

LAMPIRAN

Tabel 1. Hasil Perhitungan Komposit Hibrid Abaka/Karbon/PMMA tanpa alkali
(*untreated*)

No	d (mm)	b (mm)	Beban (N)	ΔL (mm)	Mod.Elast (MPa)	Teg. Tarik (MPa)	Elongation (%)
1	3.6	13	3520	2.10	5909.65	75.21	1.27
2	3.6	13	3400	2.35	5100.93	72.65	1.42
3	3.3	13	3270	2.25	5589.74	76.22	1.36
4	3.2	13	2870	1.90	5991.27	68.99	1.15
5	3.1	13	2940	3.20	3761.63	72.95	1.94
Min					3761.63	68.99	1.15
Max					5909.65	76.22	1.94
Rata-Rata					5270.64	73.03	1.46
Standar Deviasi					403.72	3.23	0.12

Grafik 1. Pengujian tarik komposit hibrid abaka/karbon/PMMA tanpa alkali

Page Header

Abaka tanpa Alkali / karbon / PMMA

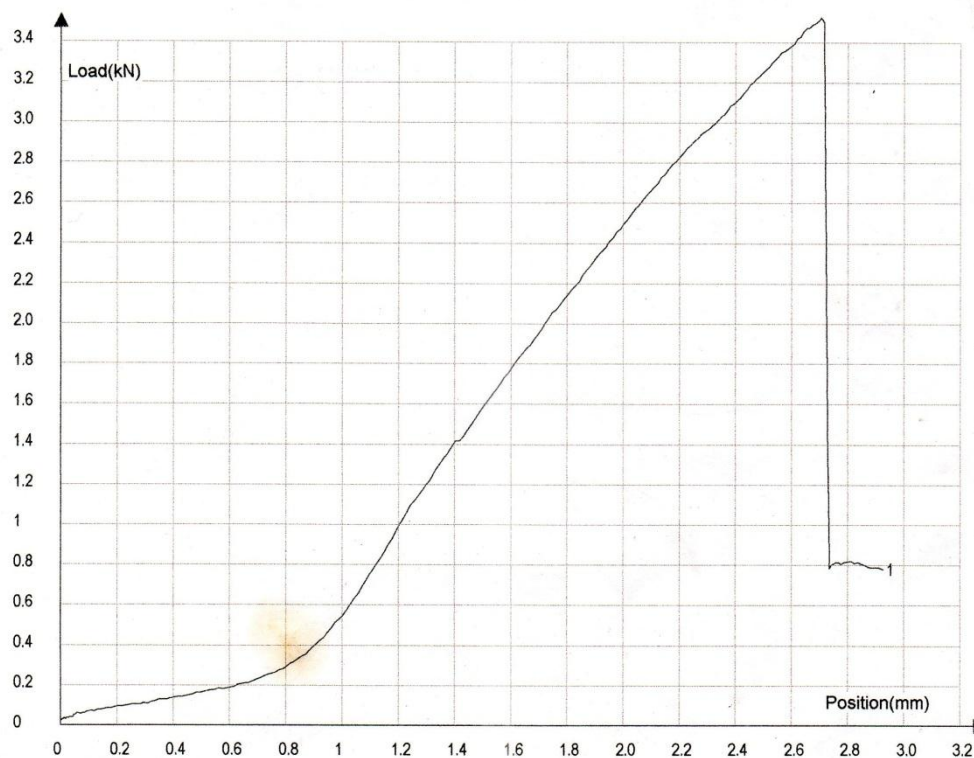
Print Date: 4/22/2019

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.60		13.00		115.00	165.00			

Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	46.80			75.21		3.52			



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Grafik 2. Pengujian tarik komposit hibrid abaka/karbon/PMMA tanpa alkali

Page Header

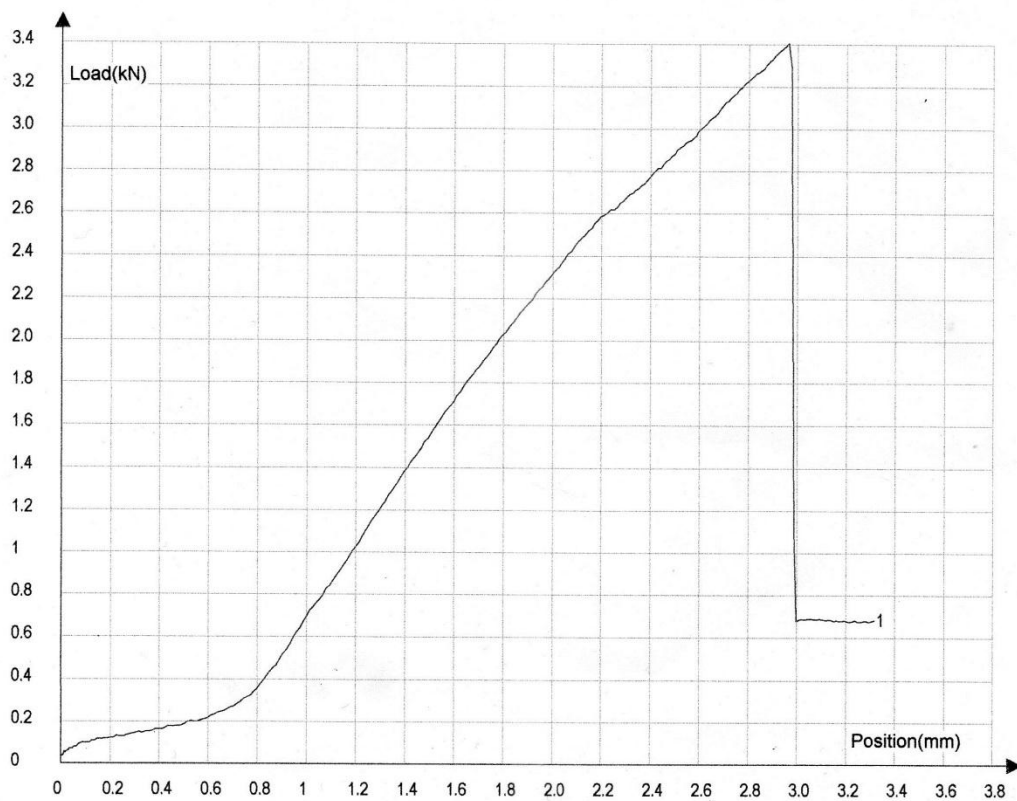
Print Date:4/

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.60		13.00		115.00	165.00			

Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	46.80			72.65		3.40			



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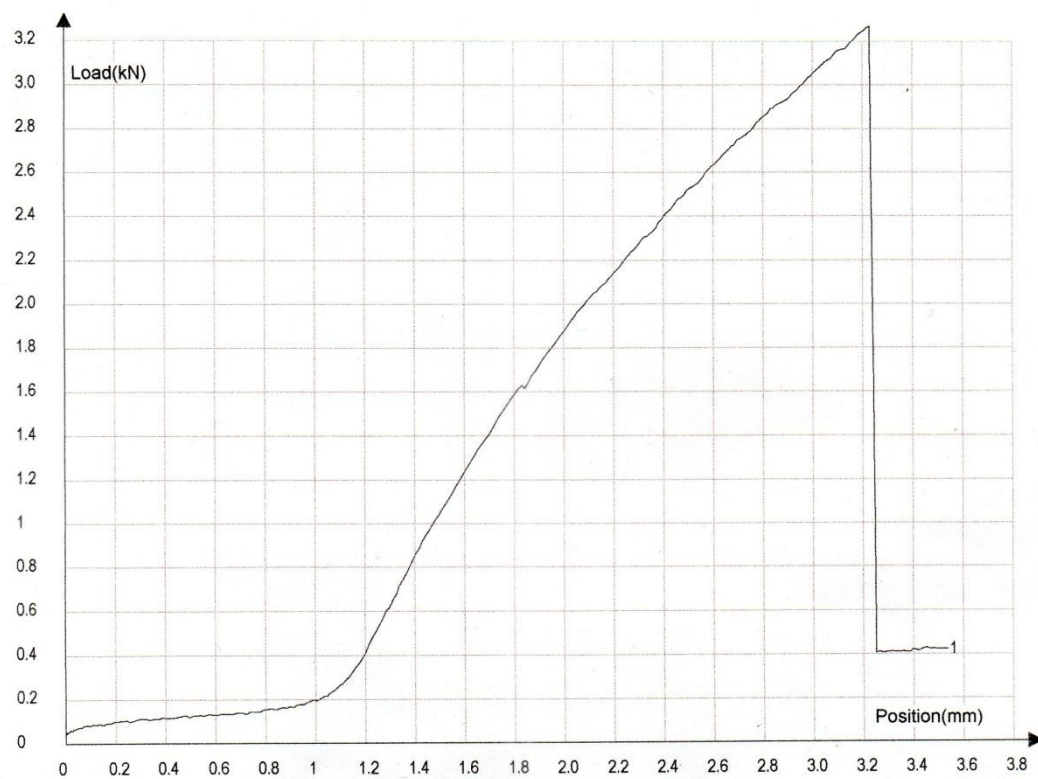
Grafik 3. Pengujian tarik komposit hibrid abaka/karbon/PMMA tanpa alkali

