POLITEKNIK ATMI SURAKARTA
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E-mail: politeknik@atmi.ac.id • Website http://www.atmi.ac.id

Zwick / Roell

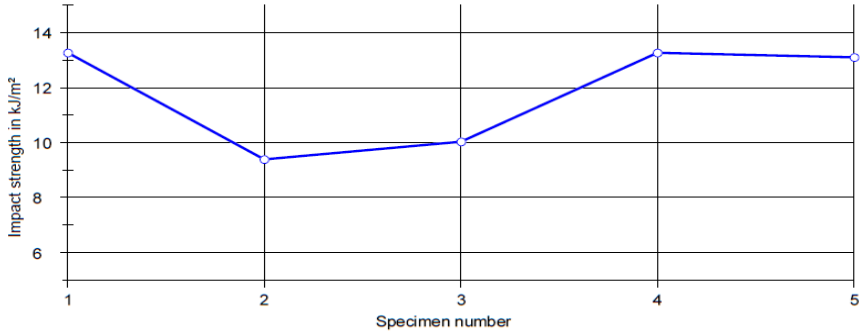
Test report

Customer	:	Yogi Febrianto
Tester	:	Yotam S
Test standard	:	ISO 179-1
Applied methods	:	Charpy impact strength test ISO 179-1/1 e A
Material	:	Polycarbonate
Notes	:	Tipe 1
Machine data	:	HIT 5,5P
Nominal work capacity	:	4 J
Theoretical impact velocity	:	2,901 m/s

Results:

No.	b mm	h mm	b_N mm	W J	ak kJ/m²	Type of failure
1	9,96	4,03	7,95	0,42469	13,26	C
2	9,92	3,98	7,97	0,29764	9,38	C
3	9,95	4,01	8,07	0,32471	10,03	C
4	9,97	4,03	8,05	0,43038	13,27	C
5	9,96	4,03	8,05	0,42469	13,09	C

Series graph:



Statistics:

Total/Hinge break n = 5	b_N mm	b mm	h mm	W J	ak kJ/m²
$\bar{x}$	8,018	9,952	4,016	0,38042	11,81
s	0,05404	0,01924	0,02191	0,06398	1,93
ν [%]	0,67	0,19	0,55	16,82	16,35

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Zwick / Roell

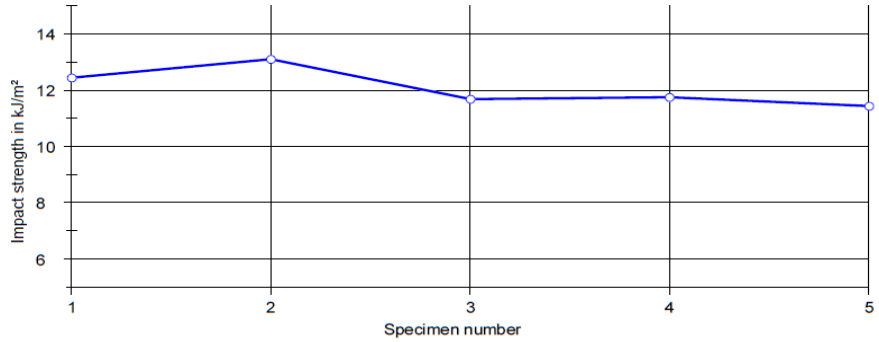
Test report

Customer	:	Yogi Febrianto
Tester	:	Yotam S
Test standard	:	ISO 179-1
Applied methods	:	Charpy impact strength test ISO 179-1/1 e A
Material	:	Polycarbonate
Notes	:	Tipe 2
Machine data	:	HIT 5,5P
Nominal work capacity	:	1 J
Theoretical impact velocity	:	2,901 m/s

Results:

No.	b mm	h mm	b_N mm	W J	ak kJ/m²	Type of failure
1	9,94	4,03	8	0,40083	12,43	C
2	9,96	4,03	8,05	0,42469	13,09	C
3	9,98	4,02	8,02	0,37673	11,69	C
4	9,94	4,03	8,055	0,38148	11,75	C
5	9,96	4,02	8,115	0,37317	11,44	C

Series graph:



Statistics:

Total/Hinge break n = 5	b_N mm	b mm	h mm	W J	ak kJ/m²
$\bar{x}$	8,048	9,956	4,026	0,39138	12,08
s	0,04367	0,01673	0,005477	0,02147	0,67
ν [%]	0,54	0,17	0,14	5,48	5,59

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Zwick / Roell

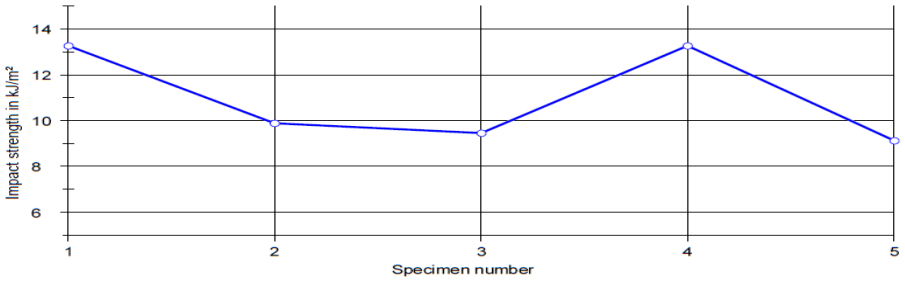
Test report

Customer	:	Yogi Febrianto
Tester	:	Yotam S
Test standard	:	ISO 179-1
Applied methods	:	Charpy impact strength test ISO 179-1/1 e A
Material	:	Polycarbonate
Notes	:	Tipe 3
Machine data	:	HIT 5,5P
Nominal work capacity	:	2 J
Theoretical impact velocity	:	2,901 m/s

