Firestone
Firestone Building Products

TECHNICAL INFORMATION SHEET

Twin Jet

Item Description	Item Number*
Part 1 and kit (Dispensing Accessories) Part 1 in 48 lb pressurized canister, 25' (8.0 m) hose and gun assembly, six mix tips, three 17" extension tubes; 9/16" wrench; one packet O-ring lubricant.	W56RACIAPC1
Part 2 Part 2 in 44 lb pressurized canister.	W56RACIAPC2
Twin Jet Hose and Gun 25' (8.0 m) hose and gun assembly, allows dispensing Twin Jet 25' from canisters. The gun assembly has a trigger lock to prevent accidental dispensing.	W56RACIAPRK
Twin Jet Mixing Tips 10 Mixing Tips per bag.	W56RACIAPRT
Twin Jet Extension Tubes 17" extension tube that allows roofers to stand upright during application for better ergonomics and less fatigue. 10 Extension Tubes per bag.	W56RACIAPRE

***NOTE:** Each item bearing an item number is sold separately.

Product Information

Description:

Twin Jet is a two-component, low-rise polyurethane insulation adhesive applied in beads for adhesive attachment of Firestone-approved roof insulations to acceptable substrates per Firestone specifications. Twin Jet is packaged in portable pressurized canisters, allowing extrusion of Part 1 and Part 2 to the gun and mix tip assembly. Use Twin Jet when ambient and substrate temperatures range from 40° F (4 °C) to 100 °F (38 °C). Firestone Building Products standard warranties are available up to 30-year warranty period. Please refer to the Firestone website at www.firestonebpco.com for specific warranty requirements.

Method of Application:

TWIN JET ADHESIVE CANISTER OPERATING INSTRUCTIONS

Twin Jet is dispensed in a semi-foamed bead that expands to several inches while rising ¾ to 1" (19 to 25 mm) above the substrate. A chemical reaction occurs that secures the board in approximately 4 to 8 minutes after application, depending on temperature and weather conditions. **It is important to determine the open/mate time for the ambient conditions encountered before attempting adhesion.**

INSTRUCTIONS FOR ATTACHING HOSES TO CANISTERS

- Remove hose and gun assembly from Part 1 carton.
- Remove canisters of Part 1 and Part 2 from their carton.
- Shake Canisters Part 1 and Part 2 back and forth 30 times to get best mix. Replace canisters Part 1 and Part 2 back in each respective carton and insert hoses through holes in side of each carton.
- Attach swivel fitting on the red striped hose, finger tight, to the valve outlet on top of the Part 1 canister (red).
- Attach fitting on the clear hose, finger tight, to the valve outlet of the Part 2 canister (white).
- Tighten both fittings with the 9/16" wrench (provided) by turning an additional 1/6 turn until firmly attached. DO NOT OVER TIGHTEN! Close lid of each carton to protect from sun, wind and dirt.

APPLICATION OF MIX TIPS

- Apply lubricant to black rubber O-ring on gun.
- Insert mix tip over O-ring on gun and twist to “lock” it in place.
- Extension Tubes may be attached to mix tip end to facilitate bead application of Twin Jet.

FOR INSULATION ATTACHMENT

- Install only as much roof insulation as can be covered and made watertight during that working day.
- Substrates to receive Twin Jet must be clean, smooth, dry, free of sharp edges, loose and foreign materials, oil, grease, and other contaminants.
- Install Twin Jet only when ambient conditions, bonding substrates and insulations range from 40 °F (4 °C) to 100 °F (38 °C).
- Determine the open/mate time for the ambient conditions encountered before attempting adhesion.
- Dispense a small amount of Twin Jet into a waste container to verify proper mixing and extrusion of Part 1 and Part 2 before dispensing on substrate.