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.30		13.00		115.00	165.00			

Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	42.90			76.22		3.27			



Grafik 4. Pengujian tarik komposit hibrid abaka/karbon/PMMA tanpa alkali

Page reader

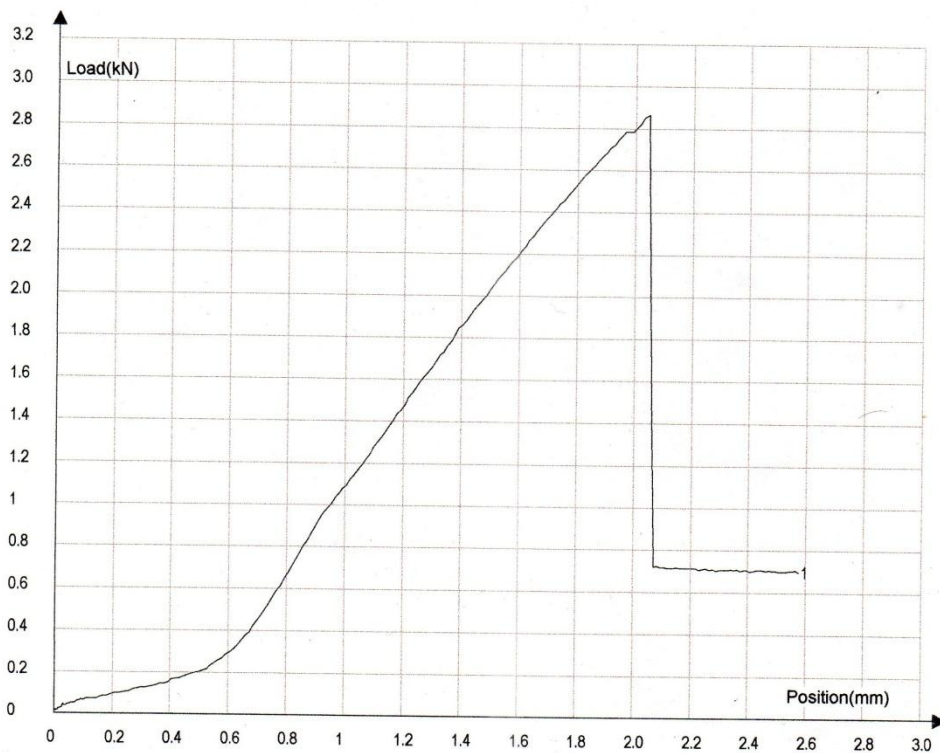
Print Date: 4/22/2019

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.20		13.00		115.00	165.00			

Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	41.60			68.99		2.87			



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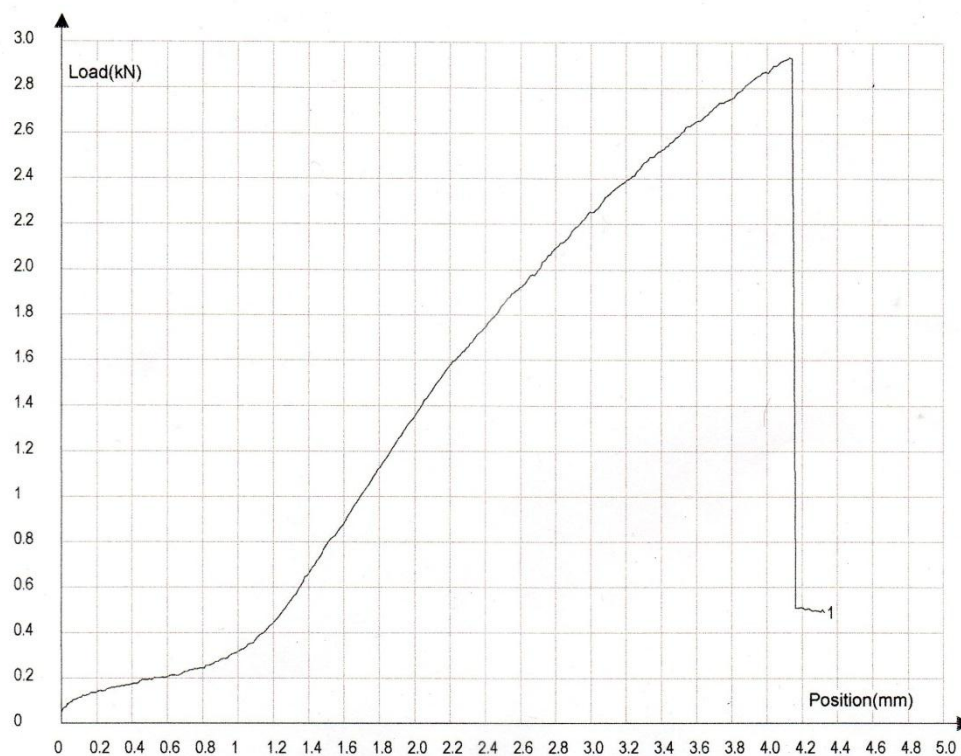
Grafik 5. Pengujian tarik komposit hibrid abaka/karbon/PMMA tanpa alkali

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.10		13.00		115.00	165.00			

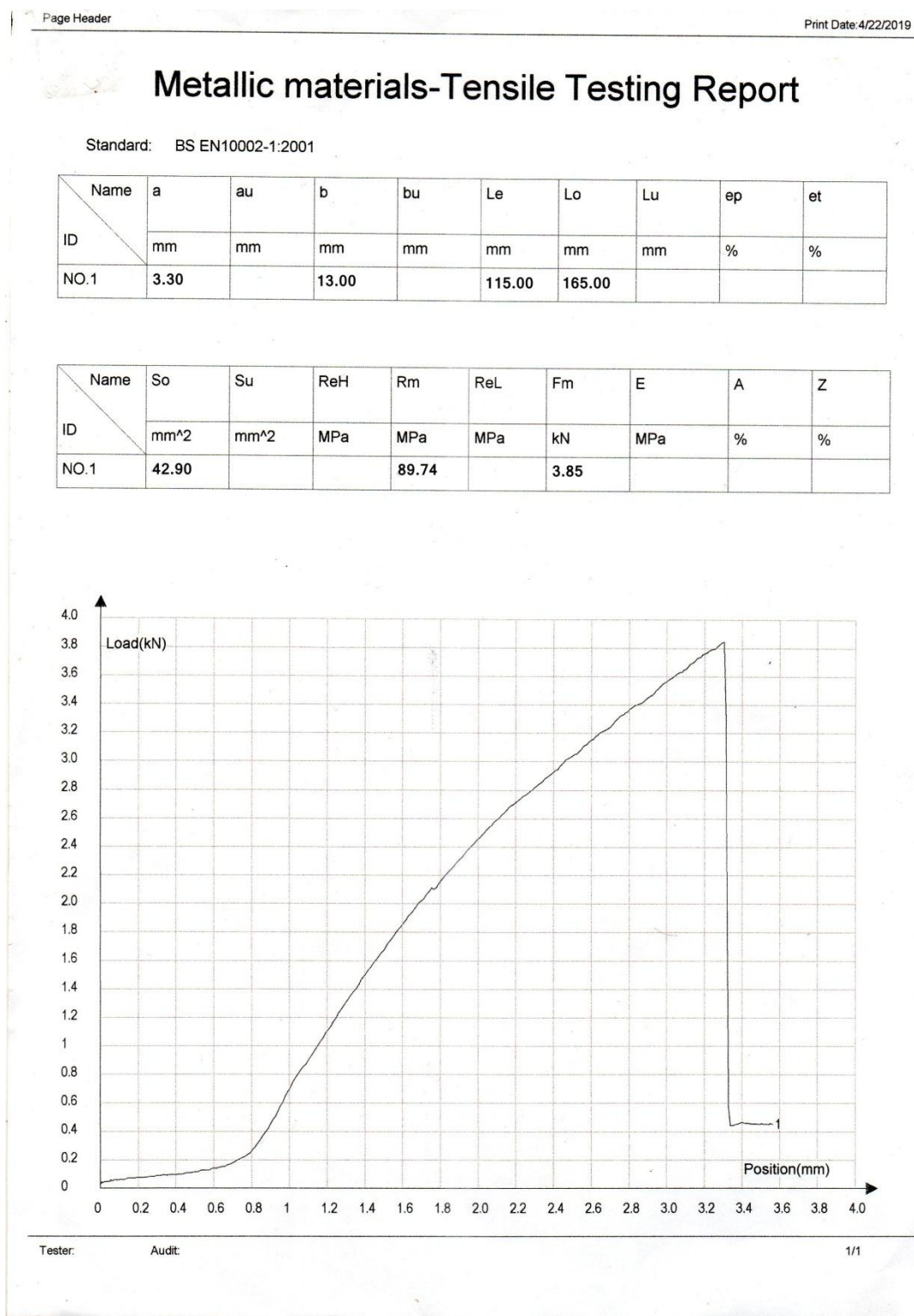
Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	40.30			72.95		2.94			



