

Product Data Sheet

FOAM SEALANT

One-Component Polyurethane

ZERODRAFT

Professional Weatherization Materials

EXPLANATION

Buildings with gaps, cracks, and "holes" in them that suffer from uncontrolled air flow (air leakage) cost more money to heat and air condition, are drafty and uncomfortable, have poorer quality indoor air, deteriorate faster, and generate more occupant complaints than buildings where air leakage is properly controlled.

Air leakage through openings in the building envelope is caused by air pressure differences due to stack effect, wind and ventilation. Alone, or in combination, the three effects typically represent 15 to 40% of the building's thermal load, or roughly 4 – 8% of the total energy requirement (ASHRAE Handbook).

Uncontrolled air flow is responsible for the corrosion and decay of building materials (thereby reducing life expectancy), increased maintenance costs, poor appearance – and in the event of a fire – the rapid spread of flames and smoke.



Zerodraft Foam Sealant being applied to base of wall.

Zerodraft Foam Sealant seals gaps and cracks in walls, roof-wall connections, the perimeter of door and window openings, mechanical and electrical penetrations, and similar locations to help provide a continuous, impermeable barrier to air infiltration or loss.

DESCRIPTION

Zerodraft Foam Sealant is a polyurethane foam consisting of a single mix of chemicals (MDI Monomer and Isobutane/Propane propellant) in one pressurized container and is formulated so that it will cure when exposed to the moisture present in air.

The material mix is ejected from a gun foam container as a sticky 6 mm (1/4") to 50 mm (2") diameter bead and provides high yield and quick curing. For application purposes, the gun foam system is the most efficient means of

dispensing foam, offers the greatest control, optimum accuracy and unlimited range of applicator motion – an installer convenience when going up and down ladders, around corners, or moving from room to room.

USES

Zerodraft Foam Sealant is intended to be installed at junctions between different building elements and around penetrations in a building assembly to control air leakage. Zerodraft Foam Sealant is dispensed as a bead for crack and gap filling. A "gap" is generally between 6 mm (1/4") and 50 mm (2") wide. A "crack" is less than 6 mm (1/4") wide. Zerodraft is generally used where appearance is not critical however the foam sealant can also be trimmed and painted.



Example areas of use for Zerodraft Foam Sealant include:



- crevices in walls
- roof-wall connections



- perimeter of door and window openings



- mechanical and electrical penetrations in walls, floors and roofs (pipe, duct, conduit, etc.)



- similar locations, to provide a continuous impermeable barrier to air infiltration or loss



Note: See Zerodraft Insulating Air Sealant product data sheet literature (two-component polyurethane) for sealing "holes" larger than 50mm(2").

LIMITATIONS

Do not use Zerodraft Foam Sealant:

- where subject to a continuous service temperature outside the range of -60°C to +80°C (-47°F to 176°F) such as in contact with chimneys, heater vents, steam pipes, etc. unless the sealant has been designed for use at other service temperatures as specified by Zerodraft.
- on or in the vicinity of heat emitting devices such as recessed lighting fixtures, at a lesser distance than 75 mm (3") or as specified by the authority having jurisdiction.
- inside electrical outlets or junction boxes
- left exposed to continuous ultraviolet light
- immersed in water for long periods of time



FEATURES

High yield; a standard 24 oz. (682 ml) container of gun foam will produce 280 linear metres (918 lin. ft.) of 13 mm (1/2") diameter bead.

Quick cure; tack-free in 8 minutes and cut-through in 45 minutes (50% RH).

Fire retardant; self-extinguishing in absence of flame. Produces Flame Spread Rating of less than 25 and Smoke Developed Rating of less than 50 when tested to CAN/ULC-S102 and ASTM E-84 in a range of bead sizes. (Not a fire stop; see Zerodraft Air Seal/Fire Stop Systems literature).



Zerodraft Foam Sealant being applied to seal gap between window frame and rough opening.

Safe formula; does not contain ureaformaldehyde, CFC's (chlorofluorocarbons), or solvents.

Excellent insulating properties; 70% closed cell content provides RSI Value of 0.951 per 305 mm thickness (R Value of 5.4 per 1" thickness) which helps in reducing heating and cooling costs.

STANDARDS CONFORMANCE

Zerodraft Foam Sealant conforms to:

CAN/ULC-S710.1 Standard For Thermal Insulation – Bead Applied One-Component Polyurethane Air Sealant Foam, Part 1: Material Specification.

CAN/ULC-S710.2 Standard For Thermal Insulation – Bead Applied One-Component Polyurethane Air Sealant Foam, Part 2: Application.

CCMC 09552 Product Evaluation (Canadian Construction Materials Centre, NRC).

INSTALLATION

Storage/Shelf Life: Do not expose to heat or store above 50°C (120°F). Do not leave in vehicle. Shelf life is 18 months.

Surface Preparation: Apply to clean substrates free of oil, grease or excessive moisture.

Application: Zerodraft Foam Sealant is applied only by

accredited Zerodraft applicators.

Essentially, these specialist contractors seal gaps, cracks and holes with appropriate materials and systems thereby ensuring a continuous plane of airtightness in the building envelope.

In addition, the specialist contractors are familiar with the need for "decoupling" and "compartmentalization" within buildings. Floors are decoupled from each other to prevent vertical leakage while other areas of the building are compartmentalized to help equalize pressure differences.