Results:

No.	b mm	h mm	b_N mm	W J	ak kJ/m²	Type of failure
1	9,96	4,03	7,95	0,42469	13,26	C
2	10	4	7,96	0,31448	9,88	C
3	10	4,07	8,05	0,30967	9,45	C
4	9,97	4,03	8,05	0,43038	13,27	C
5	9,99	4,04	8,07	0,29764	9,13	C

Series graph:



Statistics:

Total/Hinge break n = 5	b_N mm	b mm	h mm	W J	ak kJ/m²
$\bar{x}$	8,016	9,984	4,034	0,35537	11,00
s	0,05639	0,01817	0,0251	0,06619	2,08
v [%]	0,70	0,18	0,62	18,63	18,96

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Zwick / Roell

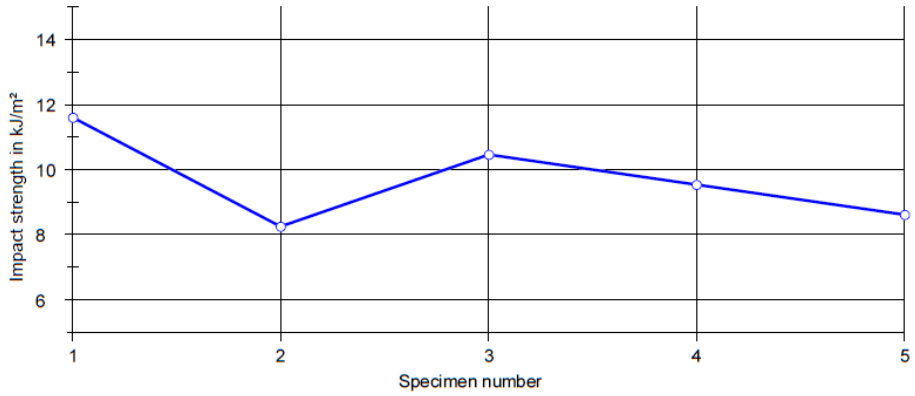
Test report

Customer	:	Yogi Febrianto
Tester	:	Yotam S
Test standard	:	ISO 179-1
Applied methods	:	Charpy impact strength test ISO 179-1/1 e A
Material	:	Polycarbonate
Notes	:	Tipe 4
Machine data	:	HIT 5,5P
Nominal work capacity	:	2 J
Theoretical impact velocity	:	2,901 m/s

Results:

No.	b mm	h mm	b_N mm	W J	ak kJ/m²	Type of failure
1	9,95	3,99	7,99	0,36995	11,60	C
2	10,02	4,04	8,13	0,27117	8,26	C
3	9,98	4,04	8,07	0,34099	10,46	C
4	9,96	4,02	7,95	0,30485	9,54	C
5	9,98	4,03	8,02	0,27840	8,61	C

Series graph:



Statistics:

Total/Hinge break n = 5	b_N mm	b mm	h mm	W J	ak kJ/m²
$\bar{x}$	8,032	9,978	4,024	0,31308	9,69
s	0,07014	0,02683	0,02074	0,04195	1,37
ν [%]	0,87	0,27	0,52	13,40	14,12

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Zwick / Roell

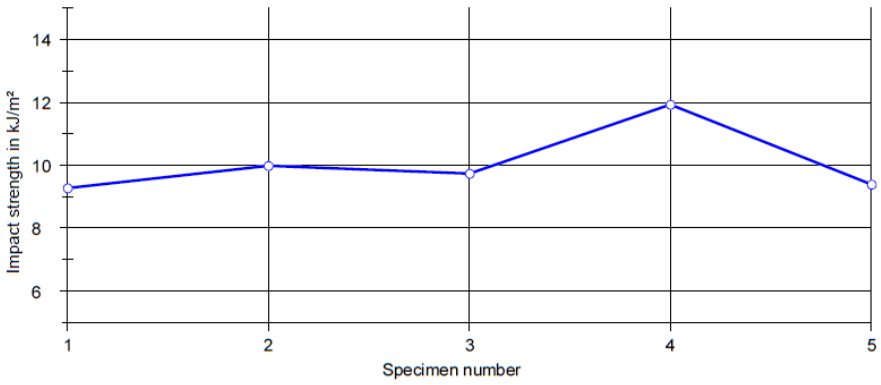
Test report

Customer	:	Yogi Febrianto
Tester	:	Yotam S
Test standard	:	ISO 179-1
Applied methods	:	Charpy impact strength test ISO 179-1/1 e A
Material	:	Polycarbonate
Notes	:	Tipe 5
Machine data	:	HIT 5,5P
Nominal work capacity	:	2 J
Theoretical impact velocity	:	2,901 m/s

Results:

No.	b mm	h mm	b_N mm	W J	ak kJ/m²	Type of failure
1	9,98	4	8,02	0,29764	9,28	C
2	9,98	4,03	8	0,32171	9,98	C
3	9,98	3,99	8,03	0,31208	9,74	C
4	9,94	4,04	8,13	0,39170	11,93	C
5	9,92	3,98	7,97	0,29764	9,38	C

