

# Thorwell Standard PLA Plus PLA Plus White

MaterialID MAT0154



3DPiceland Labs  
Generated with 3DPiceland Engineering Platform v60.0.6  
WORKFLOW-RELIABILITY - Bug Fixes and Workflow  
Reliability  
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**Traceability boundary:** canonical per-module measured dates are shown below. Session identifier, time of day, operator, printer/slicer profile and environmental conditions are Not recorded and are never inferred.

## Measurement provenance

Canonical SQLite measured dates use ISO format; missing dates remain Not recorded.

| Module    | Measured date |
|-----------|---------------|
| Tensile   | Not recorded  |
| Impact    | Not recorded  |
| Stiffness | Not recorded  |

|                           |                              |                                         |                                   |
|---------------------------|------------------------------|-----------------------------------------|-----------------------------------|
| Status<br><b>Complete</b> | Result modules<br><b>3/3</b> | Specimen/result<br>records<br><b>40</b> | Public details<br><b>Approved</b> |
|---------------------------|------------------------------|-----------------------------------------|-----------------------------------|

## Specimen and result quality

| Module  | Orientation | Average       | Std.<br>dev. | CV     | Specimens | Confidence | Validation |
|---------|-------------|---------------|--------------|--------|-----------|------------|------------|
| Tensile | Upright     | 17,55<br>MPa  | 4,206<br>MPa | 0,24%  | 10        | 10/10      | OK         |
| Tensile | Flat        | 39,802<br>MPa | 7,861<br>MPa | 0,198% | 9         | 9/10       | OK         |

| Module    | Orientation      | Average                   | Std. dev.                | CV     | Specimens | Confidence | Validation |
|-----------|------------------|---------------------------|--------------------------|--------|-----------|------------|------------|
| Impact    | Upright          | 174,221 kJ/m <sup>2</sup> | 37,934 kJ/m <sup>2</sup> | 0,218% | 10        | 10/10      | OK         |
| Impact    | Flat             | 462,226 kJ/m <sup>2</sup> | 67,151 kJ/m <sup>2</sup> | 0,145% | 10        | 10/10      | OK         |
| Stiffness | Three-point bend | 2635,889 MPa              | n/a                      | n/a    | 1         | Complete   | OK         |

## Recorded native inputs

| Module    | Input set                 | Recorded values                                                      |
|-----------|---------------------------|----------------------------------------------------------------------|
| Tensile   | Upright force inputs (N)  | 134, 67, 127, 103, 128, 146, 148, 111, 97, 80                        |
| Tensile   | Flat force inputs (N)     | 301, 161, 293, 238, 280, 304, 192, 273, 287,                         |
| Impact    | Upright needle inputs (%) | 10,00, 9,00, 13,50, 7,50, 12,00, 8,50, 12,00, 7,50, 10,00, 13,00     |
| Impact    | Flat needle inputs (%)    | 34,00, 21,00, 22,00, 29,00, 25,00, 26,00, 28,00, 32,00, 27,00, 28,00 |
| Stiffness | Revolutions / degrees     | 1 / 340                                                              |

## Approved test notes

## Method and equipment context

Purpose-built tensile, pendulum impact and three-point bend apparatus are used with the governed Settings Manager constants consumed by ResultsService. Results are comparative and do not claim accredited-laboratory equipment.

[Testing methodology](#) · [Engineering methodology whitepaper](#) · [Download PDF](#)

reports/test-sessions/MAT0154/