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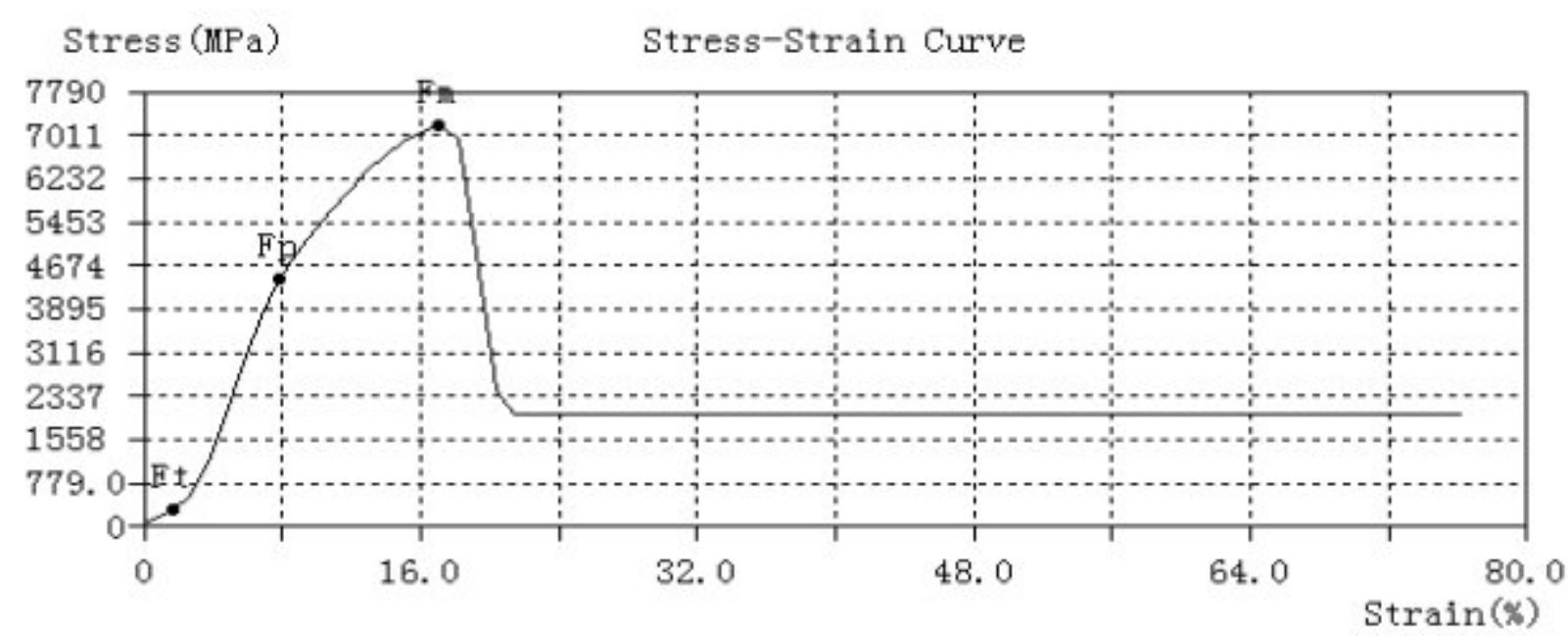
LAMPIRAN