Series graph:



Statistics:

Total/Hinge break n = 5	b_N mm	b mm	h mm	W J	ak kJ/m²
$\bar{x}$	8,03	9,96	4,008	0,32415	10,06
s	0,06042	0,02828	0,02588	0,03912	1,08
ν [%]	0,75	0,28	0,65	12,07	10,73

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Zwick / Roell

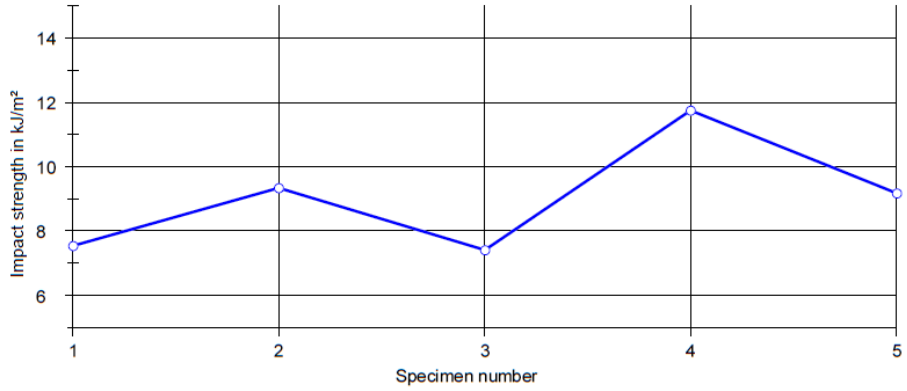
Test report

Customer	:	Yogi Febrianto
Tester	:	Yotam S
Test standard	:	ISO 179-1
Applied methods	:	Charpy impact strength test ISO 179-1/1 e A
Material	:	Polycarbonate
Notes	:	Tipe 6
Machine data	:	HIT 5,5P
Nominal work capacity	:	0,5 J
Theoretical impact velocity	:	2,901 m/s

Results:

No.	b mm	h mm	b_N mm	W J	ak kJ/m²	Type of failure
1	10	4,07	8,13	0,24941	7,54	C
2	9,96	4,04	8,1	0,30574	9,34	C
3	9,98	4,03	7,99	0,23876	7,41	C
4	9,94	4,03	8,055	0,38148	11,75	C
5	10,02	4,04	8,16	0,30266	9,18	C

Series graph:



Statistics:

Total/Hinge break n = 5	b_N mm	b mm	h mm	W J	ak kJ/m²
$\bar{x}$	8,087	9,98	4,042	0,29561	9,05
s	0,06667	0,03162	0,01643	0,05677	1,76
ν [%]	0,82	0,32	0,41	19,20	19,44

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Zwick / Roell

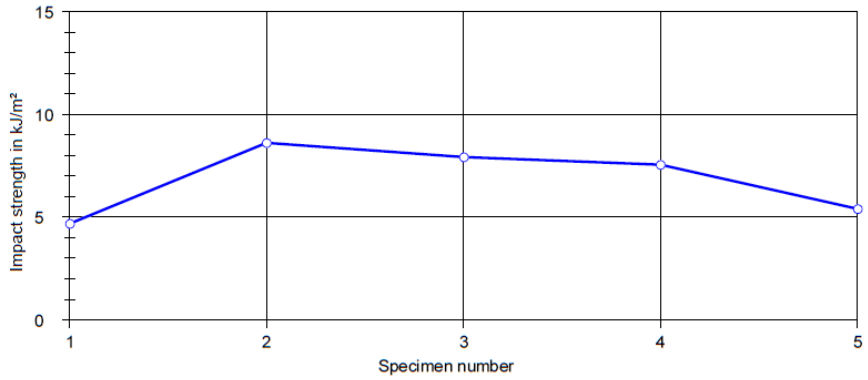
Test report

Customer	:	Yogi Febrianto
Tester	:	Yotam S
Test standard	:	ISO 179-1
Applied methods	:	Charpy impact strength test ISO 179-1/1 e A
Material	:	Polycarbonate
Notes	:	Tipe 7
Machine data	:	HIT 5,5P
Nominal work capacity	:	1 J
Theoretical impact velocity	:	2,901 m/s

Results:

No.	b mm	h mm	b_N mm	W J	ak kJ/m²	Type of failure
1	10,04	4,04	8,16	0,15422	4,68	C
2	9,98	4,03	8,02	0,27840	8,61	C
3	10	4,06	8,16	0,26271	7,93	C
4	10	4,07	8,13	0,24941	7,54	C
5	10	4,05	8,15	0,17804	5,39	C

Series graph:



Statistics:

Total/Hinge break n = 5	b_N mm	b mm	h mm	W J	ak kJ/m²
$\bar{x}$	8,124	10	4,05	0,22455	6,83
s	0,05941	0,02191	0,01581	0,05497	1,70
ν [%]	0,73	0,22	0,39	24,48	24,92

