

## **Technical Definition**

Tensile Test (Ambient Temperature) - Al 2024

Please comply with the HSE policy of your laboratory for each test performed.

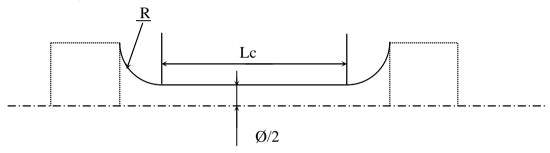
### Instructions to participant laboratories

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

1. 5 blanks ( Ø16x75 mm) are supplied to each participant − 5 results must be provided.

If one result is missing your test will be considered as an outlier. An RCA shall be completed.

2. The samples shall be machined as follows:



|           | SI unit (mm) |       |      | Imperial unit (inch) |      |      |
|-----------|--------------|-------|------|----------------------|------|------|
|           | Diam (Ø)     | Lc    | R    | Diam (Ø)             | Lc   | R    |
| Tolerance | ± 0.127      | min   | min  | ± 0.005              | min  | min  |
| Dimension | 6.35         | 31.75 | 4.76 | 0.25                 | 11⁄4 | 3/16 |

Nota: With a diameter of 6.35 mm the expected failure load is at about 20kN maximum, if you cannot test this geometry on your machine, then it is allowed to use a smaller diameter.

3. All tests have to be performed at room temperature in accordance with the requirements of ASTM E8/E8M-16a, ISO 6892-1 (2016) 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)

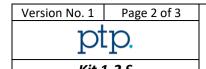
**Temperature:** Room Temperature - Ambient

Strain rate control: Speed up to yield strength: 0.005 min<sup>-1</sup>

Speed up to rupture: 0.05 min<sup>-1</sup>

The tests shall be performed respecting the following conditions:

- One operator only
- One testing machine only
- Tests performed in sequence
- 4. The following information is to be reported:



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| Characteristic  | Unit | Significant digits | Mandatory / Not mandatory      | Evaluated<br>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                      | Yes                 |
| Yield Strength (Rp 0,2)                                     | MPa  | XXX                | Mandatory                      | Yes                 |
| Elongation 4D (A4D)   | %    | XX,X               | At least one result has        | Yes                 |
| Elongation 5D (A5D)   | %    | XX,X               | to be provided                 | Yes                 |
| Reduction of Area (Z)                                       | %    | XX,X               | Not mandatory if not qualified | Yes                 |
| Young's Modulus (E)   | GPa  | XX,X               | Not mandatory if not qualified | Yes                 |

All evaluated characteristics will be analysed according to the algorithm A and S (ISO 13528 – 2022) and evaluated using z-score.

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

| Submission date              | 31 <sup>st</sup> December 2023 |  |
|------------------------------|--------------------------------|--|
| Technical and administrative | info@ptpscheme.com             |  |
| support                      |                                |  |

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 for proof of your results, 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.

<u>Confidentiality</u>: 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 |
|----------------|---------------------|------------|------------|------------|------------|
| Test machine 1 | PTP kit (5 samples) | 3 samples  | 3 samples  | 3 samples  | 3 samples  |
| Test machine 2 | 3 samples           |            |            |            |            |
| Test machine 3 | 3 samples           |            |            |            |            |
| Test machine Y | 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...)

<u>Example:</u> 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 1-1 S.

<u>Reminder:</u> 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.

#### **VERSION HISTORY**

| Version Date | Version N° | Changes           |
|--------------|------------|-------------------|
| 26/01/2023   | 1          | Document creation |