Lampiran 1 Tabel grafik pengujian Tarik

Gambar A.1 variasi penambahan 1% Mg

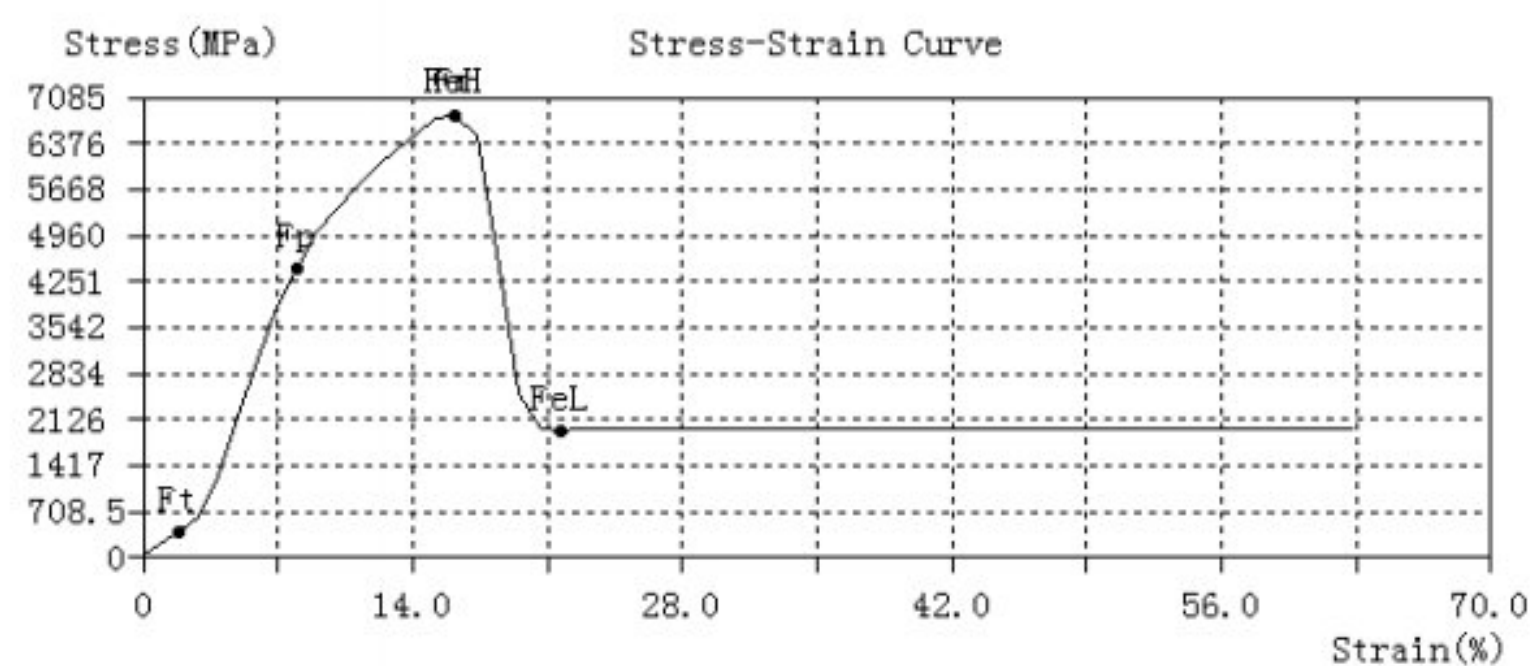
Aluminium CNT 1 % 1

SampleID	Aluminium CNT 1 %	TestDate	3/3/2023
Operator	1	Type	Circle
Size(mm)	6	Ao(mm ²)	28.27
Lo(mm)	10	Lu(mm)	
A(%)	/	Au(mm ²)	
Z(%)	/	Fm(kN)	5.75
Rm(MPa)	205	FeH(kN)	/
UYS(MPa)	/	FeL(kN)	/
LYS(MPa)	/	Fp(kN)	3.55
Rp(MPa)	125	Ft(kN)	/
Rt(MPa)	/	E(GPa)	5.16



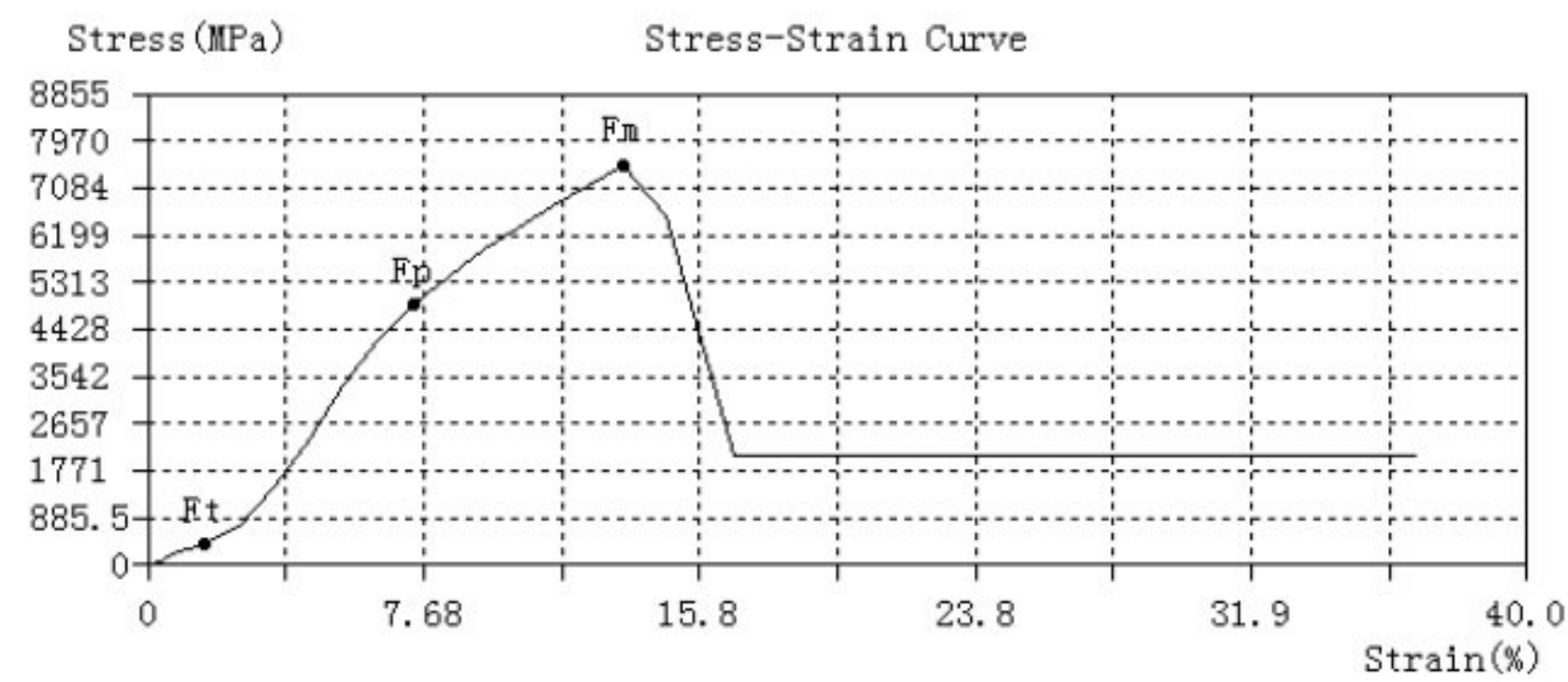
Aluminium CNT 1 % 2

SampleID	Aluminium CNT 1 %	TestDate	3/3/2023
Operator	2	Type	Circle
Size(mm)	6	Ao(mm ²)	28.27
Lo(mm)	10	Lu(mm)	
A(%)	/	Au(mm ²)	
Z(%)	/	Fm(kN)	5.45
Rm(MPa)	195	FeH(kN)	5.45
UYS(MPa)	195	FeL(kN)	1.55
LYS(MPa)	55	Fp(kN)	3.55
Rp(MPa)	125	Ft(kN)	/
Rt(MPa)	/	E(GPa)	4.81