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Zwick / Roell

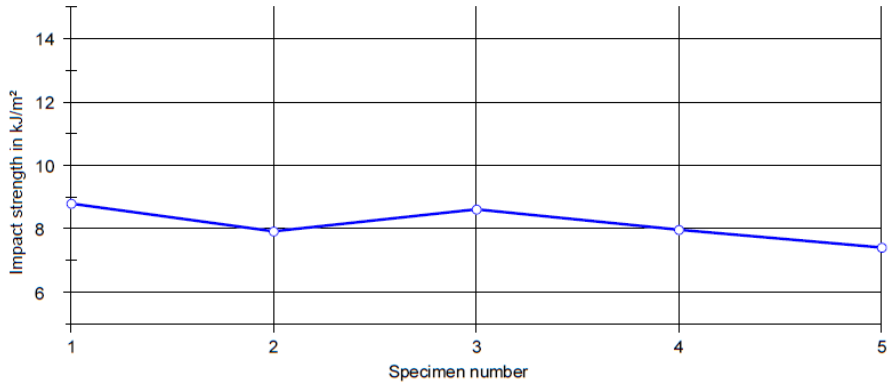
Test report

Customer	:	Yogi Febrianto
Tester	:	Yotam S
Test standard	:	ISO 179-1
Applied methods	:	Charpy impact strength test ISO 179-1/1 e A
Material	:	Polycarbonate
Notes	:	Tipe 8
Machine data	:	HIT 5,5P
Nominal work capacity	:	1 J
Theoretical impact velocity	:	2,901 m/s

Results:

No.	b mm	h mm	b_N mm	W J	ak kJ/m²	Type of failure
1	9,96	4,03	8,09	0,28687	8,80	C
2	10	4,06	8,16	0,26271	7,93	C
3	9,98	4,03	8,02	0,27840	8,61	C
4	10,04	4,03	7,95	0,25546	7,97	C
5	9,98	4,03	7,99	0,23876	7,41	C

Series graph:



Statistics:

Total/Hinge break n = 5	b_N mm	b mm	h mm	W J	ak kJ/m²
$\bar{x}$	8,042	9,992	4,036	0,26444	8,15
s	0,08349	0,03033	0,01342	0,01898	0,56
ν [%]	1,04	0,30	0,33	7,18	6,88

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Zwick / Roell

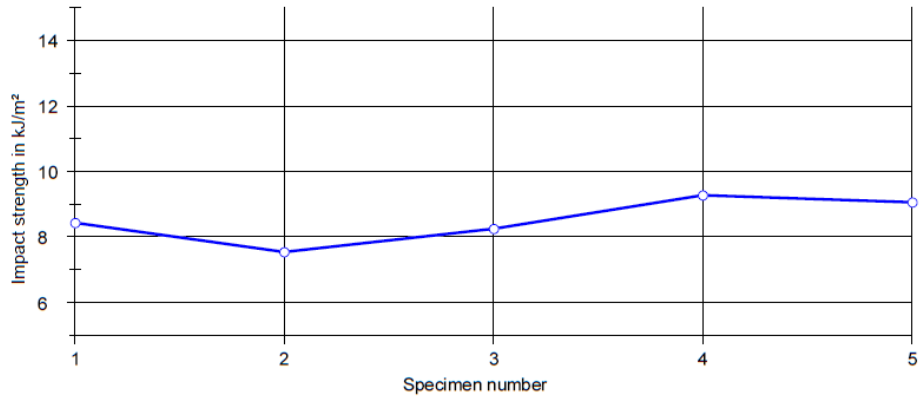
Test report

Customer	:	Yogi Febrianto
Tester	:	Yotam S
Test standard	:	ISO 179-1
Applied methods	:	Charpy impact strength test ISO 179-1/1 e A
Material	:	Polycarbonate
Notes	:	Tipe 9
Machine data	:	HIT 5,5P
Nominal work capacity	:	1 J
Theoretical impact velocity	:	2,901 m/s

Results:

No.	b mm	h mm	b_N mm	W J	ak kJ/m²	Type of failure
1	9,96	4,02	7,92	0,26875	8,44	C
2	10	4,07	8,13	0,24941	7,54	C
3	10,02	4,04	8,13	0,27117	8,26	C
4	9,98	4	8,02	0,29764	9,28	C
5	9,96	4,02	7,98	0,29049	9,06	C

Series graph:



Statistics:

Total/Hinge break n = 5	b_N mm	b mm	h mm	W J	ak kJ/m²
$\bar{x}$	8,036	9,984	4,03	0,27549	8,51
s	0,0929	0,02608	0,02646	0,01910	0,69
ν [%]	1,16	0,26	0,66	6,93	8,10

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Zwick / Roell

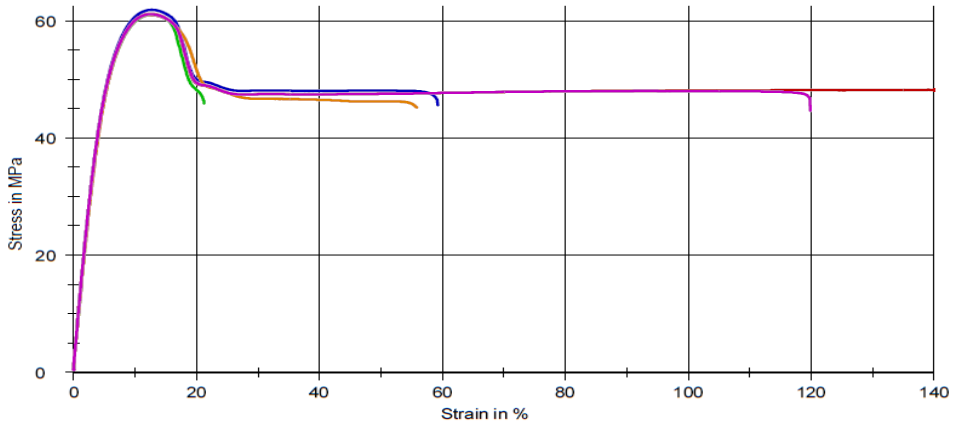
Test report

Customer	:	Yogi Febrianto	Pre-load	: 0,55	MPa
Test standard	:	DIN EN ISO 527-1	Speed, tensile modulus	: 1	mm/min
Material	:	Policarbonate	Test speed	: 50	mm/min
Notes	:	Tipe 1	Grip to grip separation at the start position	: 115,00	mm
Machine data	:	Zwick Z020			

