



# The Millennium One Step Advantage®



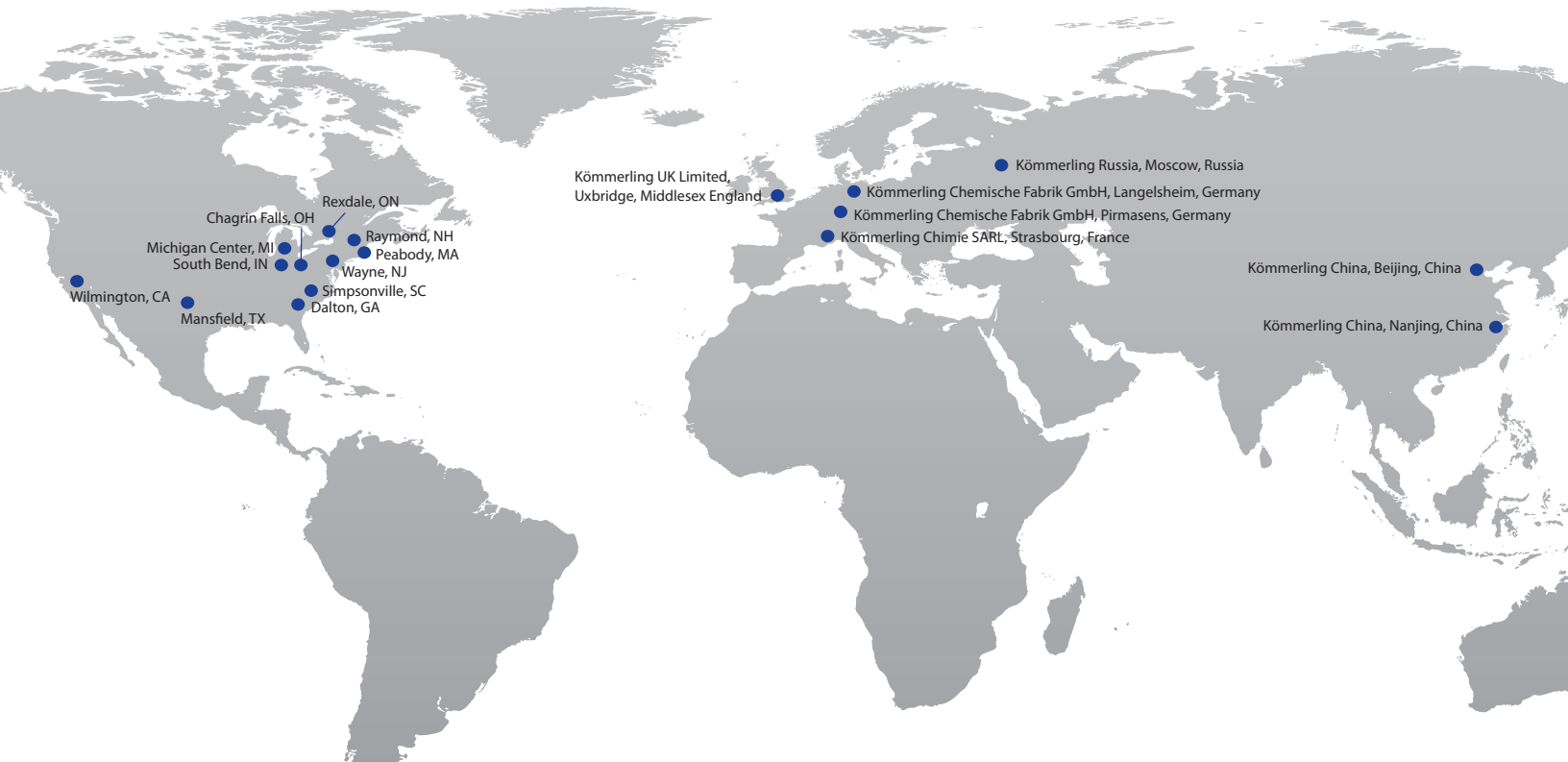


Royal Adhesives & Sealants, LLC is a leading privately-held manufacturer of specialty adhesives, sealants, and tapes with annual global revenues in excess of six hundred million dollars. Royal's heritage is rich with innovative tradition that dates back to the late 1800's and the formation of the Mishawaka Woolen Company, a subsidiary of U. S. Rubber, which later became known as Uniroyal Corporation. In 2003 the modern Royal Adhesives & Sealants was formed and has grown rapidly with the acquisition of leading adhesives & sealants brands such as Hardman®, Para-Chem®, Craig®, Extreme®, Clifton®, Millennium, EternaBond®, Chemque and ADCO. Today Royal's technologies span the realm of all chemistries utilized in adhesives, sealants and tape manufacturing. Royal's key markets are as diverse as Transportation, General Assembly, Fenestration, Printing, Packaging, Lamination, and Construction.

Royal's Commercial Roofing Business supplies the Global Roofing Industry with high performance, high value, specialty tapes, adhesives, and sealants. Our key product lines include:

- Millennium brand Insulation Adhesives: 2-part urethane low rise foam adhesives available in both mechanically dispensed and pump grade options.
- Hurricane Force® Membrane Adhesives: One and two part urethane membrane adhesives for securing single-ply and modified bitumen field membranes.
- Lockin' Pocket® Interlocking Flashing Systems: Contractor preferred roof penetration sealing systems that are quick, clean and easy to install.