Tabel 2. Hasil Perhitungan Komposit Hibrid Abaka/Karbon/PMMA alkali 4 jam

No	d (mm)	b (mm)	Beban (N)	ΔL (mm)	Mod.Elast (MPa)	Teg. Tarik (MPa)	Elongation (%)
1	3.3	13.0	3850	2.60	5695.27	89.74	1.58
2	3.2	13.0	3730	2.90	5603.97	89.66	1.60
3	3.3	13.0	3910	3.00	5768.49	91.14	1.58
4	3.5	13.0	3600	2.50	5221.98	79.12	1.52
5	3.4	13.0	3870	2.60	5556.47	87.56	1.58
Min					5221.98	79.12	1.52
Max					5768.49	91.14	1.60
Rata-Rata					5569.24	86.78	1.57
Standar Deviasi					210.68	4.83	0.03

Grafik 6. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 4 jam



Grafik 7. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 4 jam

Page Header

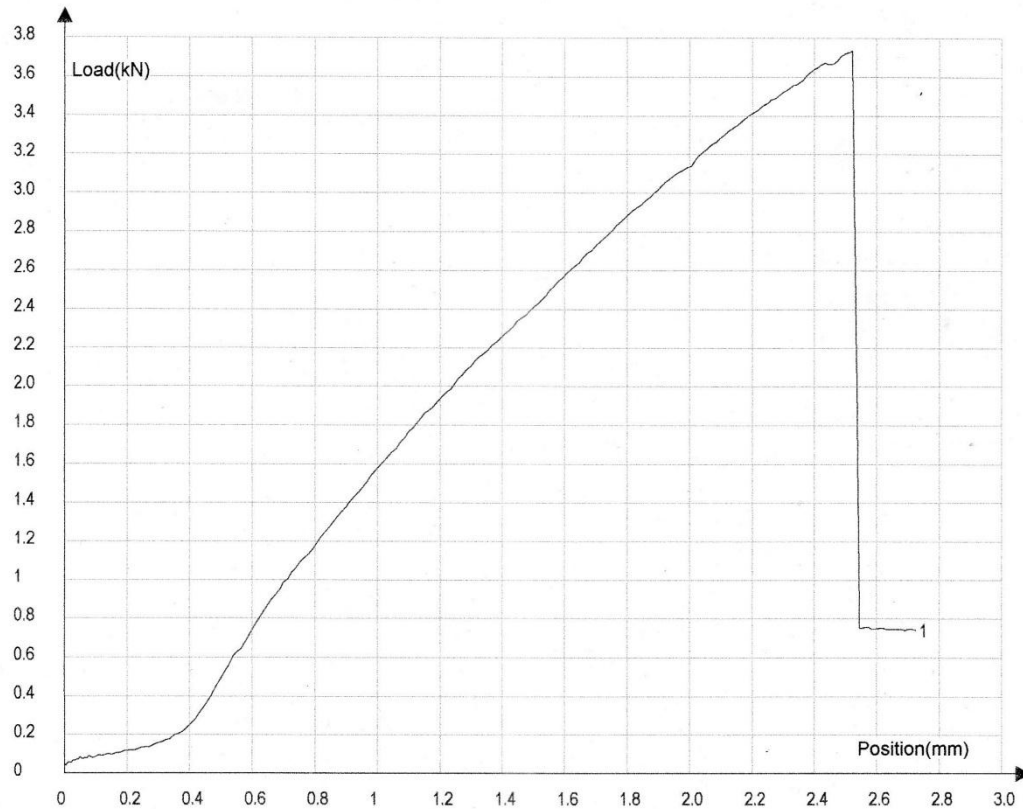
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Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.20		13.00		115.00	165.00			

Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	41.60			89.66		3.73			



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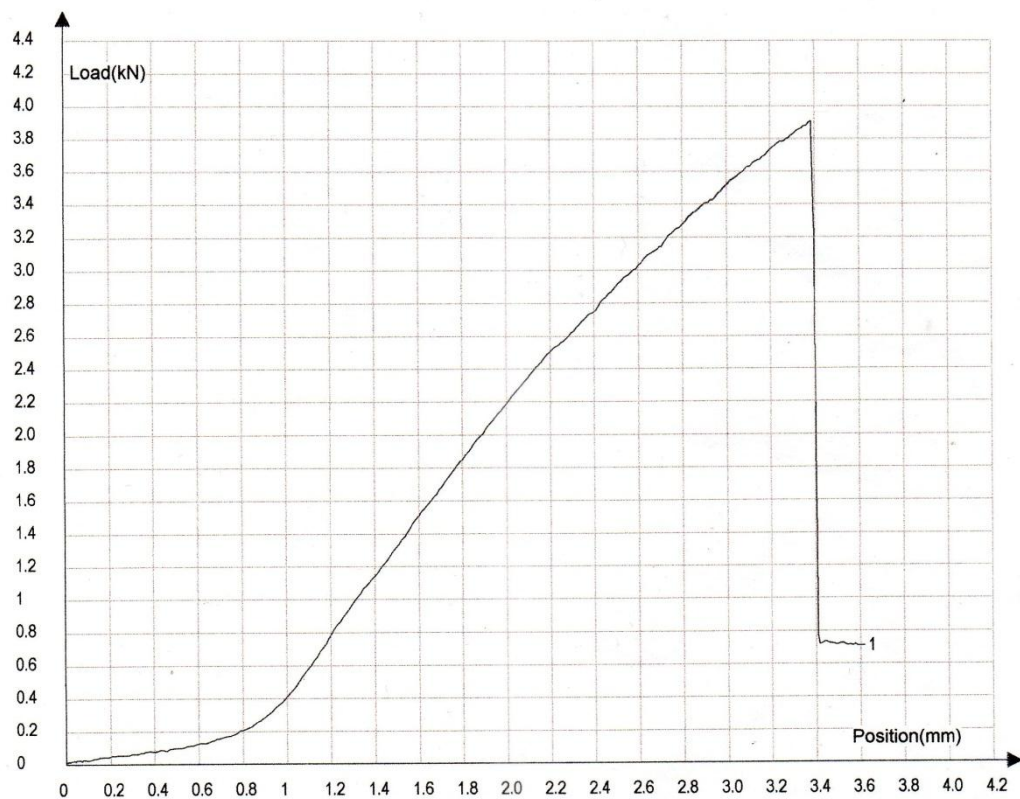
Grafik 8. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 4 jam

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.30		13.00		115.00	165.00			

Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	42.90			91.14		3.91			



Grafik 9. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 4 jam

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Print Date: 4.