Aluminium CNT 1 % 3

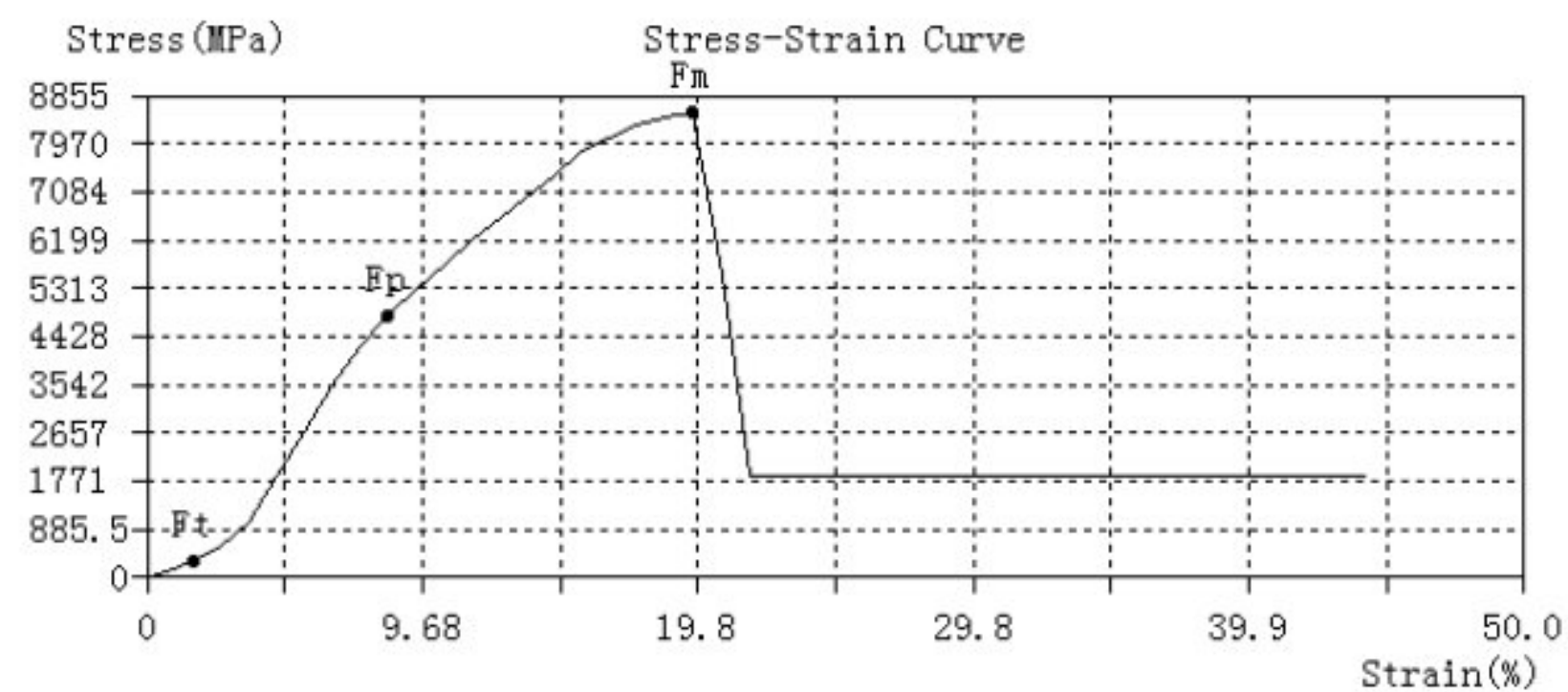
SampleID	Aluminium CNT 1 %	TestDate	3/3/2023
Operator	3	Type	Circle
Size(mm)	6	Ao(mm ²)	28.27
Lo(mm)	10	Lu(mm)	
A(%)	/	Au(mm ²)	
Z(%)	/	Fm(kN)	6.00
Rm(MPa)	210	FeH(kN)	/
UYS(MPa)	/	FeL(kN)	/
LYS(MPa)	/	Fp(kN)	3.90
Rp(MPa)	140	Ft(kN)	/
Rt(MPa)	/	E(GPa)	5.52



