securing a loading fixture (dolly, stud) normal (perpendicular) to the surface of the coating with an adhesive. After the adhesive is cured, a testing apparatus is attached to the loading fixture and aligned to apply tension normal to the test surface. The force applied to the loading fixture is then gradually increased and monitored until either a plug of material is detached, or a specified value is reached. When a plug of material is detached the exposed surface represents the plane of limiting strength within the system.

The nature of the failure is qualified in accordance with the percent of adhesive and cohesive failures, and the actual interfaces and layers involved.

The pull-off strength is computed based on the maximum indicated load

Description	RESULTS		
	1	2	3
Test Number	1	2	3
Test Position	Vertical	Vertical	Vertical
Diameter of Dolly (mm)	50	50	50
Max. Load Applied (N)	3854	3348	3554
Pull off Strength (N/mm ²)	1.96	1.70	1.81
Average Pull off Strength (N/mm ²)	1.82		
Mode of Failure	Failure Observed from Substrate		

Remarks: None.

Signed for and on behalf of Wimpey Laboratories,

Visakh S. Nair
Laboratory Supervisor

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TEST REPORT ON CRACK BRIDGING ABILITY

Client	AquaFin Pakistan (Pvt) Ltd. Steel Hours, West Wharf Road, Karachi 74000.		
Project	N.G	Lab Report No.	WLRP19-2211/6
Sample Description	Saniflex Universal	Sample No.	WSP19-2211/3
Source	AquaFin Pakistan (Pvt) Ltd	Date Received	14/09/2019
Test Method	ASTM C1305 / C1305M – 16	Casting Date	08/10/2019
Sample Preparation Standard	ASTM C1305 / C1305M – 16	Date Tested	15/10/2019
Nature of Substrate	Concrete	Date Reported	19/10/2019
Location	N.G	Sample brought in by	Client
Sampled by	N.G	Sampling Date & Time	N.G
Test Condition	Temperature: 23°C Relative Humidity: 50%	Tested By	SI

Test Results

Test		Observation
Crack Bridging Ability	@ 1.20 mm	No sign of cracks, loss of adhesion or any other type of failure was observed after completion of the up and down movement.

Remarks: None.

Signed for and on behalf of Wimpey Laboratories

Visakh S. Nair
Laboratory Supervisor

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Test Report on Depth of Penetration of Water Under Pressure

Client	: Aquafin Pakistan (Pvt) Ltd.	Report No.	: WLRP19-2211/7
Address	: Steel House, West Wharf Road, Karachi-74000.	Request No.	: WLP19-2211
Contractor	: N.G	Sample No.	: WSP19-2211/3
Consultant	: N.G	Date Reported	: 19/10/2019
Project	: N.G	Sampled by	: Client
		Test Starting Date	: 16/10/2019
Sample Description	: Saniflex Universal	Date Test Completed	: 19/10/2019
Source of Material	: Aquafin Pakistan (Pvt) Ltd.	Sampling Method	: BS 1881:Part 101: 1983 Amd 6728:1991
Concrete Mix Grade	: N.A	Lot Size m ³	: N.G
Client Reference	: N.G	Lot No.	: N.G
Mixcode	: N.A	Pressure Applied	: 5 Bar
Date of Sampling	: N.G	Sample size mm	: 150x150mm
Sample Received Date	: 14/09/2019	Age at Test	: 7 days
Curing / Storage (Lab)	: BS 1881 Part 111: 1983 (Amd. 9387/97)	Reqd. Test Age	: 7 Days
Moisture Condition	: Saturated	Sample brought in by	: Wimpey
Test Method Variation	: None	Tested by	: SI
Specification Strength	: N.A		
Location	: N.G		

Method of Surface Treatment: By Wire Brush
 Surface Treatment Done By: Wimpey Lab
 Test Method : BSEN 12390-8: 2009

Coating System : ~~One coat of Acrylic 3300PW~~
 Curing Time: 7 days

Results

Sample Reference	Control Sample	Saniflex Universal	
Client's Reference	1	2	3
Appearance of Specimen	Good	Good	Good
Direction of application of water pressure with respect to the casting direction	Normal	Normal	Normal
Observation of presence of water leakage on the surface of sample during test	Nil	Nil	Nil
Water Penetration Depth (Maximum) (mm)	6	1	1
Reduction in Water Penetration	83.3%		

Remarks: To conduct the test Saniflex Universal was applied on a concrete substrate. The test was conducted on both coated and uncoated concrete substrate of same mix and the percentage reduction in Water Penetration is reported as result.

Legends: N.A. = Not applicable, N.G.= Not Given

Signed for and on behalf of Wimpey Laboratories

Visakh S. Nair
Laboratory Supervisor

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