

Licensed Treaters Produce D-Blaze® Interior Fire Retardant Treated Wood Products in Accordance with CSA O80 Standards

The CSA O80 series of Standards cover wood preservation and are designed to “facilitate selection of the appropriate wood species, preservative, penetration, and retention (loading) by the specifier and user of treated wood by more accurately matching the species, preservative, penetration, and retention for **typical moisture conditions and wood biodeterioration agents** to the intended use.”

D-Blaze is used to pressure impregnate wood products to retard flame spread and smoke generation in the event of a fire in applications where the wood is continuously protected from wetting. Because the main purpose of pressure impregnating wood with D-Blaze is much different than pressure impregnating wood with a preservative to protect from biodeterioration agents such as insects and fungi, the CSA O80 Standards that apply to D-Blaze fire retardant treatment differ significantly from those of preservative treated wood products.

The purpose of this bulletin is to summarize the CSA O80 requirements for D-Blaze Fire-retardant-treated wood products (FRTW).

Section 8.9 of CSA O80.1 is the first section in the CSA O80 Standards that references fire-retardant treated products. The pertinent language in this section includes:

8.9 Fire-retardant-treated products

Notes:

1. *This Clause covers the fire retardant treatment of lumber, timber, and plywood using pressure processes. Whereas this Standard specifies exact processing limits and minimum preservative retentions and penetrations for preservative-treated products, it does not do the same for fire-retardant-treated products.*
2. *See also Clause 9.8 of CSA O80.2.*

8.9.1 Performance rating

The flame-spread and smoke developed classification of fire-retardant-treated solid sawn products and plywood shall be determined by tests conducted in accordance with CAN/ULC-S102 or CAN/ULC-S102.2. The specifier shall indicate the required classification for the product.

Note: *The published records of recognized fire-testing laboratories may be consulted for flame-spread ratings of plywood treated in accordance with this Standard.*

8.9.2 Plywood

8.9.2.1 General

Plywood shall meet the applicable requirements for exterior grade plywood specified in CSA O121, CSA O151, CSA O153, and ANSI/HPVA HP-1.



Panels with lumber core construction should not be treated with fire retardants.

The purchaser shall state where the material is to be used and how it will be finished.

8.9.2.2 Moisture content

After treatment, plywood shall be air dried or kiln dried to a final moisture content that approximates the expected moisture content during use. Waviness, grain raising, or checking resulting from treatment with a water-borne fire retardant shall not be cause for rejection.

8.9.3 Lumber — Moisture content

After treatment, material up to 38 mm thick shall be air dried or kiln dried to an average moisture content of 19% or less.

In Section 8.9 note 2 of the statement “See also Clause 9.8 of CSA O80.2” is included. Clause 9.8 is below. The important requirements for FRTW to take note of in 9.8 below are pressure limitations and drying requirements.

9.8 Fire-retardant-treated lumber, timber, and plywood

9.8.1 Treatment

9.8.1.1 General

The following shall not be used in fire retardant treatment:

- a) steaming
- b) heating in preservative
- c) Boulton drying
- d) expansion baths
- e) final steaming
- f) solvent recovery

9.8.1.2 Pressure limitations

The pressure limitations specified in Clause 9.1 (for lumber and timber) and Clause 9.6 (for wood composites) shall apply.

9.8.2 Drying

9.8.2.1 General

After fire retardant treatment, lumber shall be air or kiln dried to a maximum moisture content of 19%, and plywood shall be air or kiln dried to a maximum moisture content of 15%. The equilibrium moisture content of wood products treated with some fire retardants differs significantly from that of untreated wood products. Measurement using resistance-type moisture meters is affected by the presence of the fire retardant compounds. Accordingly, users of a fire-retardant-treated product shall contact the manufacturer for recommended procedures and/or correction factors for moisture content measurements.

9.8.2.2 Air drying

When air drying is used, material shall not be exposed to conditions that cause fire retardant leaching.



9.8.2.3 Kiln drying of interior fire retardants

During kiln drying of lumber or plywood after treatment with interior fire retardant formulations, the dry bulb temperature of the kiln shall not exceed 71°C.

In 9.8.1.2 of Section 9.8 above, it indicates that pressure limitations are specified in Clauses 9.1 (for lumber and timber) and Clause 9.6 (for wood composites – includes plywood). Applicable language from Clauses 9.1 and 9.6 are included below to show the pressure limitations.

9.1.4.2 Maximum pressures

The following pressures shall not be exceeded:

- a. eastern white, Jack, lodgepole, ponderosa, red, and southern pine: 1250 kPa (181 psi)
- b. Hem-Fir, Hem-Fir North, and eastern and western hemlock: 1250 kPa (180 psi)
- c. Eastern & Western Spruce-Pine-Fir, and Engelmann & western white spruce: 1040 kPa (150 psi)
- d. coastal Douglas fir: 1040 kPa (150 psi)
- e. western larch: 1040 kPa (150 psi)
- f. western red cedar and yellow cypress: 1040 kPa (150 psi)
- g. beech, birch, and maple: 1200 kPa (174 psi)
- h. oak: 1720 kPa (249 psi)

9.6 Wood composites

Note:

- 1. *This Clause applies to pressure-treated plywood and structural glued-laminated timber.*

9.6.3.2 Maximum pressure

The maximum pressure used for treating assembled members shall not exceed 1040 kPa (150 psi).

In summary, the main CSA O80 Standards for fire retardant treated wood products that pertain to D-Blaze cover smoke generation and flame spread, the required grade of plywood, moisture content after treatment, maximum kiln dry bulb temperature during drying after treatment, and maximum pressure limitations.



The following table provides a matrix of these Standards, the CSA O80 section or clause they are found in, and ways to ensure conformance has been obtained.

| CSA O80 Requirement or Standard | Section or Clause | Proof of Conformance |
|---|-------------------|---|
| Smoke Generation and Flame Spread | 8.9 | Ink stamp on each piece or sheet of treated material with Underwriters Laboratory® (UL) logo and "ULC-S102" |
| Plywood Grade = Exterior | 8.9.2.1 | Grade stamp on each sheet of treated plywood |
| Plywood Moisture Content After Treatment | 8.9.2.2, 9.8.2.1 | Ink stamp on treated material with "KDAT", name of an accredited 3rd party inspection agency, and "Monitored Per STD DB-90" |
| Lumber Moisture Content After Treatment | 8.9.3, 9.8.2.1 | Ink stamp on treated material with "KDAT", name of an accredited 3rd party inspection agency, and "Monitored Per STD DB-90" |
| Kiln Drying After Treatment Maximum Kiln Dry Bulb Temperature of 71 °C (160 °F) | 9.8.2.3 | Ink stamp on treated material with "KDAT", name of an accredited 3rd party inspection agency, and "Monitored Per STD DB-90" |
| Pressure Limitations | 9.1, 9.6, 9.8.1.2 | Treating Plant Certificate of Treatment |

Lumber and plywood pressure treated with D-Blaze by Viance licensed treater customers in accordance with American Wood Protection Association (AWPA) Standard P50 and with the conditions outlined in AWPA U1 Commodity Specification H- Fire retardants, AWPA and kiln dried at temperatures not exceeding 160°F (71°C) in accordance with AWPA Standard T1, Section H: Fire Retardant Lumber and Plywood in addition to Viance D-BLAZE® INTERIOR FIRE RETARDANT TREATED LUMBER AND PLYWOOD - STANDARD DB-90 will comply with the requirements of the CSA O80-1 standard, UL® Standard 723 and ULC® Standard S102.