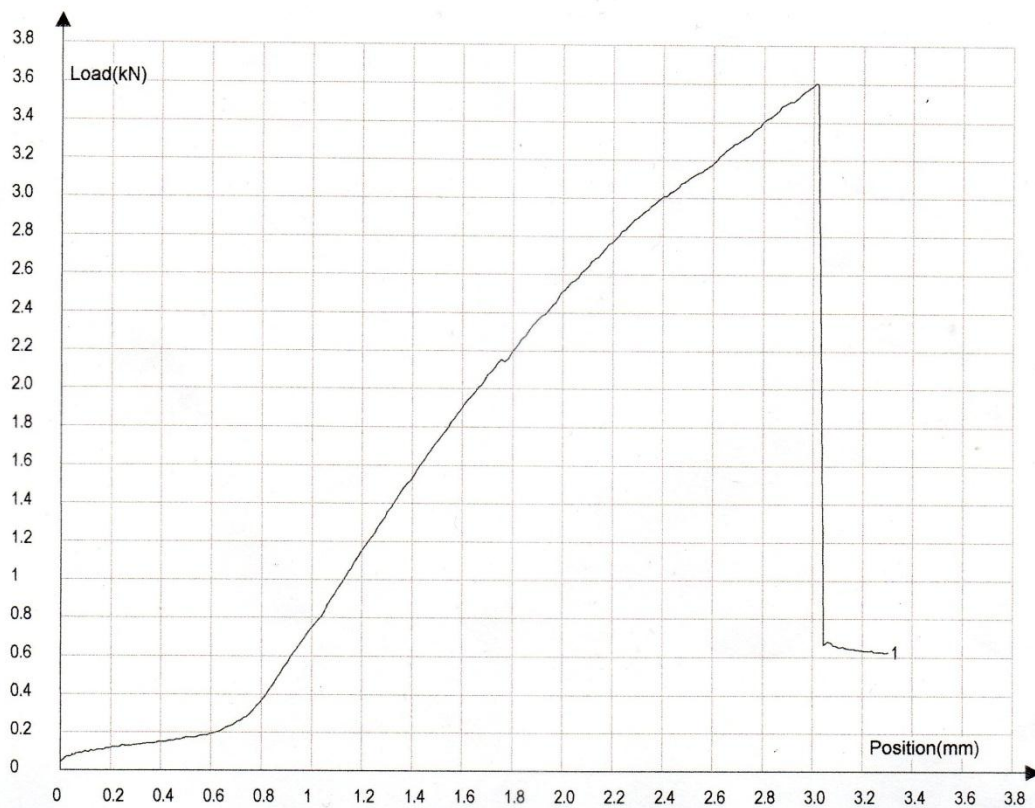
2

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.50		13.00		115.00	165.00			

Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	45.50			79.12		3.60			



Tester:

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Grafik 10. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 4 jam

Page Header

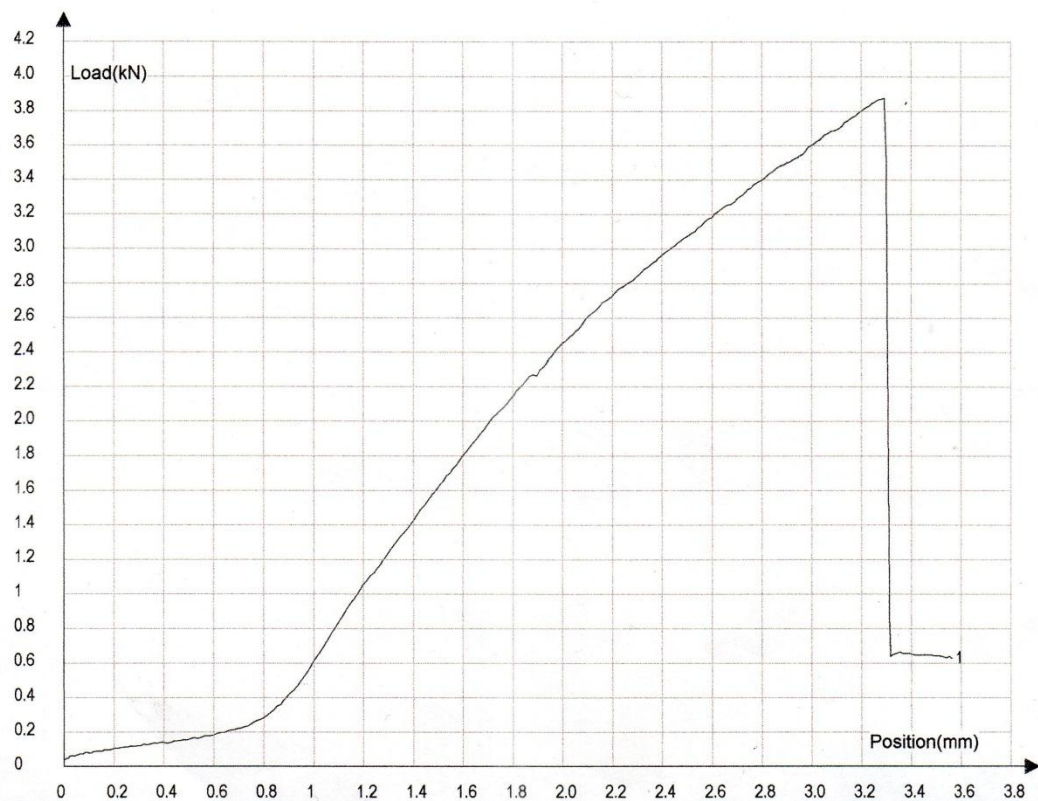
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Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.40		13.00		115.00	165.00			

Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	44.20			87.56		3.87			



Tester:

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Tabel 3. Hasil Perhitungan Komposit Hibrid Abaka/Karbon/PMMA alkali 12 jam

No	d (mm)	b (mm)	Beban (N)	ΔL (mm)	Mod.Elast (MPa)	Teg. Tarik (MPa)	Elongation (%)
1	3.5	12.7	4240	2.95	5335.27	95.39	1.79
2	3.3	12.7	3970	2.70	5788.86	94.73	1.64
3	3.0	12.7	3590	2.60	5979.71	94.23	1.58
4	3.0	12.7	3180	2.27	6066.81	83.46	1.38
5	3.4	12.7	4180	2.70	5915.80	96.80	1.64
Min					5216.54	83.46	1.58
Max					5979.71	96.80	1.79
Rata-Rata					5633.20	92.13	1.65
Standar Deviasi					287.88	5.37	0.15