Gambar A.2 variasi penambahan 3% Mg

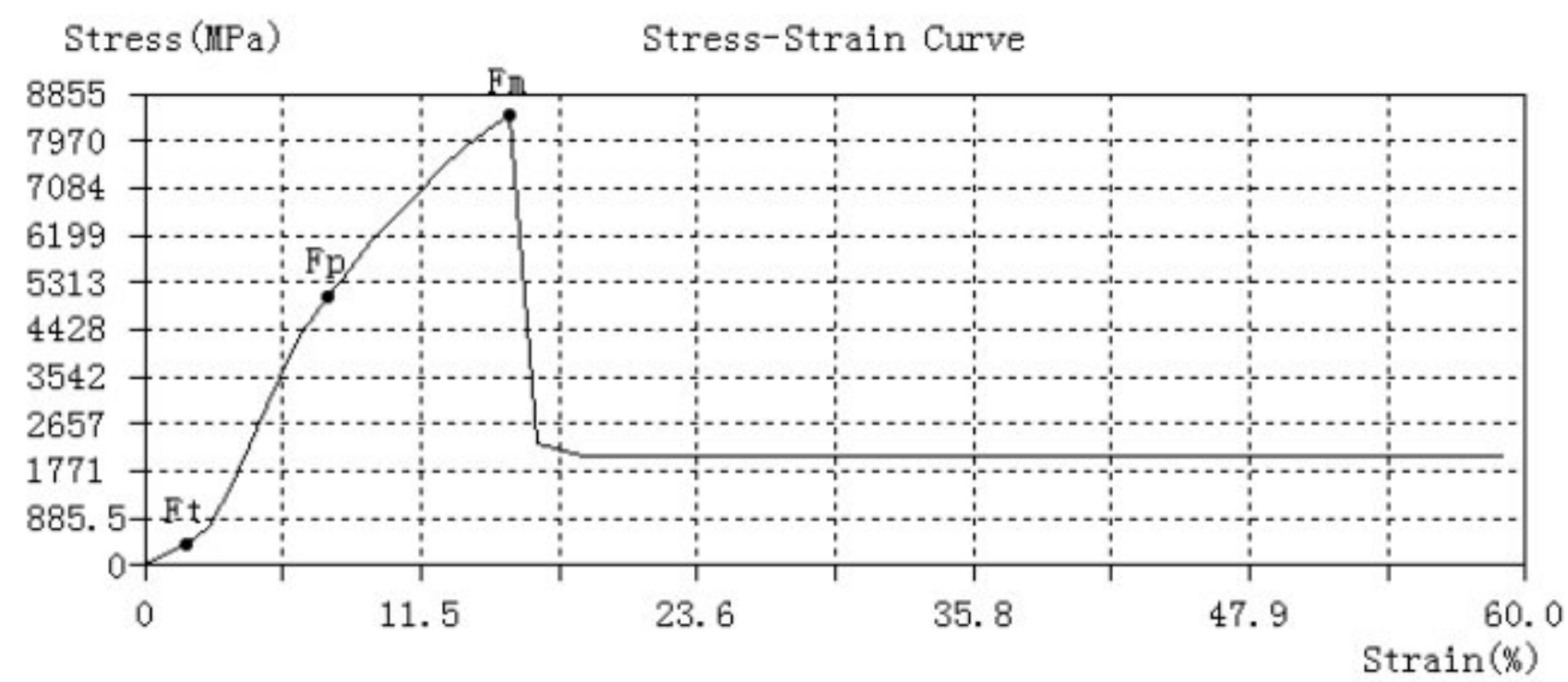
Aluminium CNT 3 % 1

SampleID	Aluminium CNT 3 %	TestDate	3/3/2023
Operator	1	Type	Circle
Size(mm)	6	Ao(mm ²)	28.27
Lo(mm)	10	Lu(mm)	
A(%)	/	Au(mm ²)	
Z(%)	/	Fm(kN)	6.85
Rm(MPa)	240	FeH(kN)	/
UYS(MPa)	/	FeL(kN)	/
LYS(MPa)	/	Fp(kN)	3.85
Rp(MPa)	135	Ft(kN)	/
Rt(MPa)	/	E(GPa)	4.30