Test results:

Legend	No.	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
	1	1300	61,0	13	61,0	13	9,95	4
	2	1240	61,1	13	61,1	13	9,94	4
	3	1250	61,9	13	61,9	13	9,94	4
	4	1260	61,2	13	61,2	13	9,95	4
	5	1240	61,1	13	61,1	13	9,94	4

Series graph:



Statistics:

Series n = 5	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
$\bar{x}$	1260	61,3	13	61,3	13	9,944	4
s	24,9	0,345	0,096	0,345	0,096	0,005477	0,000
ν [%]	1,98	0,56	0,75	0,56	0,75	0,06	0,00

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Zwick / Roell

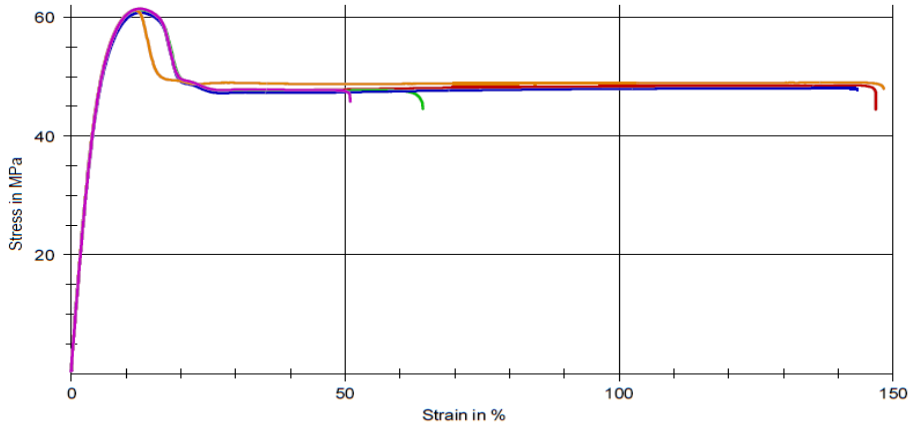
Test report

Customer	:	Yogi Febrianto	Pre-load	: 0,55	MPa
Test standard	:	DIN EN ISO 527-1	Speed, tensile modulus	: 1	mm/min
Material	:	Policarbonate	Test speed	: 50	mm/min
Notes	:	Tipe 2	Grip to grip separation at the start position	: 115,00	mm
Machine data	:	Zwick Z020			

Test results:

Legend	No.	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
	1	1240	61,4	13	61,4	13	9,94	4,01
	2	1280	61,1	13	61,1	13	9,96	4,01
	3	1300	60,8	13	60,8	13	9,94	4,02
	4	1310	61,2	12	61,2	12	9,93	4,01
	5	1280	61,4	13	61,4	13	9,96	4,01

Series graph:



Statistics:

Series n = 5	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
$\bar{x}$	1280	61,2	12	61,2	12	9,946	4,012
s	26,5	0,259	0,38	0,259	0,38	0,01342	0,004472
ν [%]	2,07	0,42	3,03	0,42	3,03	0,13	0,11

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Zwick / Roell

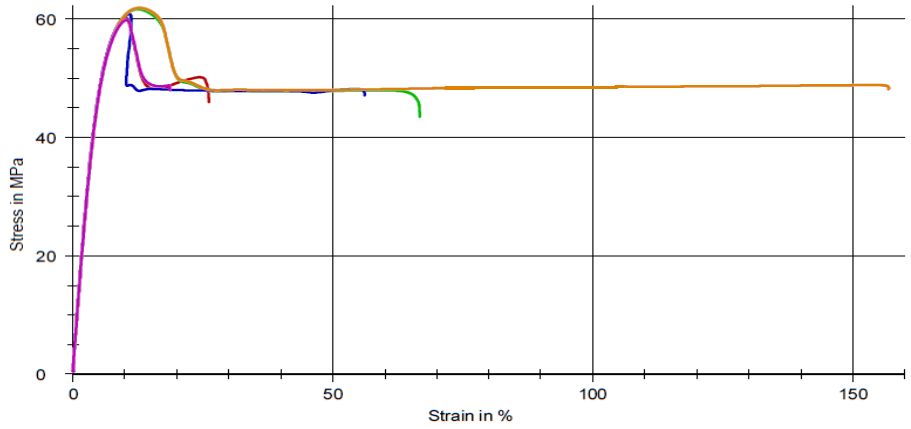
Test report

Customer	:	Yogi Febrianto	Pre-load	: 0,55	MPa
Test standard	:	DIN EN ISO 527-1	Speed, tensile modulus	: 1	mm/min
Material	:	Policarbonate	Test speed	: 50	mm/min
Notes	:	Tipe 3	Grip to grip separation at the start position	: 115,00	mm
Machine data	:	Zwick Z020			

Test results:

Legend	No.	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
	1	1330	60,2	10	60,2	10	9,93	4,01
	2	1270	61,6	12	61,6	12	9,94	4,01
	3	1290	60,8	11	60,8	11	9,95	4,01
	4	1300	61,9	13	61,9	13	9,95	4,01
	5	1290	59,8	10	59,8	10	9,96	4,01

Series graph:



Statistics:

Series n = 5	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
$\bar{x}$	1300	60,9	11	60,9	11	9,946	4,01
s	22,3	0,903	1,2	0,903	1,2	0,0114	0,000
ν [%]	1,72	1,48	10,83	1,48	10,83	0,11	0,00

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E-mail: politeknik@atmi.ac.id • Website http://www.atmi.ac.id

Zwick / Roell

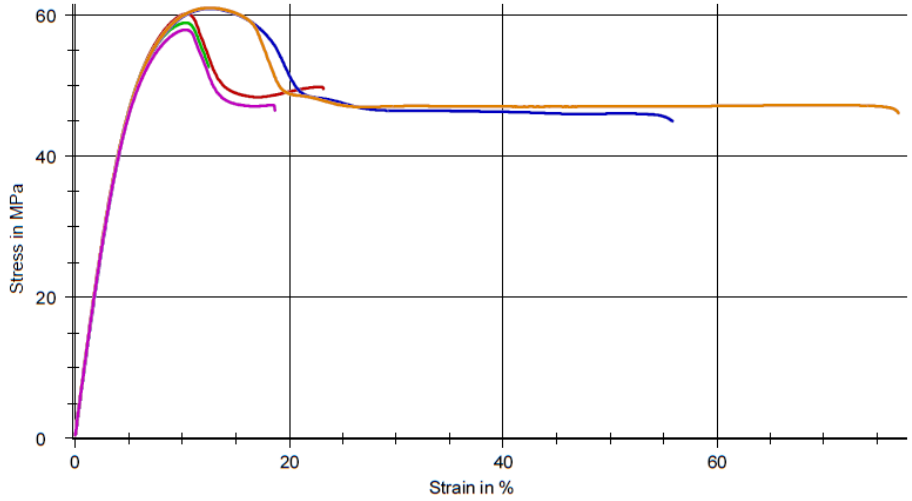
Test report

Customer	:	Yogi Febrianto	Pre-load	: 0,55	MPa
Test standard	:	DIN EN ISO 527-1	Speed, tensile modulus	: 1	mm/min
Material	:	Policarbonate	Test speed	: 50	mm/min
Notes	:	Tipe 4	Grip to grip separation at the start position	: 115,00	mm
Machine data	:	Zwick Z020			

Test results:

Legend	No.	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
	1	1220	60,2	10	60,2	10	9,96	4,02
	2	1230	58,9	10	58,9	10	9,92	4,01
	3	1260	60,9	13	60,9	13	9,97	4,01
	4	1280	61,1	13	61,1	13	9,94	4,01
	5	1250	58,0	10	58,0	10	9,93	4,02

Series graph:



Statistics:

Series n = 5	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
$\bar{x}$	1250	59,8	11	59,8	11	9,944	4,014
s	21,7	1,34	1,3	1,34	1,3	0,02074	0,005477
ν [%]	1,74	2,24	11,20	2,24	11,20	0,21	0,14

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Zwick / Roell

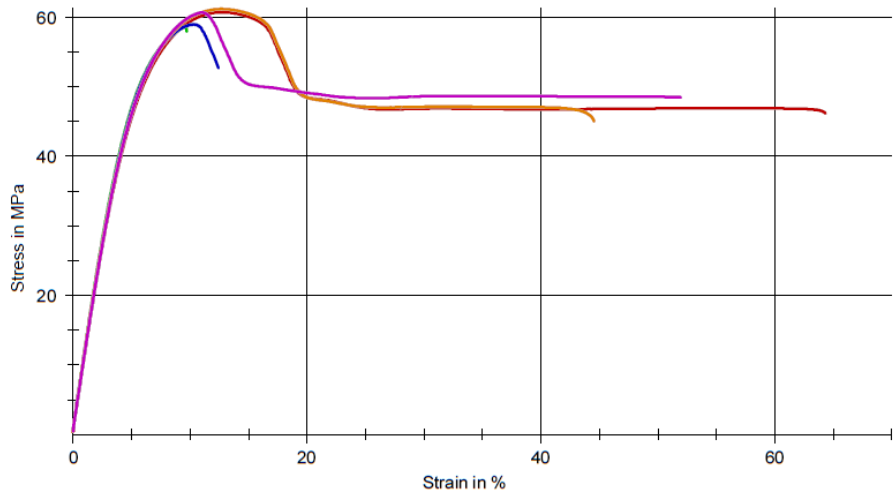
Test report

Customer	:	Yogi Febrianto	Pre-load	: 0,55	MPa
Test standard	:	DIN EN ISO 527-1	Speed, tensile modulus	: 1	mm/min
Material	:	Policarbonate	Test speed	: 50	mm/min
Notes	:	Tipe 5	Grip to grip separation at the start position	: 115,00	mm
Machine data	:	Zwick Z020			

Test results:

Legend	No.	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
	1	1210	60,7	13	60,7	13	9,96	4,02
	2	1270	58,7	9,7	58,7	9,7	9,94	4,01
	3	1230	58,9	10	58,9	10	9,96	4,03
	4	1230	61,2	13	61,2	13	9,93	4
	5	1210	60,6	11	60,6	11	9,93	4

Series graph:



Statistics:

Series n = 5	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
$\bar{x}$	1230	60,0	11	60,0	11	9,944	4,012
s	25,6	1,13	1,4	1,13	1,4	0,01517	0,01304
ν [%]	2,08	1,88	12,32	1,88	12,32	0,15	0,32

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Zwick / Roell

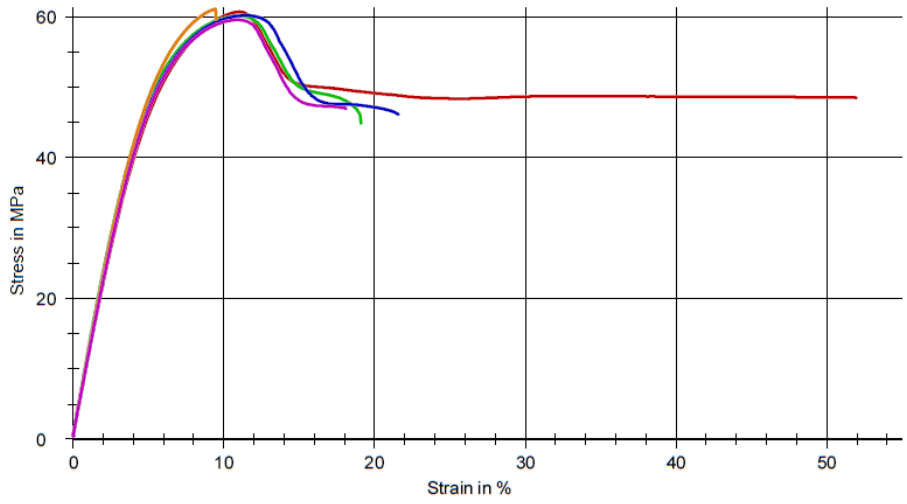
Test report

Customer	:	Yogi Febrianto	Pre-load	: 0,55	MPa
Test standard	:	DIN EN ISO 527-1	Speed, tensile modulus	: 1	mm/min
Material	:	Policarbonate	Test speed	: 50	mm/min
Notes	:	Tipe 6	Grip to grip separation at the start position	: 115,00	mm
Machine data	:	Zwick Z020			

Test results:

Legend	No.	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
	1	1210	60,7	11	60,7	11	9,97	4,02
	2	1230	60,1	11	60,1	11	9,96	4,02
	3	1230	60,2	11	60,2	11	9,94	4,05
	4	1230	61,1	9,5	61,1	9,5	9,94	4,03
	5	1220	59,5	11	59,5	11	9,96	4,04

Series graph:



Statistics:

Series	E_t	σ_m	ε_m	σ_b	ε_b	b	h
n = 5	MPa	MPa	%	MPa	%	mm	mm
$\bar{x}$	1220	60,3	11	60,3	11	9,954	4,032
s	8,91	0,582	0,77	0,582	0,77	0,01342	0,01304
ν [%]	0,73	0,97	7,11	0,97	7,11	0,13	0,32

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Zwick / Roell

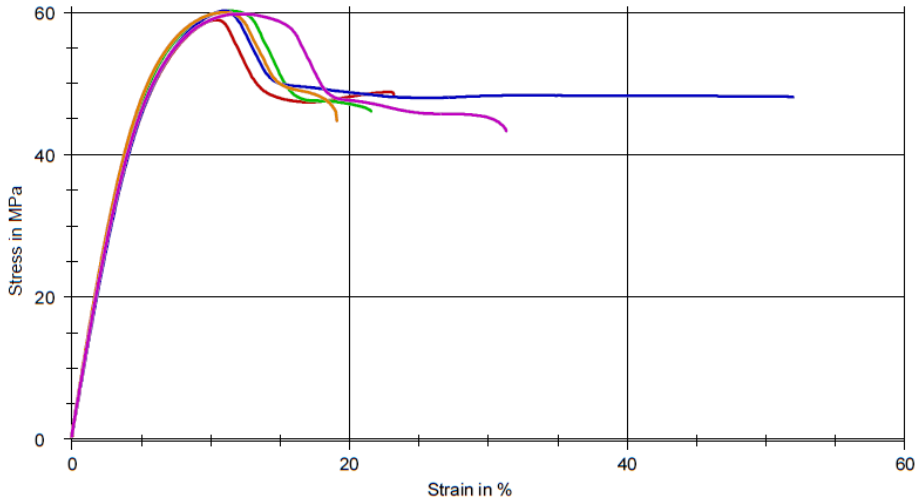
Test report

Customer	:	Yogi Febrianto	Pre-load	: 0,55	MPa
Test standard	:	DIN EN ISO 527-1	Speed, tensile modulus	: 1	mm/min
Material	:	Policarbonate	Test speed	: 50	mm/min
Notes	:	Tipe 7	Grip to grip separation at the start position	: 115,00	mm
Machine data	:	Zwick Z020			

Test results:

Legend	No.	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
	1	1200	58,9	10	58,9	10	9,96	4,04
	2	1230	60,2	11	60,2	11	9,95	4,03
	3	1200	60,2	11	60,2	11	9,96	4,02
	4	1220	60,0	11	60,0	11	9,95	4,02
	5	1220	59,8	12	59,8	12	9,96	4,03

Series graph:



Statistics:

Series n = 5	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
$\bar{x}$	1210	59,8	11	59,8	11	9,956	4,028
s	14,1	0,513	0,69	0,513	0,69	0,005477	0,008367
ν [%]	1,17	0,86	6,11	0,86	6,11	0,06	0,21