Grafik 11. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 12 jam

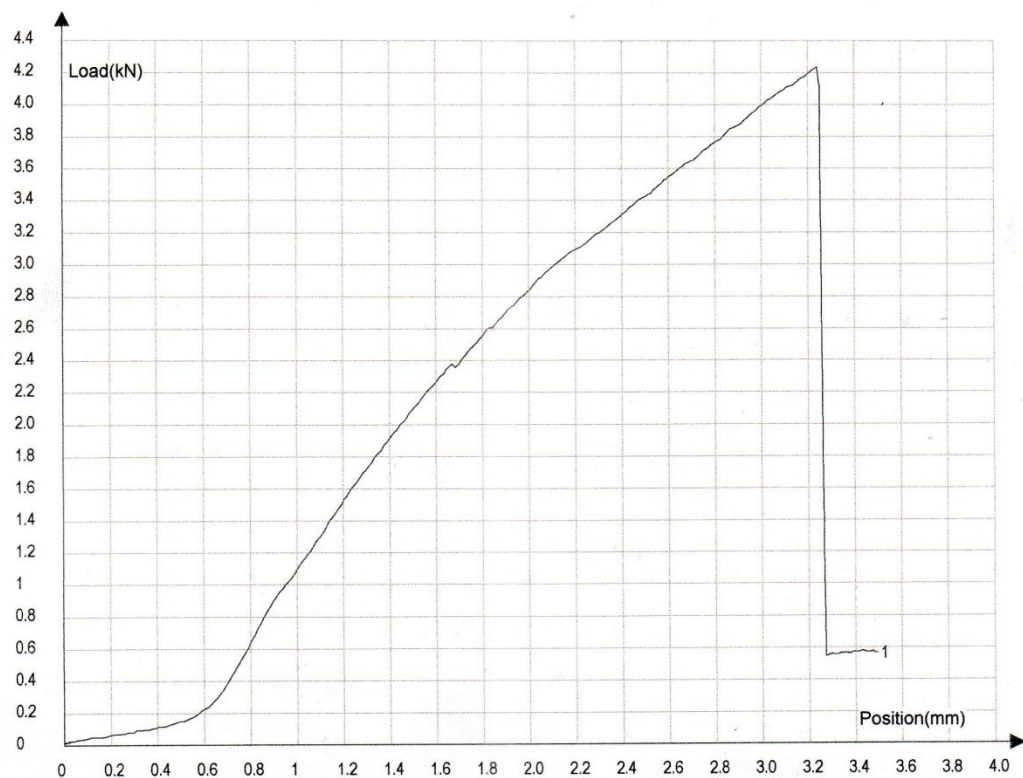
3

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.50		12.70		115.00	165.00			

Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	44.45			95.39		4.24			



Grafik 12. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 12 jam

Page Header

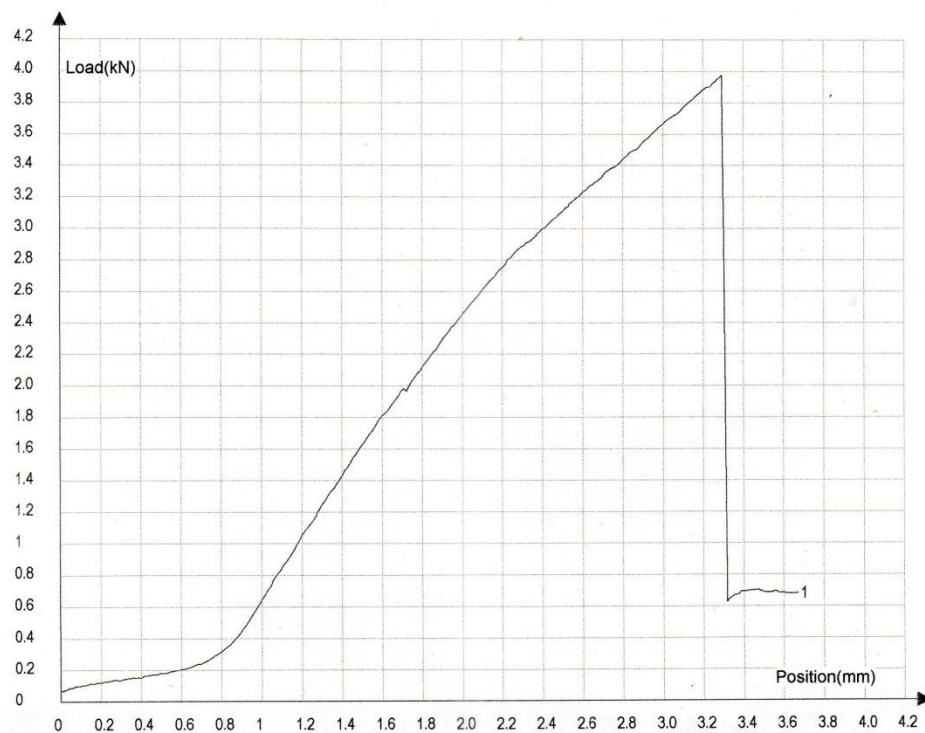
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Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.30		12.70		115.00	165.00			

Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	41.91			94.73		3.97			



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Grafik 13. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 12 jam

Page number

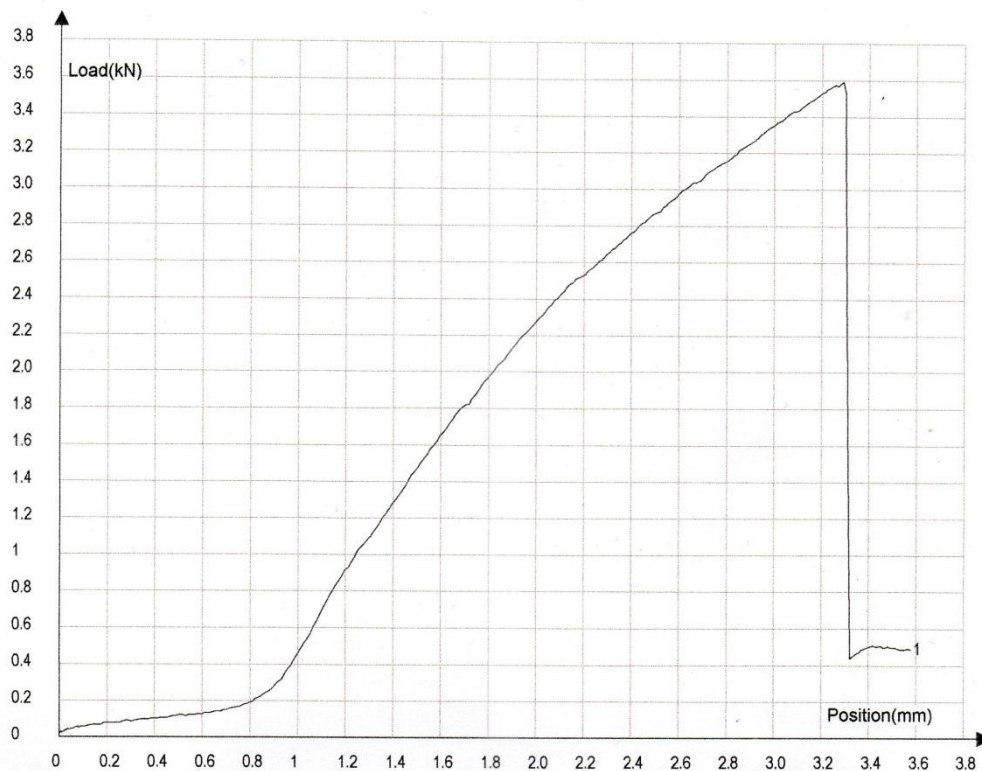
Print Date: 4/22/201

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.00		12.70		115.00	165.00			

Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	38.10			94.23		3.59			



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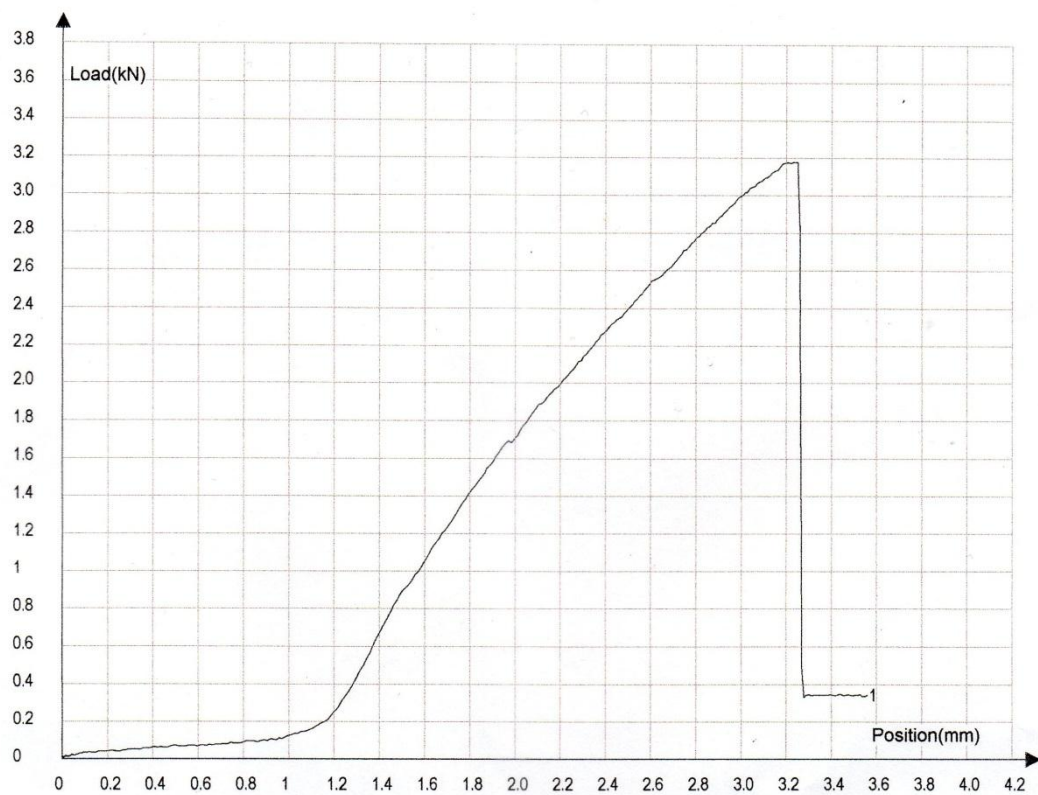
Grafik 14. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 12 jam

