

FORM CPV-2
RECOMMENDED FORM FOR QUALIFYING THE LAMINATE DESIGN
AND THE LAMINATE PROCEDURE SPECIFICATION USED IN THE FABRICATION
OF COMPOSITE REINFORCED PRESSURE VESSELS (CLASS III)
(Revision B — 2023)

As required by the Provisions of the ASME Boiler and Pressure Vessel Code

Qualification Test Report No. _____

Laminate Procedure Specification Number and Revision _____

A change in any of the essential variables denoted by an asterisk below requires a new Laminate Procedure Specification.

*Fiber _____
(Manufacturer and Designation)

*Sizing or Finish _____
(Manufacturer and Designation)

*Resin _____
(Type, Manufacturer, and Designation)

*Curing Agent _____
(Type, Manufacturer, and Designation)

Curing Agent/Resin Ratio _____

Viscosity of Resin System _____ cP (min.) to _____ cP (max.) @ _____
(Temperature)

*Manner of Impregnation _____
(Prepregnation, Wet Wind, Postpregnation)

*Percent Fiber by Weight in Composite _____
[See Note (1)]

*Variables of Winding Process [See Note (2)] _____

Helix Angle _____ (Measured on Cylinder Between Axis and Band Path)

Circumferential Band Density _____ ends/in. (ends/mm) _____

Circumferential Band Width _____
(Length)

Tension: Per Strand (End), Roving, or Band (Specify Which) _____ per _____
(Load)

Method of Control _____ Program _____

Layer Sequence _____
[See Note (2)]

*Primer _____
(Type, Manufacturer, and Designation)

Primer Application Method _____

*Primer Curing Schedule _____ for _____ hr _____ min _____
(Temperature)

NOTES:

- (1) Where a range of values or a tolerance applies, state the applicable range or tolerance.
- (2) (a) Use "X" to indicate layer of helical winding.
(b) Use "O" to indicate full layer of circumferential windings (down and back).
(c) Use "h" to indicate half-layer of circumferential windings (down only).

FORM CPV-2 (CONT'D)
(Revision B — 2023)

Exterior Treatment (Non-Structural, Describe) _____

| | | | |
|------------|------------|--------------|------------------|
| Fiber Type | Fiber Form | Manufacturer | Manufacturer No. |
|------------|------------|--------------|------------------|

Material No. 1 _____

Material No. 2 _____

*Inner Liner _____
(Material, Grade, and Thickness [see Note (1)].)

*Liner Size and Configuration _____
(OD) _____ (Length) _____ (Cylindrical, Spherical, Other)

Laminate Strength _____ psi (kPa) Method of Measurement _____
(If Other Than ASTM D 2290)

Interlaminar Shear Strength _____

Acoustic Emission Examination Report Number _____

*Laminate Curing Schedule _____ for _____ hr _____ min _____
(Temperature)
_____ for _____ hr _____ min _____
(Temperature)
_____ for _____ hr _____ min _____
(Temperature)
_____ for _____ hr _____ min _____
(Temperature)
_____ for _____ hr _____ min _____
(Temperature)

Manner of Measuring Temperature: Oven Air _____ Wrong Surface _____

Vessel Head _____ Other (Describe) _____

*Barcol Hardness _____
(Use a separate sheet to record individual readings and their location [see Note (1)].)

Laminate Thickness _____
(Use a separate sheet to record individual readings and their location [see Note (1)].)

*Volumetric Expansion _____

Gel Time _____ min Peak Exothermic Temperature _____
(Temperature)

Minimum Temperature Cycle Test: _____ from _____ to _____ at _____
(No. of Cycles) (Pressure) (Pressure)
_____ maximum test temperature

Maximum Temperature Cycle Test: _____ from _____ to _____ at _____
(No. of Cycles) (Pressure) (Pressure)
_____ minimum test temperature
(Temperature)

Burst Pressure _____ Qualification Pressure _____
(Pressure) (Pressure)

Mode of Failure _____

FORM CPV-2 (CONT'D)
(Revision B — 2023)

ASME BOILER AND PRESSURE VESSEL CODE, Section X _____ (Year) _____ (Case No.)

We certify that the statements in this Specification are correct:

Date _____, _____ Signed _____ (Fabricator)

By _____

Certificate of Authorization Number _____ Expires _____

CERTIFICATION BY SHOP INSPECTOR
OF QUALIFICATION OF LAMINATE DESIGN AND LAMINATE PROCEDURE SPECIFICATION

Laminate Procedure Specification of _____ at _____
For _____ process of fabricating vessel(s) described in
User's Design Specification Number and Revision _____ and
Fabricator's Design Report Number and Revision _____

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors
and/or the State or Province of _____ and employed
by _____ of _____

have inspected the pressure vessel and witnessed tests described in the Qualification Test Report of the Laminate Design
and Procedure Specification and state that to the best of knowledge and belief, the Fabricator has constructed this part in
accordance with the ASME BOILER AND PRESSURE VESSEL CODE, Section X, Class III and the Laminate Design and
Procedure Specification being qualified. By signing this certificate, neither the inspector nor his employer makes any
warranty, expressed or implied, concerning the design or procedure covered by this Qualification Test Report.
Furthermore, neither the inspector nor his employer shall be liable in any manner for any personal injury or property
damage or loss of any kind arising from or connected with this inspection.

Date _____ Signed _____ Commissions _____
(Authorized Inspector) (National Board Authorized
Inspector Number)