

**SPRAY FOAM INSULATION COLOUR: LIGHT GREEN**

PRODUCT USAGE

Enverge® 1860 CDN spray-applied polyurethane foam is a CAN/ULC S705.1-15 compliant spray-applied, two component, closed cell insulation system. The product is formed by the reaction of proprietary resin blend and polymeric methylene diphenyl diisocyanate. The resin blend is comprised of polyols, additives, fire retardants and low global warming potential blowing agents. Enverge Enverge 1860 CDN is light green in colour. The spray applied nature of Enverge 1860 CDN spray foam allows the material to seal cracks and voids, expanding to form a monolithic structure with high R-value (resistance to heat flow). Enverge 1860 CDN spray foam can form various control layers for buildings and structures: insulation, air barrier, moisture retarder and weather barrier. Enverge 1860 CDN is manufactured under a quality control program administered under the auspices of ISO 17025.

This application guide is general reference only. Installers must be certified by Urethane Foam Consultants (UFC) for proper application of Enverge® 1860 CDN™ in compliance with the requirements of CAN/ULC-S705.2 and the Site Quality Assurance Program (SQAP). UFC is the designated Site Quality Assurance Program (SQAP) provider for Enverge® 1860 CDN™.

SAFETY

It is critical to read and become familiar with the Safety Datasheets prior to working with Enverge 1860 CDN spray foam liquid components. During application respiratory protection is required for the applicator and bystanders or helpers. For more information consult Safety Datasheets, www.Envergesprayfoam.com or www.spraypolyurethane.org

PERSONAL PROTECTIVE EQUIPMENT (PPE)

SKIN - Wear gloves, coveralls, apron and boots as necessary to prevent contact of liquid components or partially-cured spray foam with skin. When handling liquid components, gloves should be made of nitrile, neoprene, butyl, or PVC.

EYES - Protect eyes while handling liquid components or spraying with safety goggles or safety goggles combined with a face shield. During spray application, eye protection may be provided by a full-face or hood respirator.

RESPIRATION - Contractors engaged in the application of Enverge spray foam must have a written respiratory protection program for employees handling or applying Enverge spray foam materials. Depending on the situation, respiratory protection may include dust masks, air-purifying respirators (APR), powered air-purifying respirators (PAPR), or supplied-air respirators (SAR).

VENTILATION - Provide ventilation and other engineering controls to exhaust vapors from work areas and to protect building occupants and other workers on site.

START UP & APPLICATION PROCEDURES

HANDLING OF LIQUID COMPONENTS

Applicators should use engineered controls and proper PPE before handling liquid components. Use caution in removing bungs from 55-gallon drums. Loosen ¾-inch bung and let gas escape before completely removing. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information refer to “Working with MDI and Polymeric MDI: What You Should Know,” Reference No. AX 205, published by Alliance for the Polyurethanes Industry, 1300 Wilson Boulevard, Arlington, VA 22209, www.polyurethane.org.

SPRAY RIG & DRUM PREP

If this installation requires changing the spray rig system from a closed cell product to an open cell product **OR** an open cell to a closed cell, flush B-side (resin) with soapy water to remove the product first. Then flush the water in the system out with the new open or closedcell product. Remember to flush the entire B-resin side including recirc lines, proportioner, and spray hose.

AMBIENT CONDITIONS

Regular Grade	10+°C & < 80% Relative Humidity
Winter Grade	-1°C to 23.8°C & < 80% Relative Humidity

APPROVED SUBSTRATES

Approved for application to gypsum, wood, concrete, metal, and masonry.

SUBSTRATE REQUIREMENTS

All surfaces to be sprayed should be clean and free from contaminants such as oil, grease, wax, rust, loose dirt, and water. Additionally, the substrate must be structurally stable. Wood substrates should have a moisture content no greater than 19% before foam application. Certain metal surfaces may need sandblasting and priming to achieve proper adhesion. For further details on surface preparation, contact an Enverge technical service representative. Recommended substrate temperatures are 10°C to 49°C. Temperatures colder than what are recommended can result in the foam cracking and popping off of the substrate. For quicker removal of excess spray foam use a release agent on stud facing. If there are concerns about adhesion, it's recommended to create a mock-up, apply the foam under similar conditions to those expected on-site, and test for adhesion and cohesion.

START UP & APPLICATION PROCEDURES (CONT.)

DRUM TEMPERATURE REQUIREMENTS

Drum temperature for application should be a minimum of 15°C, and a maximum of 26°C.

EQUIPMENT SETTINGS

In order for the drum to be ready for use, the drum must be in a temperature range where your proportioner can reach required spray temperatures.

Pre-Heaters - Iso (A)	(37°C to 54°C)
Pre-Heaters - Poly (B)	(37°C to 54°C)
Hose Heat	(37°C to 54°C)
Recommended Spray Pressure	1,000 to 1,200 psi (dynamic)
Shelf Life	A Side: 12 mo. B Side: 6 mo.