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.00		12.70		115.00	165.00			

Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	38.10			83.46		3.18			



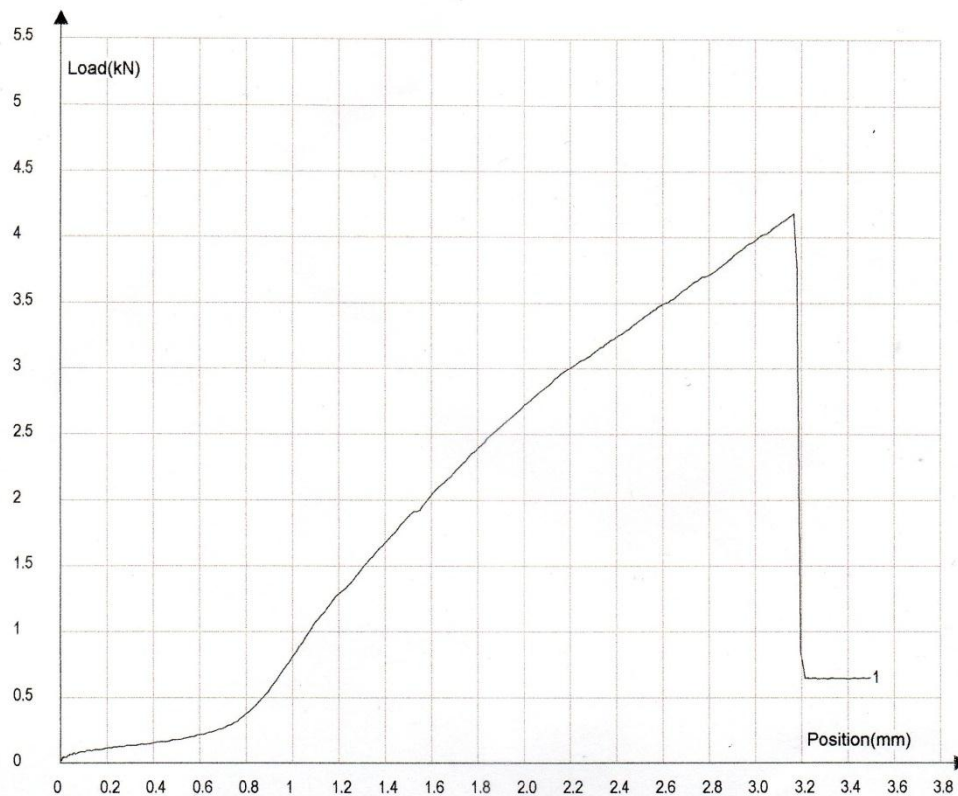
Grafik 15. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 12 jam

Metallic materials-Tensile Testing Report

Standard: BS EN10002-1:2001

Name	a	au	b	bu	Le	Lo	Lu	ep	et
ID	mm	mm	mm	mm	mm	mm	mm	%	%
NO.1	3.40		12.70		115.00	165.00			

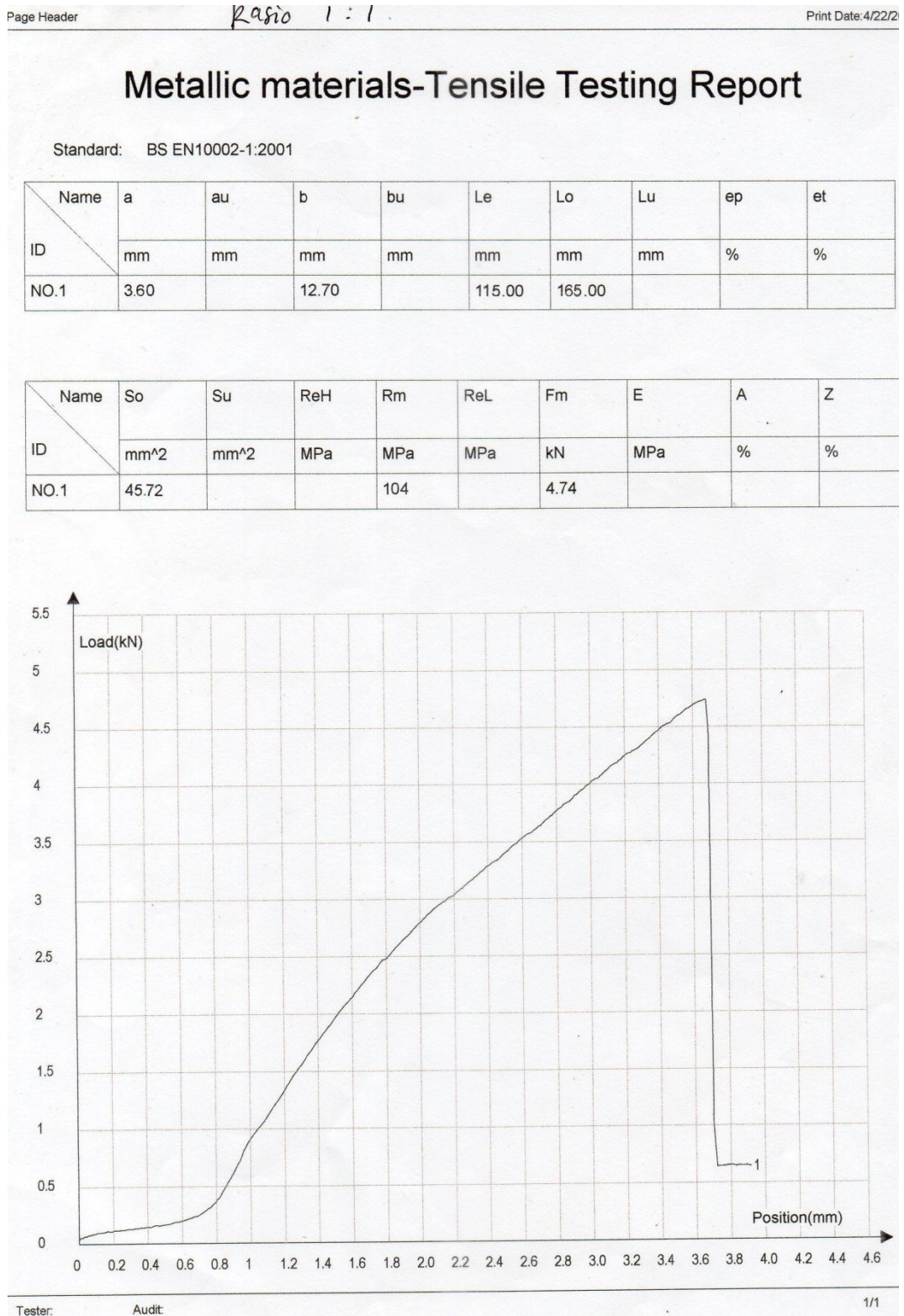
Name	So	Su	ReH	Rm	ReL	Fm	E	A	Z
ID	mm ²	mm ²	MPa	MPa	MPa	kN	MPa	%	%
NO.1	43.18			96.80		4.18			