- EternaBond® Semi-Permanent Repair Tapes: A leading brand in roof repair, EternaBond® tapes are available in almost any size and with almost any backer desired.
- Millennium brand EPDM Restoration Tapes: OEM quality EPDM seam, cover and flashing tapes & laminates from the company who invented the technology almost 25 years ago.
- Cool Cover™ TPO Restoration Tapes: OEM quality TPO seam and cover tape available in various colors to match your project.
- Single-ply Bonding Adhesives: Solventborne bonding adhesives for single-ply membranes available in traditional and V.O.C. exempt formulations.

Royal Adhesives & Sealants is an ISO 9001, TS 16949, and ISO 14001 certified company with modern manufacturing facilities located around the world.



# SMART CHEMISTRY

.....Reduces Liability

.....Increases Productivity

.....Is Easy to Use

.....Is Dependable

.....Is Consistent Every Time

## SMART CHEMISTRY IS THE



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# ONE STEP FOAMABLE ADHESIVE®

One Step Foamable Adhesive® is the trusted choice for any commercial roofing project.

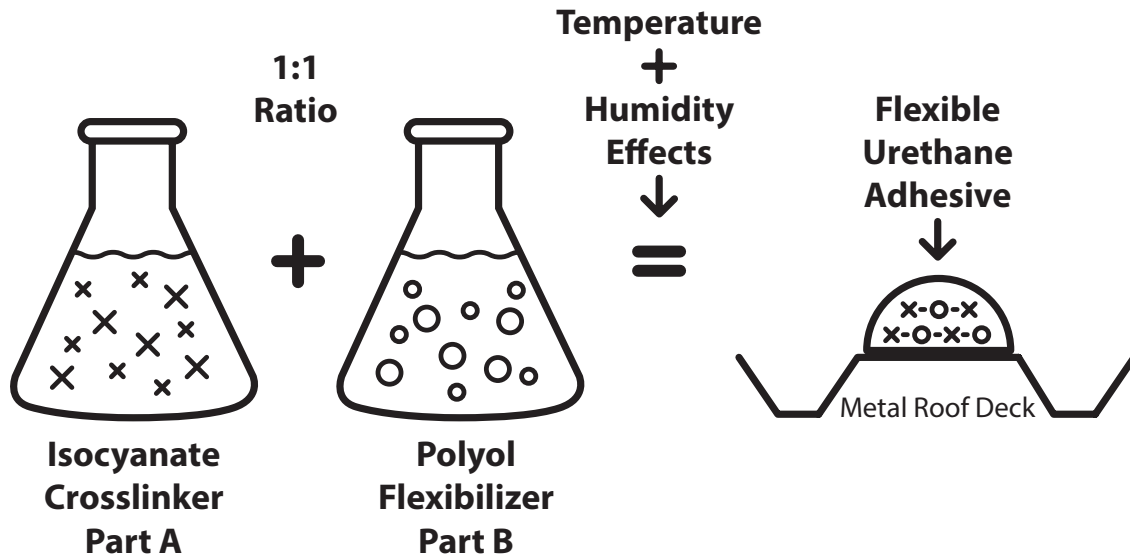
One Step™ Technology sounds easy to use because it is! We've already done the important chemistry at Royal – before the product is packaged - so you don't have to do difficult chemistry on the rooftop. Creating products that are more reliable, more durable, and easier to use is what our team of Adhesive & Sealants Experts has done for over 100 years. Better products, like One Step Foamable Adhesive®, are exactly why our customers choose Royal adhesives, sealants, and tapes time after time, project after project.