*The values in the Equipment Settings chart show initial optimum settings. Actual operating temperatures vary as ambient air, humidity, moisture, and substrate temperatures vary. Extreme conditions will affect the adhesion, cured physical properties, and yield of the foam. Applicator must make adjustments depending on conditions.

TEMPERATURE SETTING EXAMPLE

If your drum temperature is 27°C and you have a rig with a delta T of 10°C, your max spray temperature can only be 54°C. With this information it is important to know the delta T of your proportioner and drum temperature to achieve the proper spray temperature. Do NOT recirculate or agitate Enverge OnePass HFO.

TYPICAL CHEMICAL ATTRIBUTES

Component - Isocyanate	Viscosity (25°C) - 200 cps	Density - 1.24 kg-m-3
Component - Resin	Viscosity (25°C) - 700 cps	Density - 1.24 kg-m-3

These values are typical. Values will vary and should not be considered part of the product specifications. It is imperative that the trained applicator read and understand this technical datasheet and SDS to process the material correctly and understand environmental and equipment limitations.

START UP & APPLICATION PROCEDURES (CONT.)

APPLICATION DEPTHS

1. Enverge 1860 CDN should be applied at a minimum pass thickness of 13 mm and a maximum pass thickness of 50 mm as per ULC-S705.2 application standard. If total thickness exceeds 50 mm, apply multiple passes allowing a minimum of 10 minutes between passes.
2. Enverge 1860 CDN is typically applied in multiple passes to completely or partially fill the construction cavity. (It is acceptable practice to leave an air space between the finished Enverge 1860 CDN surface and the wall board.) Use a “picture frame” spray technique whereby the joints between the stud/rafter and the exterior sheathing are initially sprayed to assure an air seal and adhesion to the studs. The construction cavity is then partially or fully filled with Enverge 1860 CDN to the thickness required to attain the specified R-value. Spray technique may be adjusted for on-site conditions to obtain desired thickness and properties.
3. Where Enverge 1860 CDN is applied between joists (below a floor or above a ceiling), apply sufficient foam thickness to achieve the desired R-value (the cavity does not need to be completely filled).
4. Cavities formed by studs, joists or rafters need only be filled to the thickness required to meet the specified R-value. In construction cavities to be covered with gypsum board, it is permissible to leave an air space between the spray foam surface and the gypsum board. Foam should be fully adhered to all substrate surfaces including stud, joist or rafter surfaces to assure an air seal; no gaps are permitted between the spray foam and the structural lumber.
5. Avoid foam application to under the following circumstances and/or substrates:
 - a. Areas or surfaces which have a service temperature exceeding 82.22° C.
 - b. Inside of electrical junction or electrical outlet boxes.
 - c. In contact with wet surfaces or onto surfaces where snow or ice is present

CODES CONSIDERATIONS

Please reference refer to Part 9 and Part 3 of the National building code of Canada (NBC) for the requirements regarding the protection of foamed plastic insulations

FOLLOW THE MANUFACTURER GUIDELINES WHEN APPLYING THERMAL AND IGNITION BARRIER COATINGS

AFTER APPLICATION

INSPECT APPLICATION

Look for good cell structure and adhesion. Remove any unreacted chemical from wall due to pressure imbalances while triggering spray gun. Look for a consistent skin surface of the foam and be sure product is curing.

CLEAN UP

Clean off all overspray and overfill from the interior stud facings. Where stud cavities have been overfilled, shave off the foam face to provide a surface flush with the stud for drywall installation. Remove all masking materials.

RE-ENTRY & OCCUPANCY

Enverge 1860 CDN spray foam reacts and cures within seconds of application. Re-entry can occur 1 hour after application with proper ventilation. Occupancy times will vary depending on factors including ventilation. Typically, when ventilating you need 10 air exchanges per hour for a 25 hour period following the conclusion of spray application and occupancy may occur at that time.



The descriptions, data, designs, and information contained herein are presented in good faith and believed to be accurate. This information is provided for guidance ONLY. Many factors will affect the processing or application of Enverge products. It is necessary that you make tests to determine ultimate suitability for Enverge products for your particular application. All persons involved in construction projects including spray polyurethane foam have an independent obligation to ascertain that their actions are in compliance with current federal, state and local laws, codes, and regulations and should consult with legal counsel concerning such matters. The guidance is necessarily general in nature and individuals may vary their approach with respect to particular practices based on specific factual circumstance, the practicality and effectiveness of particular actions and economic and technological feasibility. No warranties of any kind, either expressed or implied, including warranties of merchantability or fitness for a particular purpose, are made regarding products described, data, or designs presented. In no case shall the descriptions, information, data, or designs provided be considered a part of our terms and conditions of sale. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. You expressly agree to release Holcim Solutions and Products US, LLC from liability in tort or contract based on the technical information provided. All such information is accepted at your own risk.