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FOR INSULATION ATTACHMENT CONTINUED

- Apply Twin Jet on the deck substrate in 1¼" beads spaced 12" (300 mm) on center, or as specified to meet wind uplift requirements. Allow adhesive to reach the open/mate time and set the suitable insulation into position.
- Place maximum 4' x 4' (1.22 m x 1.22 m) insulation boards into Twin Jet Insulation Adhesive within the identified mate time.
- Immediately after setting the insulation board, provide continuous pressure using weighty objects such as adhesive pails on the insulation until the adhesive sets (typically 4-8 minutes) to ensure adequate contact between the insulation, substrate and adhesive during the critical set-up period.

Storage:

- Store in original unopened containers between 60 °F (16 °C) and 90 °F (32 °C) until ready for use.
- Do not store in direct sunlight.
- Do not allow Twin Jet to freeze.
- Store canisters with valves facing up.

Shelf Life:

12 months with above storage recommendations.

Reaction Time:

- **Open/mate time:** The time at which long “strings” of tacky material can be pulled away from the surface of the foam when the surface is touched by the edge of a tongue blade depressor or similar implement.
- **Tack-free state:** The time when the upper surface of the material can be touched by a tongue blade depressor or gloved finger without sticking.
- Apply adhesive to deck substrate, when ambient and substrate temperatures range between: 40 °F (4 °C) to 100 °F (4°C – 38 °C).
- Insulation boards must be placed into the Twin Jet Adhesive after it reaches open/mate time, typically 3-5 minutes, but before the adhesive reaches tack-free state, usually 8-9 minutes.

Coverage Rate:

- Bead dispensed at 12" o.c. up to 3500 ft² (325 m²) per set
- Bead dispensed at 6" o.c. up to 1750 ft² (162.5 m²) per set
- Bead dispensed at 4" o.c. up to 1167 ft² (108.3 m²) per set

Clean-Up:

Protect all surfaces in the immediate area of application from accidental contact with adhesive. Uncured foam may be cleaned off by using any commercially available polyurethane foam cleaner.

Precautions:

- Review applicable Safety Data Sheets prior to use.
- Personnel who are sensitive/allergic to isocyanate or polyurethane should not work with Twin Jet.
- At the start and throughout each workday, create test samples with Twin Jet to verify proper mixing, set-up and overall adhesion of insulation to substrate before proceeding.
- Avoid contact with eyes. Wear safety glasses with side shields.
- Avoid breathing vapors. A Self-Contained Breathing Apparatus or Respirator should be used during limited ventilation periods.
- Avoid contact with skin. Wear gloves when dispensing. Wash hands thoroughly after handling.
- Close canister valves when not in use.
- Do not sit or stand on cartons or canisters.
- Do not expose product to open flame or temperatures above 100 °F (38 °C).
- Canisters and contents must be brought to temperature between 70 °F (21 °C) – 90 °F (32 °C) for use.
- Insulation boards shall not exceed 4' x 4' (1.2 m x 1.2 m).
- Replace mix tip and extension tube after 30 seconds of non-use.
- Keep two-component canisters in upright position while dispensing adhesive.

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Precautions Continued:

- Do not pull or lift canisters by the hoses.
- Do not dispense adhesive in areas of spark, open flame or other ignition sources. Do not smoke in areas where Twin Jet adhesive is being applied.
- When using a full canister set, pull the trigger gradually until you reach the desired pressure. Pulling the trigger too aggressively could result in safety risk.
- Do not transfer used hoses to a new canister set in order to prevent cross-contamination.

PARTIALLY USED CANISTERS:

- Turn the valves on each canister to the OFF position.
- Do not drain the chemical from the hoses.
- Slide the safety on the applicator gun into the LOCKED position.
- Remove the old mix tip, but do not discard. Clean the end of the gun to ensure the chemical exit ports are not obstructed.
- Apply fresh lubricant to the black rubber O-ring on gun. Re-attach the old mix tip, which, clogged with adhesive, will keep air and moisture out of the gun and hoses.
- After every 7 days without use, dispense a small amount of chemical to prevent crystallization from occurring in the hoses (no mix tip required for this).
- Remaining contents must be dispensed within 30 days of the date of initial use.
- Do not transfer used hoses to a new canister set in order to prevent cross-contamination.