*All adhesives are not created equal. Find out below what makes One Step Foamable Adhesive® a superior product. Something we call the "One Step Advantage®".*

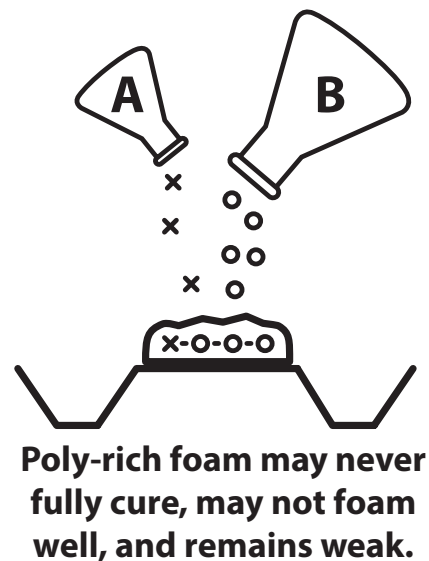
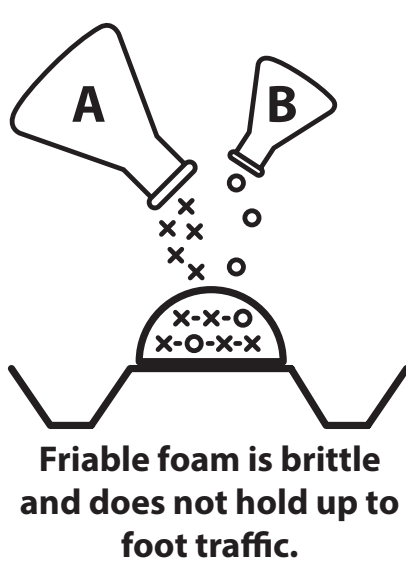


# URETHANE ADHESIVE BASICS

Low-rise foam urethane adhesives are formed by the reaction of an isocyanate (Part A) and a polyol (Part B) that chemically react to form a foaming adhesive. The isocyanate is a crosslinking agent while the polyol is a flexibilizing agent. Most urethane roofing adhesives are designed for 1:1 ratios of crosslinkers and flexibilizers. Temperature and humidity can affect the speed of reaction and the quality of adhesive formed, which is why the rooftop is a challenging place to do chemistry!



Maintaining a consistent mix ratio is an important factor in creating and applying a quality adhesive. Too much Part A can cause a foam to become brittle or "friable". Oppositely, too little Part A will create an adhesive that remains flat, sticky-wet, and weak.





## THE EQUIPMENT ADVANTAGE

One Step™ Adhesives are only packaged in convenient 1.5 Liter cartridges. This means that One Step Foamable Adhesives® can only be applied using the contractor preferred One Step™ application tools.

Unlike unreliable, complex, maintenance intensive and messy pump systems, One Step™ Applicators assure a precise 1:1 mixture due to single axle drive shaft designs. One Step™ applicators are economical, durable, highly portable, and battery operated eliminating the possibility of electric shock and eliminating messy electric cords that drag across work areas. The applicators are virtually maintenance-free and require fewer people to operate compared to pump systems.