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Zwick / Roell

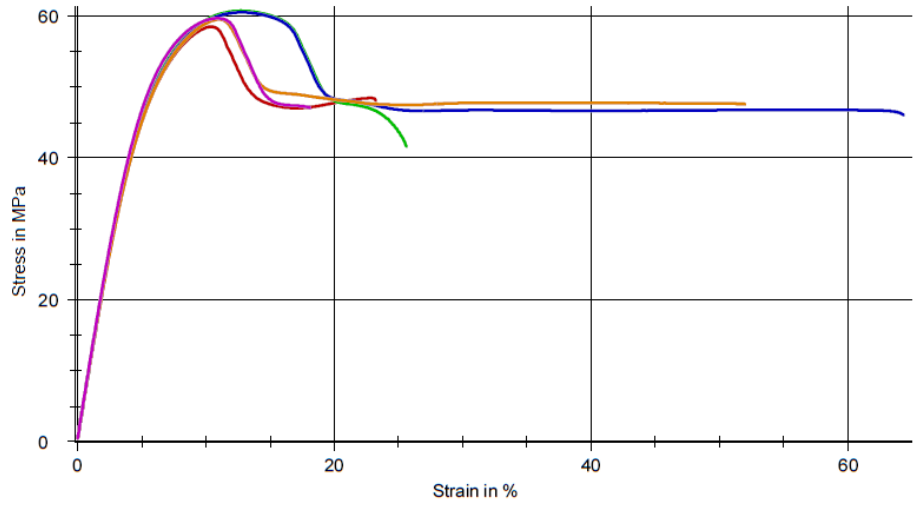
Test report

Customer	:	Yogi Febrianto			
Test standard	:	DIN EN ISO 527-1			
Material	:	Policarbonate			
Notes	:	Tipe 8			
Machine data	:	Zwick Z020			
Pre-load	:	0,55	MPa		
Speed, tensile modulus	:	1	mm/min		
Test speed	:	50	mm/min		
Grip to grip separation at the start position	:	115,00	mm		

Test results:

Legend	No.	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
	1	1190	58,5	10	58,5	10	9,96	4,03
	2	1210	60,7	13	60,7	13	9,96	4,02
	3	1210	60,5	13	60,5	13	9,96	4,03
	4	1190	59,6	11	59,6	11	9,96	4,03
	5	1220	59,7	11	59,7	11	9,96	4,03

Series graph:



Statistics:

Series n = 5	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
$\bar{x}$	1200	59,8	12	59,8	12	9,96	4,028
s	16,2	0,894	1,1	0,894	1,1	0,000	0,004472
ν [%]	1,35	1,49	9,61	1,49	9,61	0,00	0,11

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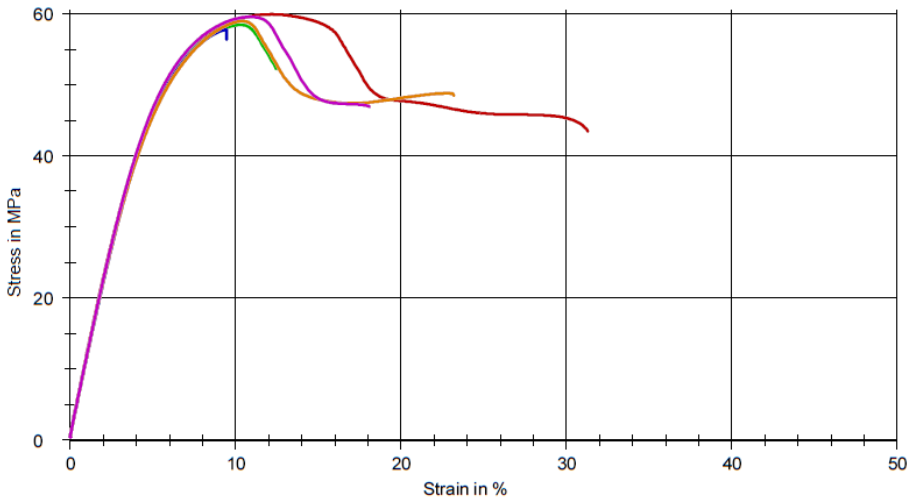
Test report

Customer	:	Yogi Febrianto	Pre-load	: 0,55	MPa
Test standard	:	DIN EN ISO 527-1	Speed, tensile modulus	: 1	mm/min
Material	:	Policarbonate	Test speed	: 50	mm/min
Notes	:	Tipe 9	Grip to grip separation at the start position	: 115,00	mm
Machine data	:	Zwick Z020			

Test results:

Legend	No.	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
	1	1220	59,9	12	59,9	12	9,96	4,01
	2	1220	58,4	10	58,4	10	9,93	4,01
	3	1170	57,7	9,5	57,7	9,5	9,94	4,01
	4	1200	58,9	10	58,9	10	9,96	4,01
	5	1220	59,5	11	59,5	11	9,94	4,01

Series graph:



Statistics:

Series n = 5	E_t MPa	σ_m MPa	ε_m %	σ_b MPa	ε_b %	b mm	h mm
$\bar{x}$	1210	58,9	11	58,9	11	9,946	4,01
s	24,8	0,859	1,0	0,859	1,0	0,01342	0,000
ν [%]	2,06	1,46	9,61	1,46	9,61	0,13	0,00