DISPOSAL:

- During product disposal, wear recommended eye and skin protection. Maintain proper ventilation.
- Empty canisters completely of any remaining material.
- Add oil absorbent to waste components. Dispose of waste in an approved landfill.
- Turn empty canister upside down and open valve completely to relieve the canister of pressure.
- Once pressure is completely evacuated, locate and punch out the button on the shoulder of the canister using a non-ferrous punch.
- Empty canisters can be sent to a metal recycler or an approved landfill.
- Do not burn empty canisters. Dispose in accordance with local, federal, and state regulations.

LEED® Information:

Post Consumer Recycled Content: 0%
Post Industrial Recycled Content: 0%
Manufacturing Location: Rockford, MN
***NOTE:** LEED® is a registered trademark of the U.S. Green Building Council.

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Typical Properties

Property	Test Method	Typical Performance
Base:		Part 1: Diisocyanate Part 2: Polyol
Color:		Part 1: Brown Part 2: Red Mixed: Red
Viscosity:	ASTM D2196	Part 1: 160 – 240 cPs @ 77 °F (25 °C) Part 2: 150 – 350 cPs @ 77 °F (25 °C)
Density:	ASTM D 1875	Part 1: 10.0 – 10.6 lb/gal. (1.2 –1.27 kg/l) Part 2: 8.2 – 8.8 lb/gal. (0.98 – 1.05 kg/l)
Specific Gravity:		Part 1: 1.2 – 1.27 Part 2: 0.98 – 1.05
Weight of full canister:		Part 1: 48 ± 2 lb (21.8 ± 0.9 kg.) Part 2: 44 ± 2 lb (20.0 ± 0.9 kg.)
Max Ratio (Part 1: Part 2):		1:1 by volume
V.O.C. Content:	ASTM D 2369	< 25 grams/liter. (0.21 lb/gal.).

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Acceptable Substrates

Substrate:	NOTE:
Structural Concrete (New)	New poured decks must have a minimum 28-day cure time.
Structural Concrete (Existing)	Positive adhesion test required.
Steel	New steel decks may require cleaning to remove processing oils.
Gypsum	Positive adhesion test required.
Existing Asphalt and Modified Bitumen Roofs (Mineral or Smooth Surfaced)	Positive adhesion test required.
Lightweight Concrete	Acceptable Lightweight concrete substrates include cellular or air-entrained concrete. Lightweight concrete substrates with aggregate (such as perlite or vermiculite) are not acceptable.
Plywood	⅝" thick min.
ISO95+™ GL / ISOGARD™ GL, RESISTA™ / ISOGARD CG, ISOGARD HD, DensDeck® Products, Expanded Polystyrene, Extruded Polystyrene, Polyiso, Wood Fiber Products	Non-Firestone brand insulations require a positive adhesion test.
Existing Single-Ply roofs	Not acceptable
Fiberglass Insulation	Not acceptable
Perlite Insulation	Not acceptable
Existing substrates containing residual asphalt must be cleaned and scraped smooth as possible. The substrate shall be smooth, flat, clean, dry, free of sharp fins, or foreign materials. All perimeters, deck seams and all penetrations must be sealed to prevent air infiltration through the deck. Firestone recommends an expanding foam or similar product be used.	

Packaging Data

Part 1 Canister:	48 lb (22 kg) per canister, 32 canisters per pallet. Packaged Weight: 53 lb (24 kg), 1696 lb (769 kg) per pallet **NOTE:** Package includes Canisters + Kit accessories
Part 2 Canister:	44 lb (20 kg) per canister, 32 canisters per pallet. Packaged Weight: 44 lb (20 kg), 1408 lb (639 kg) per pallet **NOTE:** Package includes Canisters only

Please contact Firestone Technical Services Department at 1-800-428-4511 for further information.