

Dr. Zaheer M Malik
Team Leader, Garuk Storage Dam Project Consultants,

Test Performed By: Dr. /Engr. S. Asad Ali Gillani

Client Reference: TL/83/GRK/12/19

Dated: 11-12-2019

SOM Lab Ref: CED/SOM/1876(Page-1/1)

Dated: 11-12-2019

Test: Tension & Bend Test

Test Specification: ASTM-A 615

Sample Type: Deformed Bar

Gauge Length: 200 mm

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	kg/m	mm	mm	mm ²	mm ²	kN	kN	MPa	MPa	MPa	MPa	mm	mm	%	
1	2.483	20	20.06	314	316	177.50	224.20	565	562	714	710	42.5	200	21.3	
2	2.459	20	19.97	314	313	183.00	227.20	583	585	723	726	32.5	200	16.3	
3	1.552	16	15.87	201	198	112.50	137.70	560	569	685	697	35.0	200	17.5	
4	1.564	16	15.93	201	199	114.50	139.50	569	575	694	701	37.5	200	18.8	
5	0.862	12	11.82	113	110	67.00	80.70	592	611	714	735	25.0	200	12.5	
6	0.854	12	11.77	113	109	65.20	80.00	576	600	707	736	27.5	200	13.8	
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BEND TEST:

20mm	Sample bend through 180 degrees Satisfactorily without any crack	Note:- Only Nine Samples Received and Tested
16mm	Sample bend through 180 degrees Satisfactorily without any crack	
12mm	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

Muhammad Riaz
Resident Engineer, Associates & Civil Engineering Services, Islamabad

Test Performed By:

Dr. /Engr.

S. Asad Ali Gillani

Client Reference: ACES-DHAM-RR-008

Dated: 10-12-2019

SOM Lab Ref: CED/SOM/1880(Page-1/1)

Dated: 11-12-2019

Test: Tension and Bend Test

Test Specification: ASTM-A 615

Sample Type: Deformed Bar

Gauge Length: 200 mm

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	kg/m	mm	mm	mm ²	mm ²	kN	kN	MPa	MPa	MPa	MPa	mm	mm	%	
1	0.906	12	12.10	113	115	65.20	79.70	576	567	705	694	25.0	200	12.5	
2	0.910	12	12.15	113	116	62.70	78.70	554	541	696	680	30.0	200	15.0	
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BEND TEST:

12mm	Sample bend through 180 degrees Satisfactorily without any crack	Note:- Only Three Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

Test Performed by: Dr.Syed Asad Ali Gillani

Resident Engineer
NA's (North – Zone) Projects
PEAS Consulting (Pvt) Ltd
M/S Rustam Associates-Dynamic Constructor.

Client Reference No.: RE/PEAS/NHA/BR-REH/N-125/2017/089

Dated: 27-09-2019

SOM Lab Ref: CED/SOM/1882 (Page 1/1)

Dated: 11-12-2019

Test: Tensile Test, Elongation at Break, Tear Test, Comp. Set Test & Hardness Test

Sample Type: Bearing Pad

- TENSILE STRENGTH AND ELONGATION TEST. (AS PER ASTM-D-412)

S. No	Sample Size(mm)	Ultimate Load (kN)	Tensile Strength (Mpa)	Tensile Strength (kg/cm ²)	Elongation at Break(%)
1	6.0 x 4.0	0.65	27.083	276.17	470

TEAR STRENGTH (AS PER ASTM-D-624)

S. No	Sample Size (mm)	Ultimate Load (kN)	Tear Strength (N/mm)
1	13.0 x 4.0	0.16	40.0

- COMPRESSION SET TEST (AS PER ASTM-D-395)

S. No.	Thickness of Sample (mm)	Final Thickness (mm)	Compression set (%)
1	4.00	3.95	1.25

- HARDNESS TEST (AS PER ASTM-D-2240)

S. No	Sample Type	Hardness (Shore A)
1	Bearing Pad	60.67