Scan the QR Code to view Millennium One Step Foamable Adhesive® applied with Millennium Patented Multi Bead Plus Applicator



### Multi-Bead Applicator

[http://youtu.be/Njzols\\_k61M](http://youtu.be/Njzols_k61M)



Scan the QR Code to view Millennium One Step Foamable Adhesive® applied with the Millennium One Step™ Battery Powered Applicator



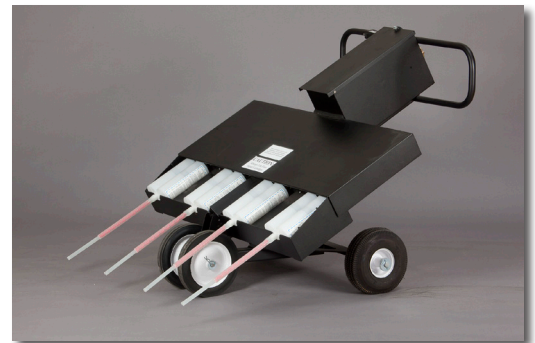
### Battery Powered Applicator

<http://youtu.be/uQmILIACSoU>

\*U.S. Patent Nos. 7,056,556; D501,855



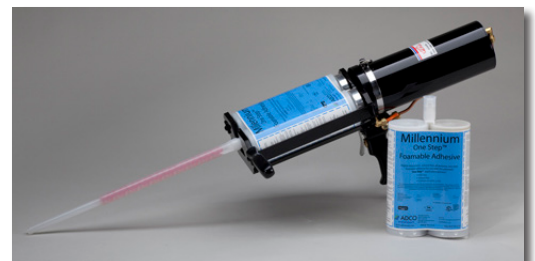
Patented Millennium MBA Plus\*



Patented Millennium MBA\*



Millennium One Step™ Battery Powered Applicator



Pneumatic Applicator



## ADVANTAGE SUMMARY:

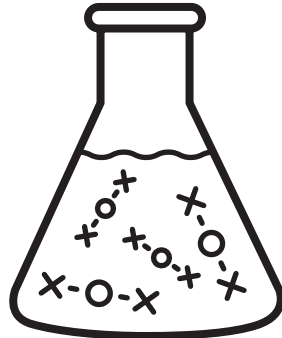
- Single-drive pistons assure precise 1:1 ratio every application
- No risk of electric shock
- Reliable, durable, and low-maintenance equipment lowers costs
- No messy cords to drag through production areas or create tripping hazards
- Fewer equipment operators provide labor savings for roofing contractors



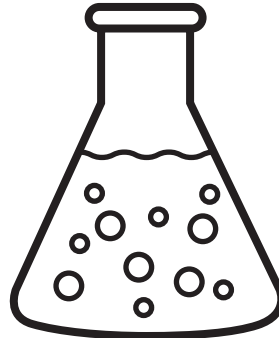
## THE CHEMISTRY ADVANTAGE

Instead of simply formulating One Step Foamable Adhesive® from a neat isocyanate and a simple polyol, Royal provides what is called a “prepolymer” based product. Prepolymer is a technical way to say “we have already done half of the chemistry for you”. In the Part A we already have reacted isocyanate with polyol to form the beginning of the adhesive matrix.

### One Step Foamable Adhesive®



**Part A**  
**Prepolymer**



**Part B**  
**Polyol**

The highly-controlled One Step™ prepolymer manufacturing process produces an adhesive foundation which is more consistent than chemistry performed on the rooftop in an uncontrolled, ever-changing environment. Although One Step Foamable Adhesives® are packaged to prevent the possibility of off-ratio applications, prepolymer based formulas are more forgiving of mix issues than other urethane adhesives. One Step Foam-

able Adhesive® is also less influenced by changes in the application environment such as variations in temperature or humidity. A more consistent adhesive means the roofing contractor and building owner are assured of the highest quality bond every time. Consistency reduces warranty costs. At Royal we have built the critical beginning of the adhesive network so you don't have to on the rooftop!