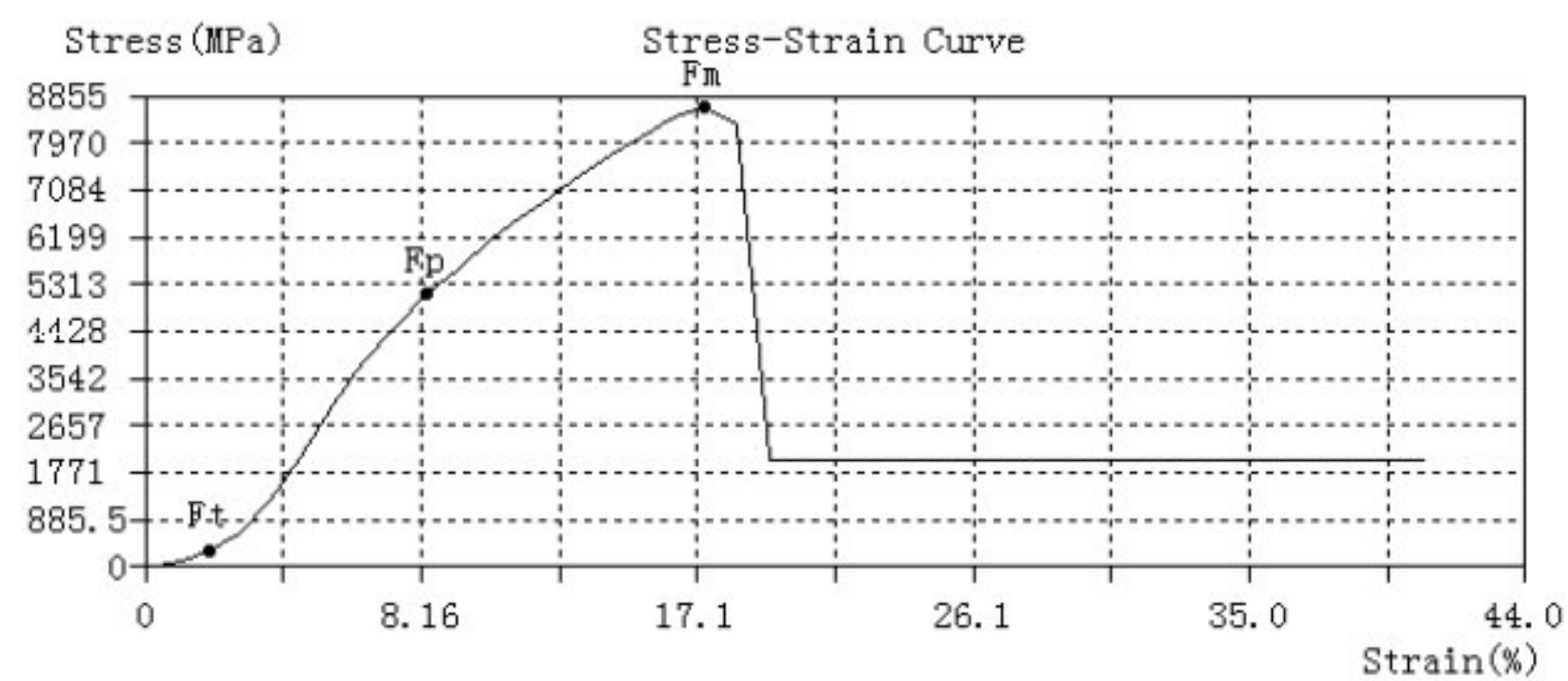
Aluminium CNT 3 % 2

SampleID	Aluminium CNT 3 %	TestDate	3/3/2023
Operator	2	Type	Circle
Size(mm)	6	Ao(mm ²)	28.27
Lo(mm)	10	Lu(mm)	
A(%)	/	Au(mm ²)	
Z(%)	/	Fm(kN)	6.75
Rm(MPa)	240	FeH(kN)	/
UYS(MPa)	/	FeL(kN)	/
LYS(MPa)	/	Fp(kN)	4.05
Rp(MPa)	145	Ft(kN)	/
Rt(MPa)	/	E(GPa)	5.18



Aluminium CNT 3 % 3

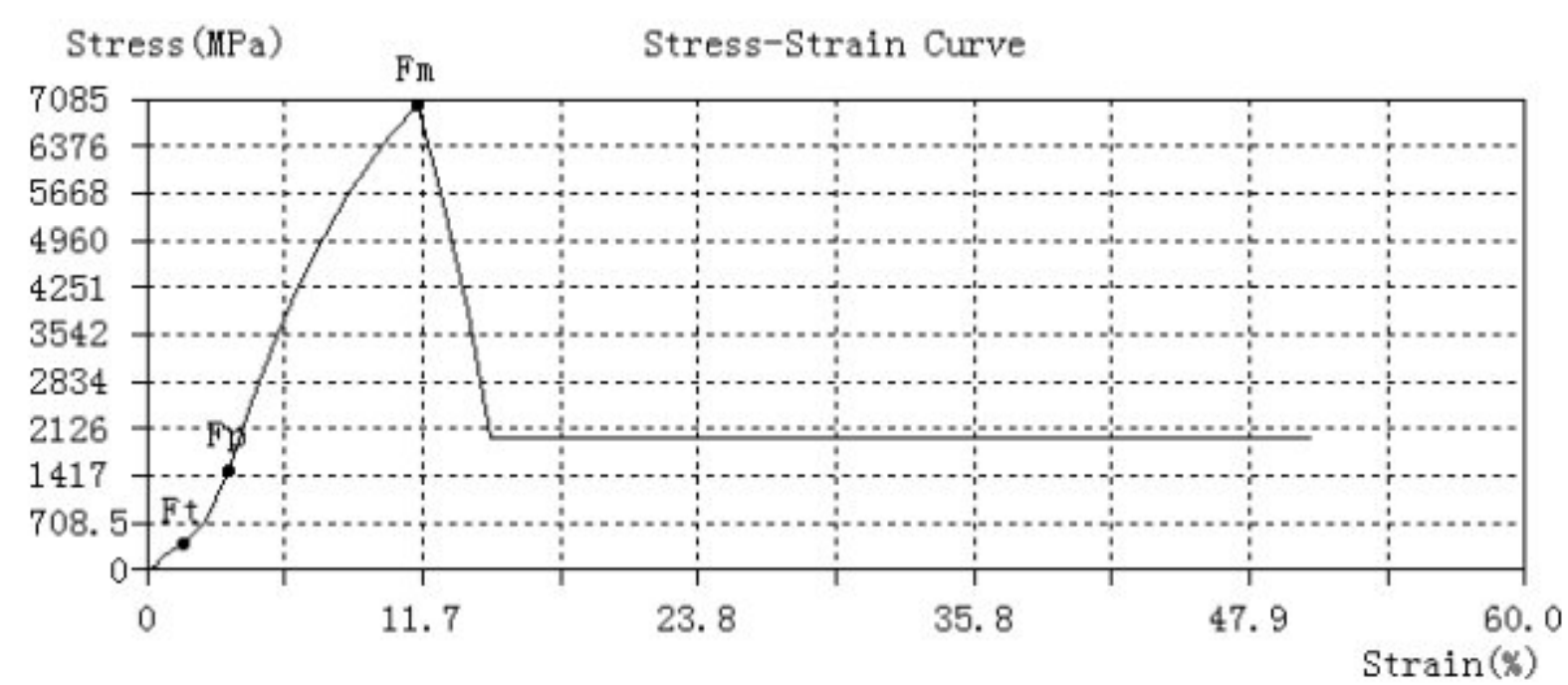
SampleID	Aluminium CNT 3 %	TestDate	3/3/2023
Operator	3	Type	Circle
Size(mm)	6	Ao(mm ²)	28.27
Lo(mm)	10	Lu(mm)	
A(%)	/	Au(mm ²)	
Z(%)	/	Fm(kN)	6.90
Rm(MPa)	245	FeH(kN)	/
UYS(MPa)	/	FeL(kN)	/
LYS(MPa)	/	Fp(kN)	4.10
Rp(MPa)	145	Ft(kN)	/
Rt(MPa)	/	E(GPa)	4.47