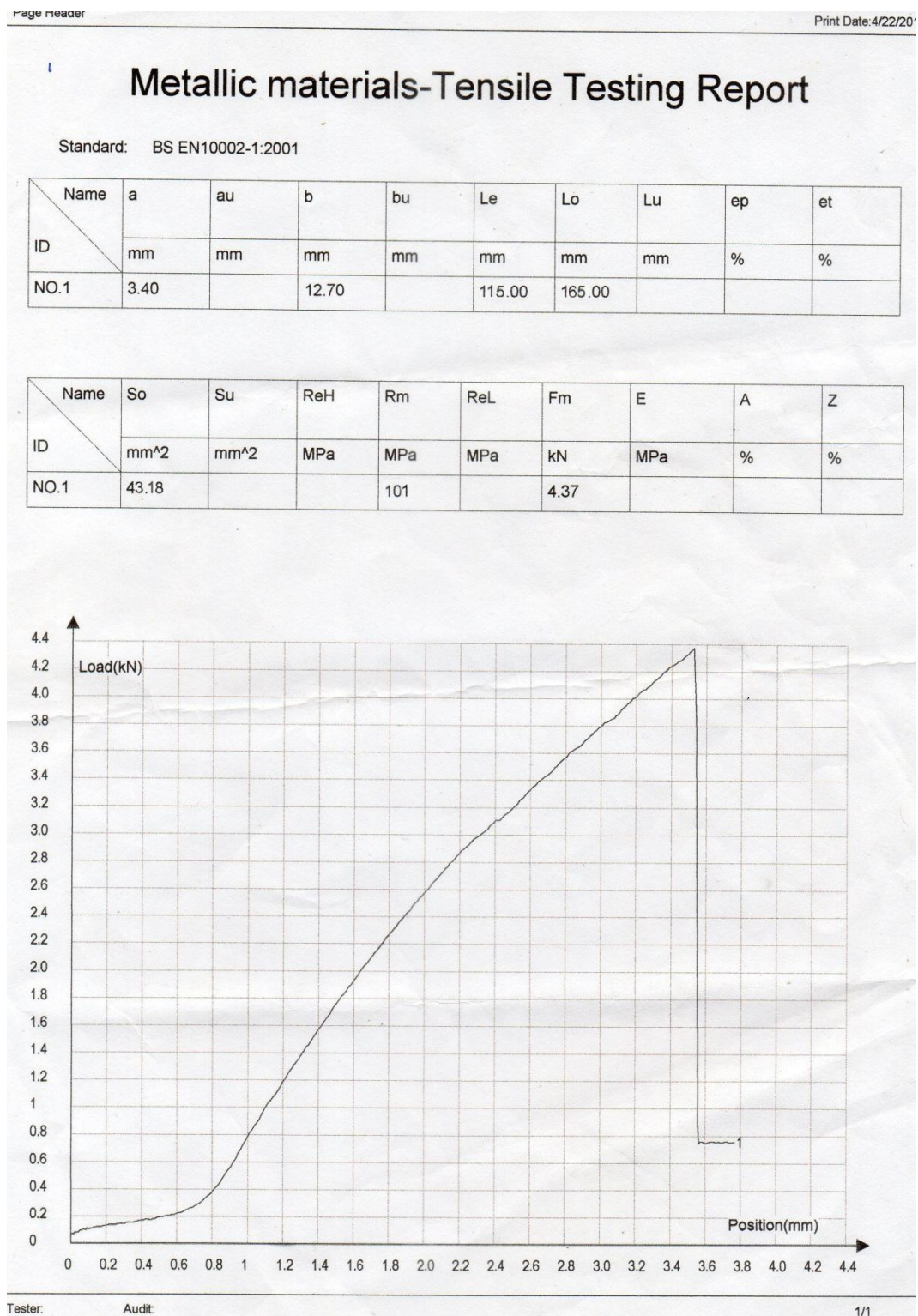
Tabel 4. Hasil Perhitungan Komposit Hibrid Abaka/Karbon/PMMA alkali 36 jam

No	d (mm)	b (mm)	Beban (N)	ΔL (mm)	Mod.Elast (MPa)	Teg. Tarik (MPa)	Elongation (%)
1	3.6	12.7	4740	3.10	5518.16	103.67	1.88
2	3.4	12.7	4370	2.85	5859.19	101.20	1.73
3	3.5	12.7	4240	2.60	6053.47	95.39	1.58
4	3.3	12.7	4210	2.88	5755.14	100.45	1.75
5	3.2	12.7	4160	2.72	6209.47	102.36	1.65
Min					5518.16	95.39	1.58
Max					6209.47	103.67	1.88
Rata-Rata					5874.72	100.31	1.72
Standar Deviasi					267.20	3.17	0.11

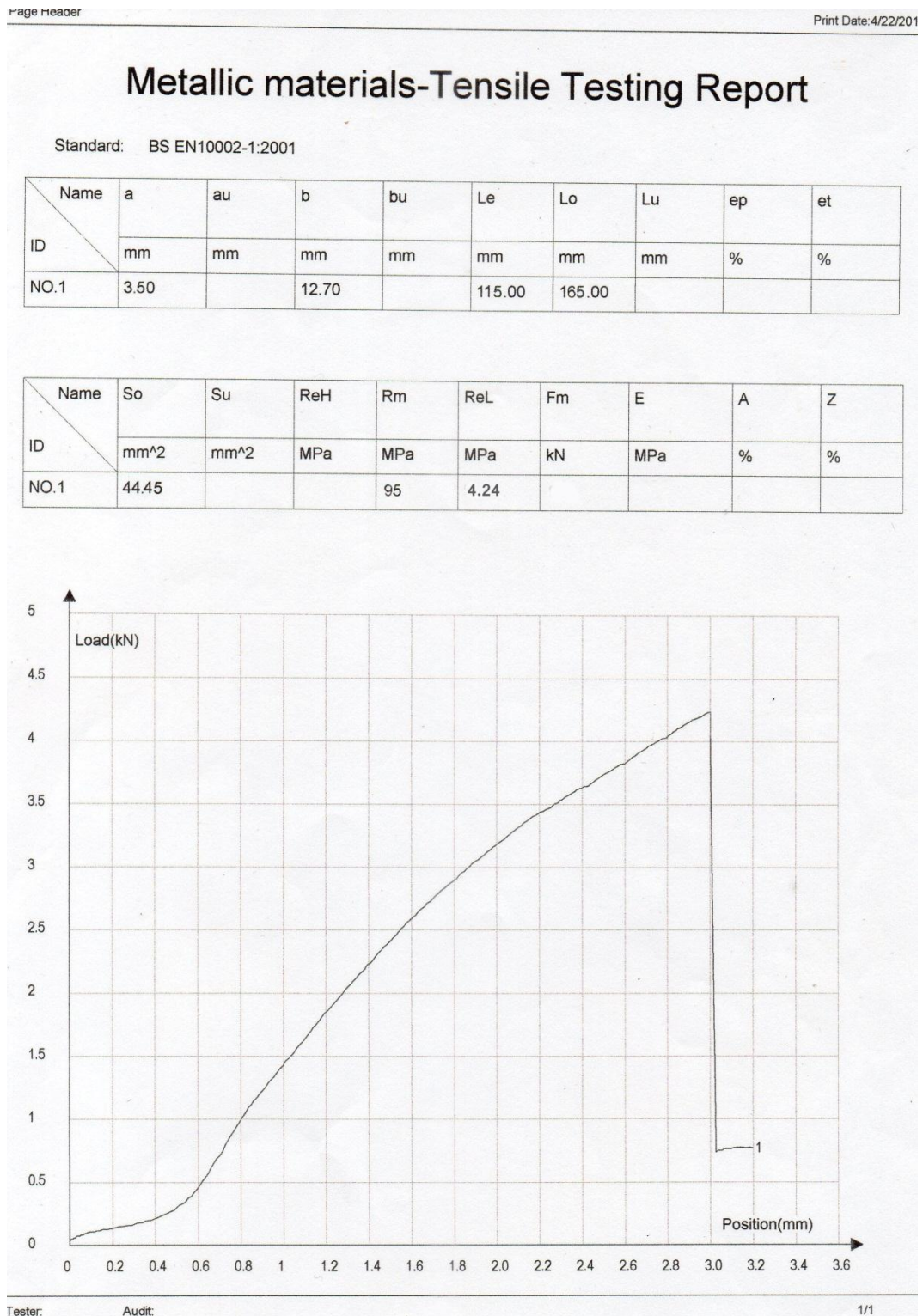
Grafik 16. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 36 jam