### ADVANTAGE SUMMARY:

- Prepolymer based adhesives such as One Step™ are less sensitive to mix ratio issues
- Prepolymer based adhesives are less affected by changes in temperature and humidity
- Prepolymer based adhesives give the peace-of-mind of a more consistent application





# THE ALL-TEMPERATURE ADVANTAGE

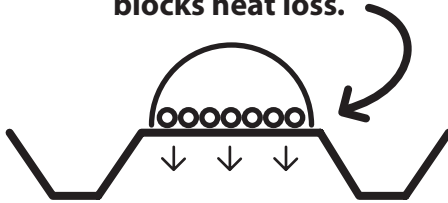
One Step Foamable Adhesive® works across all temperature ranges. The unique high-viscosity formula can be applied in the coldest temperatures and it will consistently foam within minutes and fully cure. Urethane adhesives crosslink via a mild exothermic (heat creating) reaction. If the heat is quickly pulled out of the adhesive the foam has a difficult time rising. One Step™ is self-insulating due to its high viscosity, allowing it to foam well even in temperatures below freezing.



**Below  
40°F**

## One Step Foamable Adhesive®

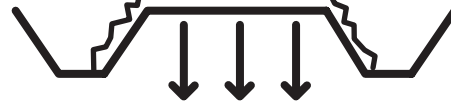
Insulating layer  
blocks heat loss.



**Little Heat Loss**

## Other Adhesives

Lay flat to the deck surface  
while the cold roof deck  
removes any heat.



**Major Heat Loss**

One Step Foamable Adhesive® will work well below freezing temperatures allowing roofing contractors to extend their roofing season. Most other adhesives require application temperatures of 40°F and rising.

In the hot summer, One Step Foamable Adhesive® simply requires faster board placement. The prepolymer based formula produces a consistent, flexible foam adhesive in all temperatures.

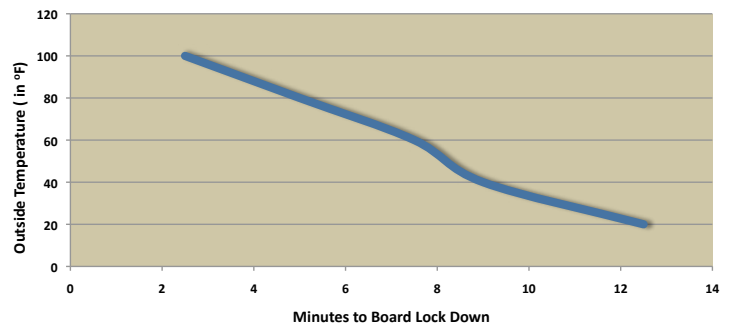


Scan the QR Code to view the Millennium One Step™ Foamable Cold Weather Application video



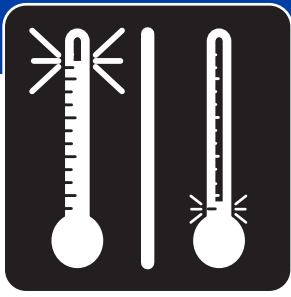
<http://youtu.be/EebrYtxBj1s>

**Lock Down Time of Millennium One Step Foamable Adhesives® Over Concrete**



## ADVANTAGE SUMMARY:

- One Step Foamable Adhesive® produces consistent, flexible foam in all temperature conditions
- One Step Foamable Adhesives® can be used below freezing unlike other adhesives with 40°F limitations
- Contractors can extend their roofing season into the winter and increase profits



## THE SINGLE FORMULA ADVANTAGE

Contactors require the right materials no matter what the weather. One Step Foamable Adhesive® comes in one grade that is suitable for use in the warmth of summer or the cold of winter. And One Step™ will, of course, work during all of those tricky times in between. There is no need to guess how the weather might change between the time the roofing materials are ordered and the day the last insulation board is adhered. One Step Foamable Adhesive® eliminates end-of-season overstocks on summer or winter grade material preventing the need to pay costly restocking-fees. With One Step Foamable Adhesive® you are always assured of having the right product for the job.