Gambar A.3 variasi penambahan 5% Mg

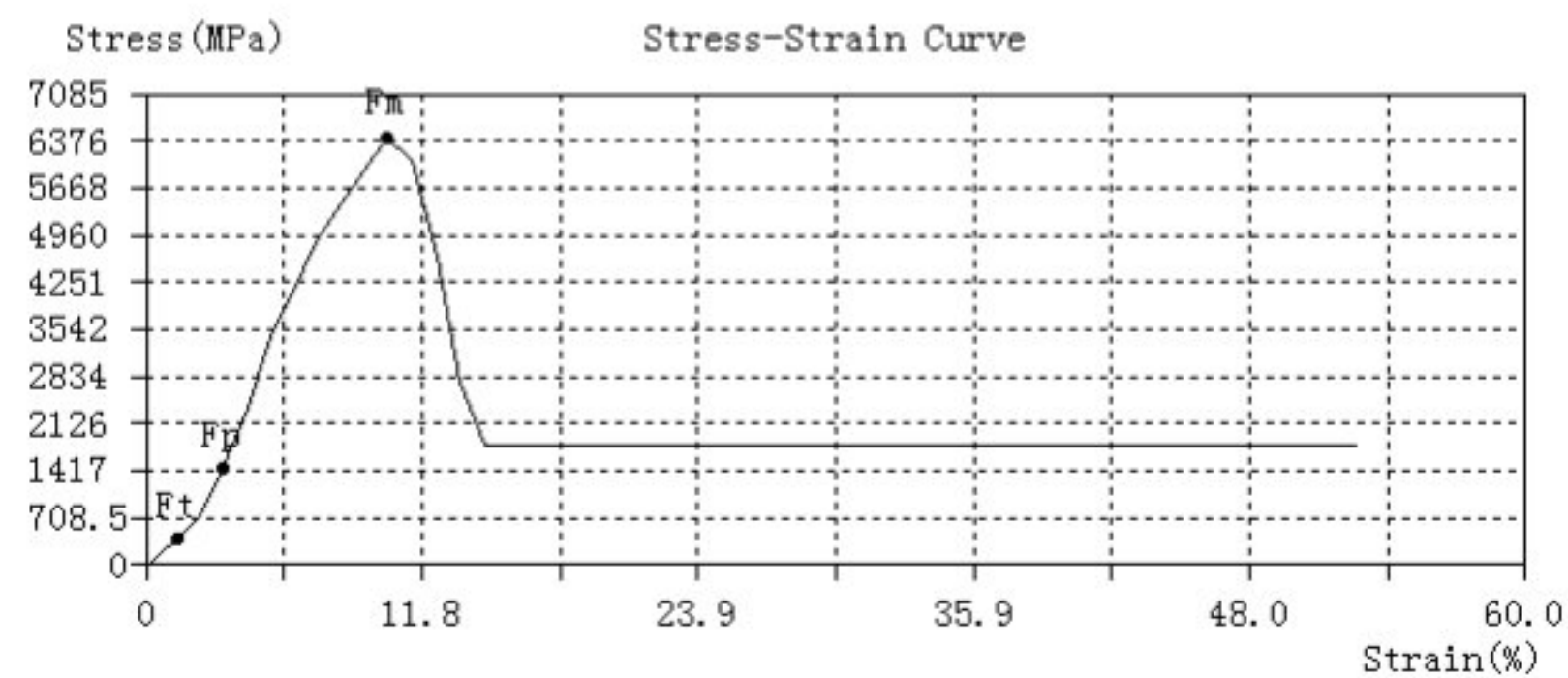
Aluminium CNT 5 % 1

SampleID	Aluminium CNT 5 %	TestDate	3/3/2023
Operator	1	Type	Circle
Size(mm)	6	Ao(mm ²)	28.27
Lo(mm)	10	Lu(mm)	
A(%)	/	Au(mm ²)	
Z(%)	/	F _m (kN)	5.60
R _m (MPa)	200	F _{eH} (kN)	/
UYS(MPa)	/	F _{eL} (kN)	/
LYS(MPa)	/	F _p (kN)	1.20
R _p (MPa)	40	F _t (kN)	/
R _t (MPa)	/	E(GPa)	/