For example, at the top of the building mechanical rooms are isolated and compartmentalized by weatherstripping doors, fire stopping relevant penetrations through fire rated walls, reducing the size of cable holes in the elevator shafts and door controller cable penetrations, as well as busbar and other electrical penetrations through the floor of the elevator rooms. At the bottom of the building, the many penetrations found in the underground parking areas are effectively sealed. Doors are weatherstripped. Open cable conduit duct and pipe penetrations and gaps between block infill and slabs are sealed. Vertical shafts, where fire doors with large gaps – some up to 50 mm (2") – are weatherstripped, thereby decoupling floor to floor areas and reducing stack effect pressures.

Other areas to consider include fire cabinets, garbage disposal rooms, electrical rooms and other service shafts.

Zerodraft Foam Sealant is also effective in sealing and insulating thermal "bridges" at roof-wall junctions, beam penetrations, and other interruptions affecting the integrity of wall and roof systems.

Zerodraft Foam Sealant is only one product used in the air leakage sealing process. Zerodraft Insulating Air Sealant for larger holes, Zerodraft Air Seal/Fire Stop Systems, and Zerodraft Door and Window Weatherstripping are all employed for sealing, decoupling and compartmentalization work. See other Zerodraft literature.

Finishing: Zerodraft Foam Sealant, a cream coloured product, is typically covered up with interior finishes such as plaster, drywall, paneling, trim or other finish. Alternatively the sealant may be cut smooth (trimmed) and painted. In plenum or other areas not exposed to ultraviolet radiation, Zerodraft Foam Sealant may be left exposed.

Building Codes: Zerodraft Foam Sealant complies with the following Sections of the National Building Code:

- 3.1.5.2 Minor Combustible Components (Zerodraft Foam Sealant is permitted in buildings required to be of non-combustible construction).
 - 5.4.1.2 Air Barrier System Properties (Zerodraft Foam Sealant falls within the maximum allowable air leakage rate of 0.02 l/s·m²) measured at an air pressure difference of 75 Pa. (See Appendix A reference following).
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TECHNICAL DATA*

PROPERTY	TEST METHOD (ASTM)	RESULT
Density	D-1622	1.3 to 1.8 lbs./cu. ft.
Compressive Strength	D-1621	11 psi
Tensile Strength	D-1623	26 psi
% Elongation at Break	-	12%
Shear Strength	C-273	18 psi
Shear Strain	C-273	38 psi
% Closed Cell Content	D-2856	70%
Thermal Resistance	C-518	R4.5
Water Vapour Transmission	E-96	3.3 perm inch
Max. Service Temperature of Cured Foam	-	115°C (240°F)
Ideal Application Temperature	-	15.6°C to 32.2°C (60° to 90°F)
Surface Burning Characteristics	E-84	Flame Spread 20 Smoke Developed 25 (contains fire retardant, Class 1 foam)

* Test reports are available upon request.

- A-6.4.1.2 (1) and (2) Air Leakage Through The Air Barrier System (Zerodraft Foam Sealant falls within the recommended maximum allowable leakage rates as related to warm and cold side temperatures and humidity conditions).

Health/Safety: A Material Safety Data Sheet is provided with every case of Zerodraft Foam Sealant. Instructions for the safe handling, use and disposal of the materials and/or containers is provided on the label of each container.

Packaging: 24 oz. (682 ml) containers, 12 containers per case.

WARRANTY

Normal 1 year construction warranty.

MAINTENANCE

No maintenance required.

AVAILABILITY & BUDGET PRICING

Zerodraft products and services are available throughout North America. Zerodraft will review drawings (and/or the building for retrofit work) and provide budget pricing on a project-by-project basis. Ultimately, the cost of sealing is estimated on a lineal metre, square metre and/or unit cost basis for doors, windows and different types of penetrations.

TECHNICAL SERVICES

Zerodraft provide air leakage control advisory services from preliminary design through to application, including the following:

- Air sealing recommendations and technical advice for both new work and retrofit applications (asset protection).
- Design and specification assistance.

- Air leakage investigation/testing, including energy audits and pay back projections.

RELATED DATA

- Zerodraft Insulating Air Sealant literature (for larger "holes").
- Zerodraft Air Seal/Fire Stop Systems literature (for ULC fire rated assemblies).
- Zerodraft Door and Window Weatherstripping literature.
- CSC (Construction Specifications Canada) Air Barriers "Digest" and "Master Specification", March 1990.
- "Does Your Building Suck?", CONDOBUSINESS Magazine, September 2001.
- "Sealing the Envelope", Canadian Property Management Magazine, September 2001.
- "Urethane Foams as Insulating Sealants", Construction Canada Magazine, March/April 1997.
- "Urethane Foams and Air Leakage Control", Home Energy Magazine, July/August 1995.

SPECIFICATION (Short Form)

SPEC NOTE: Zerodraft Foam Sealant is often used with Zerodraft Insulating Air Sealant, Zerodraft Air Seal/Fire Stop Systems and Zerodraft Door and Window Weatherstripping. Collectively, with the main air barrier, these products provide a complete system to achieve a continuous impermeable barrier to air infiltration or loss. Refer to the respective Zerodraft literature and Zerodraft Insulating Air Seal/Fire Stop Master Specification.

Air sealant foam: Zerodraft Foam Sealant bead applied gun foam one-component polyurethane sealant to CAN/ULC-S710.1 (Material Specification) as manufactured and distributed by Zerodraft (Division of Canam Building Envelope Specialists Inc.), 125 Traders Blvd. E., Unit # 4, Mississauga, ON, L4Z 2H3. Tel. 1-877-272-2626.

Sealant to be installed by accredited Zerodraft applicators in accordance with manufacturer's instructions and CAN/ULC-S710.2 (Application Standard). Install sealant where indicated on the drawings and/or as specified in the Air Barrier Section (07270) of the Specification.



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