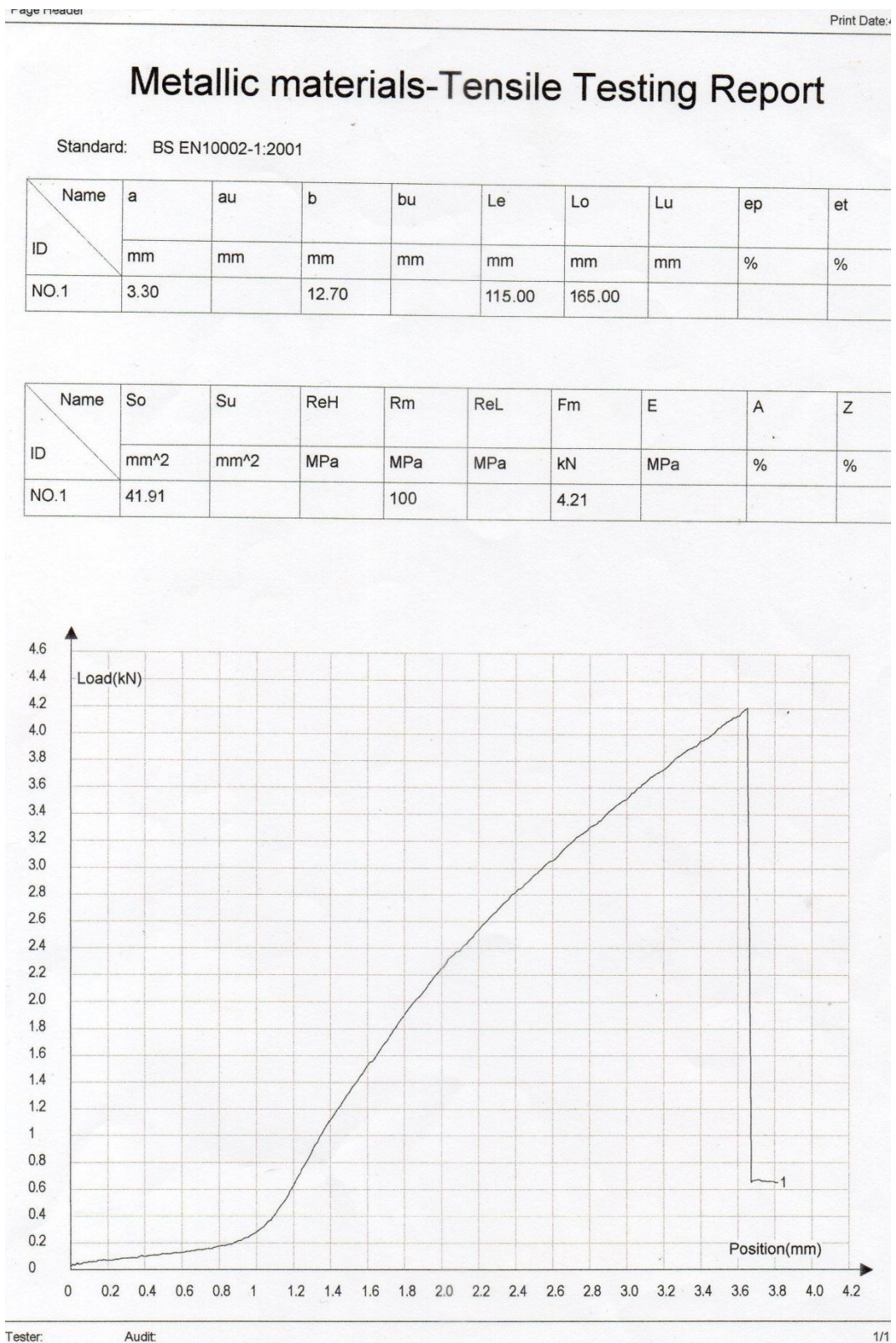
Grafik 17. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 36 jam



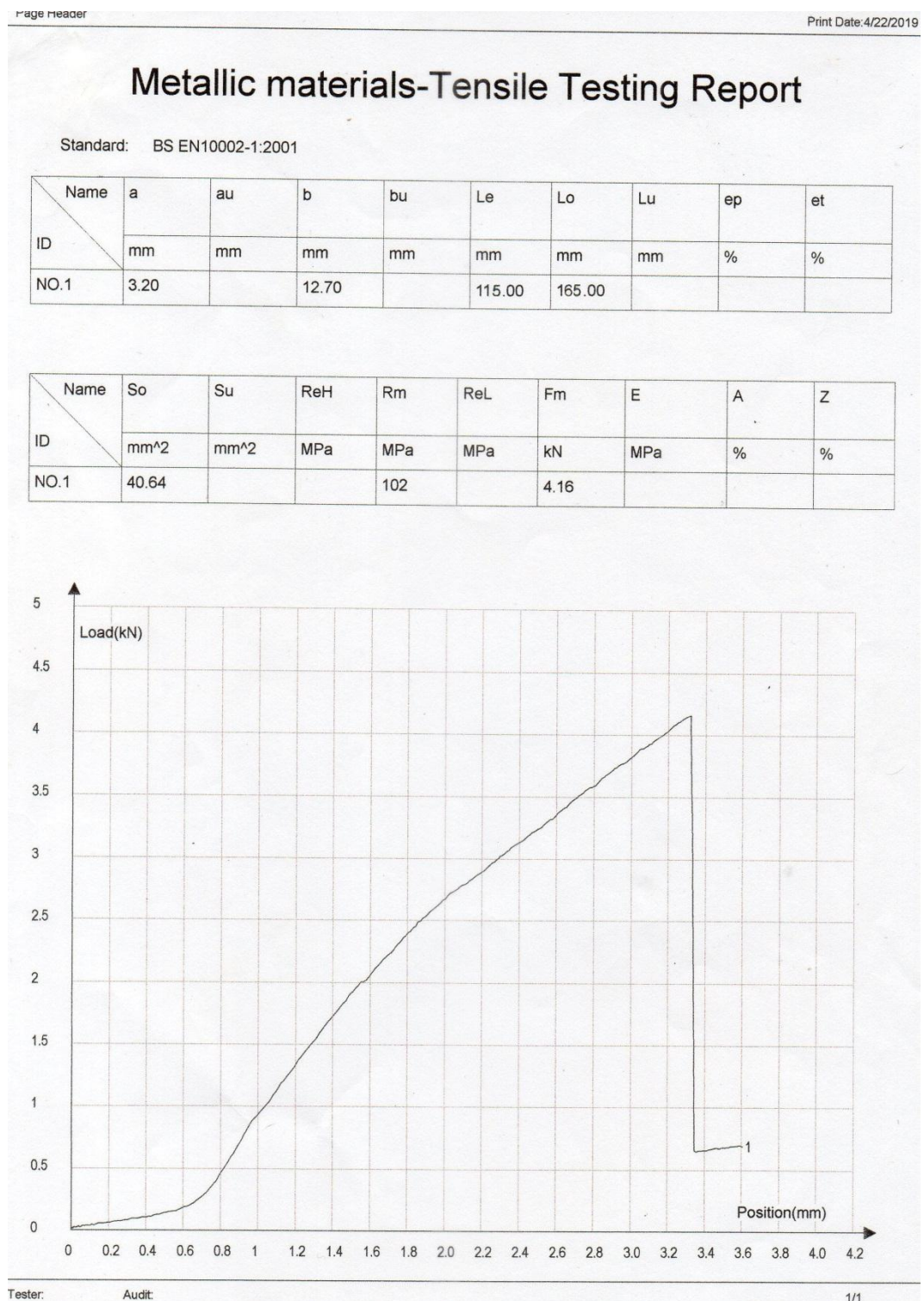
Grafik 18. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 36 jam



Grafik 19. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 36 jam



Grafik 20. Pengujian tarik komposit hibrid abaka/karbon/PMMA alkalisasi 36 jam



KARAKTERISASI SIFAT MEKANIS KOMPOSIT HIBRID ABAKA/KARBO/PMMA DENGAN WAKTU ALKALISASI SERAT ABAKA

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