Aluminium CNT 5 % 2

SampleID	Aluminium CNT 5 %	TestDate	3/3/2023
Operator	2	Type	Circle
Size(mm)	6	Ao(mm ²)	28.27
Lo(mm)	10	Lu(mm)	
A(%)	/	Au(mm ²)	
Z(%)	/	F _m (kN)	5.15
R _m (MPa)	180	F _{eH} (kN)	/
UYS(MPa)	/	F _{eL} (kN)	/
LYS(MPa)	/	F _p (kN)	1.15
R _p (MPa)	40	F _t (kN)	/
R _t (MPa)	/	E(GPa)	/



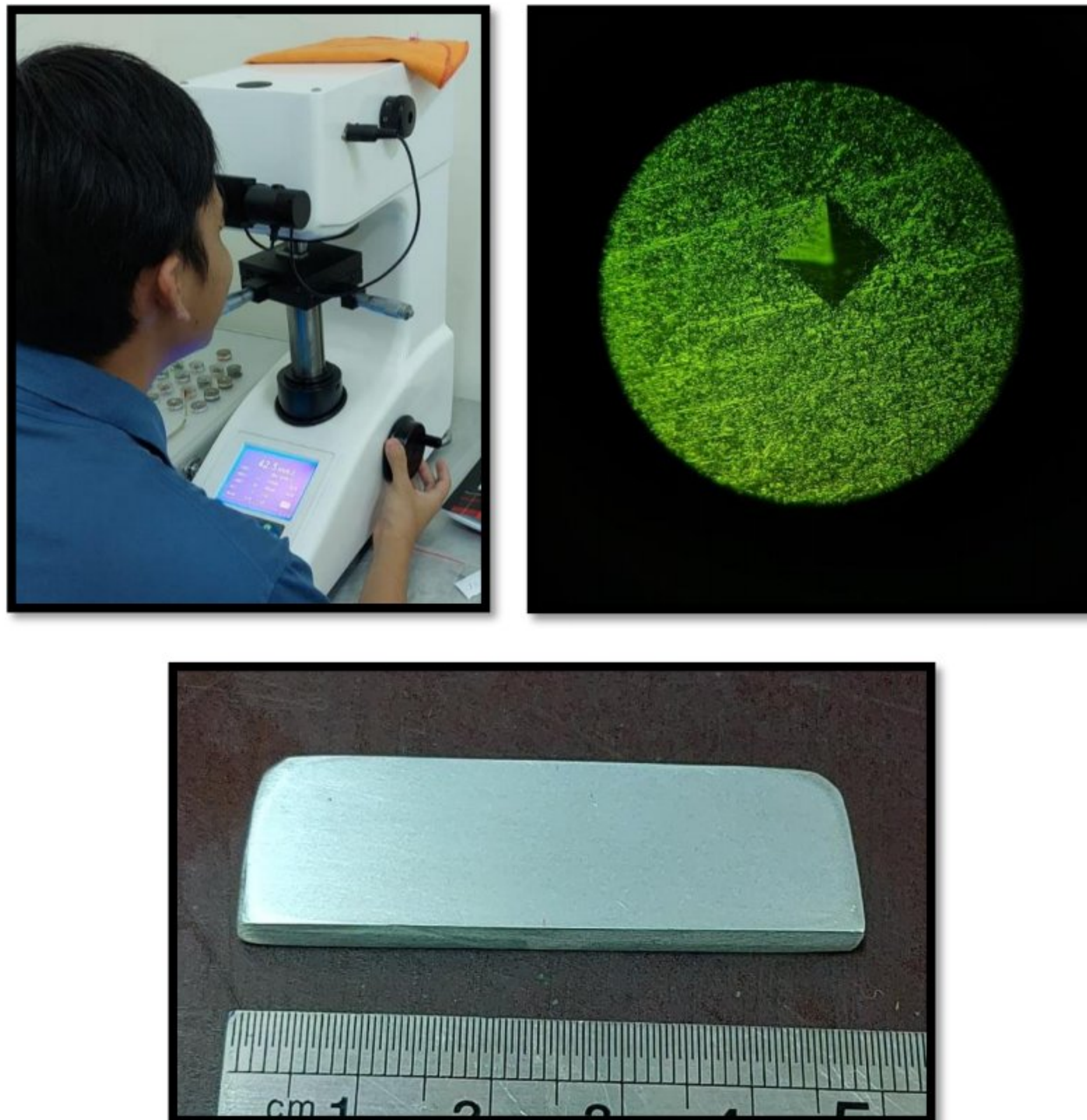
Lampiran 2 Dokumentasi kegiatan penelitian

