

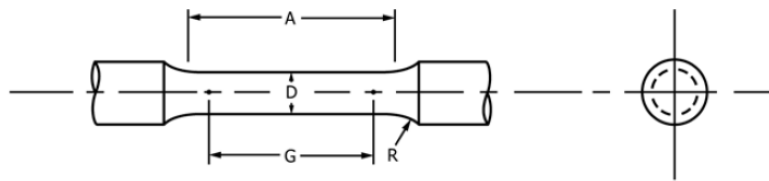
## Technical Definition

Tensile Test (Ambient Temperature)  
AI 2024 T351

You shall respect the HSE policy of your laboratory for each performed test.

**Please read carefully these instructions BEFORE starting the tests.**

- Five blanks ( $\varnothing$  20 x 200 mm) are supplied to each participant – 5 results must be provided. If one result is missing your test will be considered as an outlier. A RCA shall be completed.
- The specimens shall be machined according to figure 9 – ASTM B557-15 (see figure below).



	SI unit (mm)	Imperial unit (in.)
G – gage length	62,50 ± 0,10	2,000 ± 0,005
D - diameter	12,50 ± 0,25	0,500 ± 0,010
R – Radius of fillet, min	9	$\frac{3}{8}$
A – Length of reduced section, min	75	2 $\frac{1}{4}$

- All tests are to be performed in accordance with the methods of **ASTM B557-15**, **ISO 6892-1 (2019)** or **EN 2002-1 (2005)**. The method to use is **strain rate control** up to yield strength. The test after yield strength can be controlled in any of the ways detailed within the indicated standards (extensometer or crosshead)


Temperature: Room Temperature - Ambient

Strain rate control: Speed up to yield strength:  $0.005 \text{ min}^{-1}$

Speed up to rupture:  $0.05 \text{ min}^{-1}$

The tests shall be performed respecting the following conditions:

- One operator only
- One testing machine only
- Tests performed in sequence

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4. The following information is to be reported:

Characteristic	Unit	Significant digits	Mandatory / Not mandatory	Evaluated Yes/no
Room Temperature	°C	XX,X	Mandatory	No
Specimen diameter and gauge length before and after testing	mm	XX,XX	Mandatory	No
Test method	N/A	N/A	Mandatory	No
Elongation measurement method	N/A	N/A	Mandatory	No
End-fitting sample method	N/A	N/A	If applicable	No
Control mode up to yield strength and rate used	N/A	N/A	Mandatory	No
Control mode after yield strength and rate used	N/A	N/A	Mandatory	No
Ultimate Tensile Strength (Rm)	MPa	XXX	Mandatory	<b>Yes</b>
Yield Strength (Rp 0,2)	MPa	XXX	Mandatory	<b>Yes</b>
Elongation 4D (A4D)	%	XX,X	At least one result has to be provided	<b>Yes</b>
Elongation 5D (A5D)	%	XX,X		<b>Yes</b>
Reduction of Area (Z)	%	XX,X	Not mandatory if not qualified	<b>Yes</b>
Young's Modulus (E)	GPa	XX,X	Not mandatory if not qualified	<b>Yes</b>

All evaluated characteristics will be analysed according to the algorithm A and S (ISO 13528 – 2015) and evaluated using z-score.

5. Testing shall start **as soon as test specimens are received**. Please contact the following e-mail address for any technical or administrative query.

<b>Submission date :</b>	<b>June 1<sup>st</sup>, 2020</b>
<b>Technical and administrative support :</b>	<a href="mailto:info@ptpscheme.com">info@ptpscheme.com</a>


6. Instructions for submission of results are detailed on the website:

<https://ptpscheme.com>

7. To ensure the confidential treatment of your results in the final report, you will be allocated a unique identity number when you register for the program.

8. Collusion and falsification of your PTP results are totally forbidden. In case of identification or suspicion of collusion or falsification, the laboratory will be excluded from the program and the sponsors will be immediately informed. The sponsors could ask you proofs of your records and analyses, so be sure to conserve data, curves and specimens.

9. The tested specimens do not need to be sent back to the PTP office.

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APPENDIX : Instructions for IRR participation

The Internal Round Robin participation (IRR) is **optional** and **independent** from your PTP participation.

**Confidentiality** : The IRR results and reports are confidential and only accessible by your laboratory. They are not shared with the scheme sponsors or any other accreditation or certification bodies.

The extra samples shall be tested according to the following table:

	Operator 1	Operator 2	Operator 3	Operator 4	Operator X
<b>Test machine 1</b>	PTP kit (5 samples)	3 samples	3 samples	3 samples	3 samples
<b>Test machine 2</b>	3 samples				
<b>Test machine 3</b>	3 samples				
<b>Test machine Y</b>	3 samples				

**Operator 1 (OP1)** is to be the most experienced operator currently conducting tests on a regular basis and shall perform tests on all machines (TM1, TM2, TM3...)

**Test Machine 1 (TM 1)** is to be the most utilised machine for this test in your laboratory and shall be tested by all operators (OP1, OP2, OP3...)

**Example:** A laboratory has 2 operators and 3 test machines. They receive a PTP kit and 9 extra specimens.

Operator 1 shall test the PTP kit on TM1, 3 specimens on TM2 and 3 specimens on TM3.

Operator 2 shall test 3 specimens on TM1.

The IRR results have to be submitted on a separate results form available on the PTP website.

The identification of operators and test machines you provide will appear on the IRR final report. These identifications will not be seen by other laboratories.

The IRR results will be classified against the acceptance classes of the kit 1-2-2020.

**Reminder:** Laboratories are not permitted to switch specimens between the PTP kit and IRR samples. The traceability of the samples will be checked during the evaluation. Laboratories found to have switched samples will invalidate their PTP participation.

REVISION HISTORY

Issue Date	Issue N°	Changes
02/01/2020	1	Document creation
19/03/2020	2	Modification of the results submission date