Gambar B.1 Proses pengecoran/pembuatan spesimen



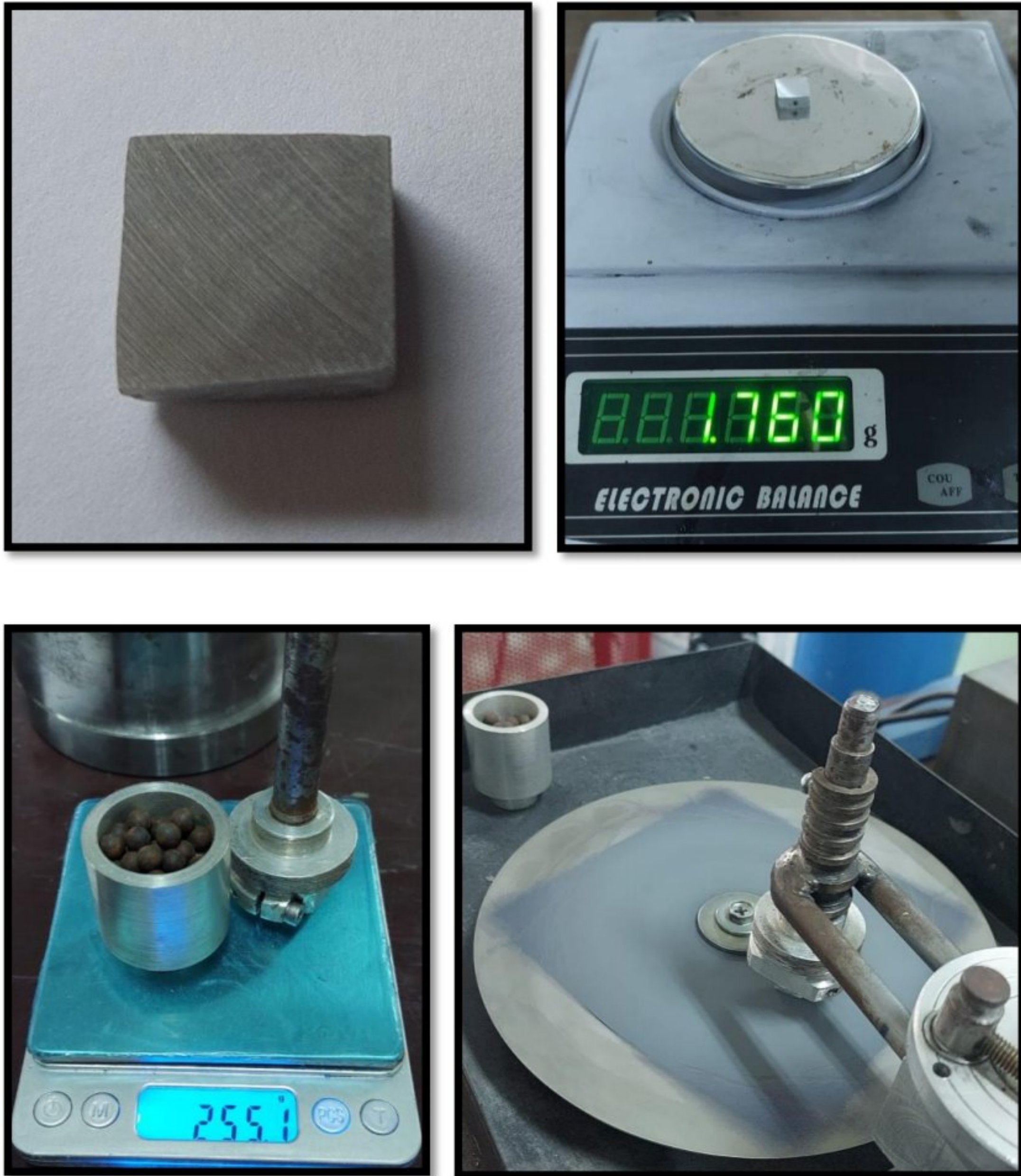


Gambar B.2 Pengujian Kekerasan



Gambar B.3 Pengujian Tarik

Gambar B.4 Pengujian Keausan



Gambar B.5 Pengujian Komposisi

Alloy_LE_F 10s. 2:51pm

ESR
AA-6061

GOOD MATCH (1/3)

ELEMENT	% ↑	+/-	LIMIT
Al	97.40	0.402	96.00 - 98.70
Mg	1.10	0.243	0.80 - 1.20
Si	0.51	0.049	0.40 - 0.80
Fe	0.44	0.016	0.00 - 0.70
Cu	0.31	0.008	0.15 - 0.40
Cr	0.11	0.014	0.04 - 0.35
Mn	0.07	0.015	0.00 - 0.15
Zn	0.07	0.003	0.00 - 0.25

Alloy_LE_F 10s. 2:46pm

ESR
AA-6061

GOOD MATCH (1/3)

ELEMENT	% ↑	+/-	LIMIT
Al	97.50	0.365	96.00 - 98.70
Mg	1.32	0.185	0.80 - 1.20
Si	0.39	0.039	0.40 - 0.80
Fe	0.36	0.013	0.00 - 0.70
Cu	0.28	0.007	0.15 - 0.40
Cr	0.09	0.012	0.04 - 0.35
Zn	0.06	0.003	0.00 - 0.25
Bi	0.00	0.000	

Alloy_LE_F 10s. 2:48pm

ESR
AA-6061

GOOD MATCH (1/3)

ELEMENT	% ↑	+/-	LIMIT
Al	97.09	0.359	96.00 - 98.70
Mg	1.63	0.187	0.80 - 1.20
Si	0.57	0.040	0.40 - 0.80
Fe	0.34	0.012	0.00 - 0.70
Cu	0.26	0.006	0.15 - 0.40
Cr	0.06	0.011	0.04 - 0.35
Zn	0.06	0.002	0.00 - 0.25
Bi	0.00	0.000	

Alloy_LE_F 10s. 2:53pm

ESR
AA-1100

GOOD MATCH (1/3)

ELEMENT	% ↑	+/-	LIMIT
Al	98.17	0.448	98.60 - 100.00
Si	0.81	0.068	
Fe	0.46	0.018	0.00 - 1.00
Cu	0.34	0.009	0.05 - 0.20
Cr	0.10	0.016	
Zn	0.07	0.003	0.00 - 0.10

TIME: 2:52:22pm
METHOD: Alloy_LE_FP
DATE: 22/05/2023

Gambar B.6 Pengamatan Metalografi