*Professional Roofing Contractors prefer the speed and dependability of One Step Foamable Adhesive® in any season.*

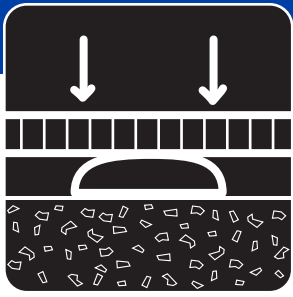


*Fast in the winter, faster in the summer, One Step Foamable Adhesive's® true all-weather performance is unmatched in the industry.*



### ADVANTAGE SUMMARY:

- No contractor concerns with future weather uncertainty
- No more costly end-of-season overstocks leading to shelf-life issues
- Eliminates the need to return material and pay re-stocking fees of up to 30%



## THE VISCOSITY ADVANTAGE (PART 1)

One Step Foamable Adhesive's® unique high viscosity formula does not suffer from "foam collapse" like other adhesives. "Foam collapse" can be a problem with low viscosity adhesives and occurs when the adhesive begins to foam but has not formed a strong enough matrix to maintain its body if it is "knocked down". Once down, the foam will not re-rise. One Step's™ high-viscosity formula has enough body right out of the cartridge to resist foam collapse. This is why other adhesives require the applicator to watch for a color change or judge the correct amount of time after the adhesive begins to foam after which to place the insulation board.

*One Step Foamable Adhesive® is simply the better choice for gravel surfaced built up roofing recover applications.*



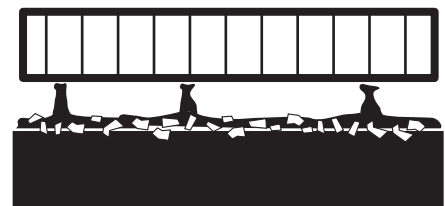
One Step™ also maintains its position between a rough surface (such as granulated modified bitumen, cementitious wood fiber, or gravel surfaced BUR) and an insulation board while other adhesives can simply "disappear". One Step's™ higher viscosity resists foam collapse on rough surfaces.

### One Step Foamable Adhesive®



← Insulation Board →  
 ← Adhesive →  
 ← Gravel Surface →

### Other Adhesives



### ADVANTAGE SUMMARY:

- One Step Foamable Adhesives® will not suffer from foam collapse similar to low viscosity adhesives
- One Step Foamable Adhesives® do not disappear into rough surfaces
- One Step Foamable Adhesives® can be easier to use on extremely porous surfaces such as cementitious wood fiber board



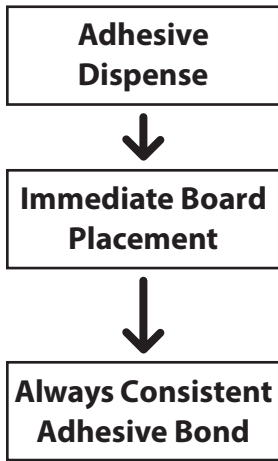




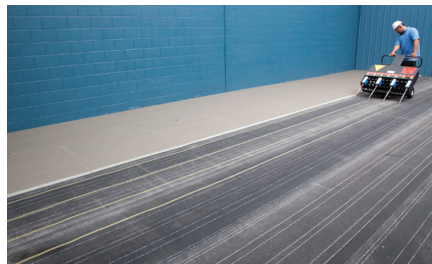
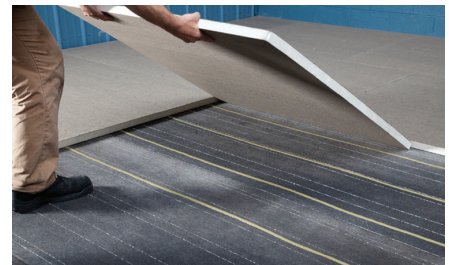
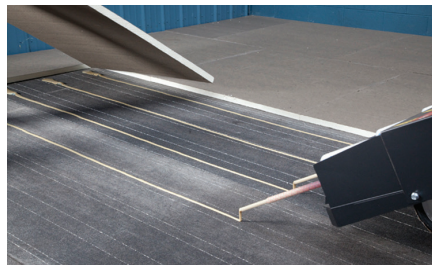
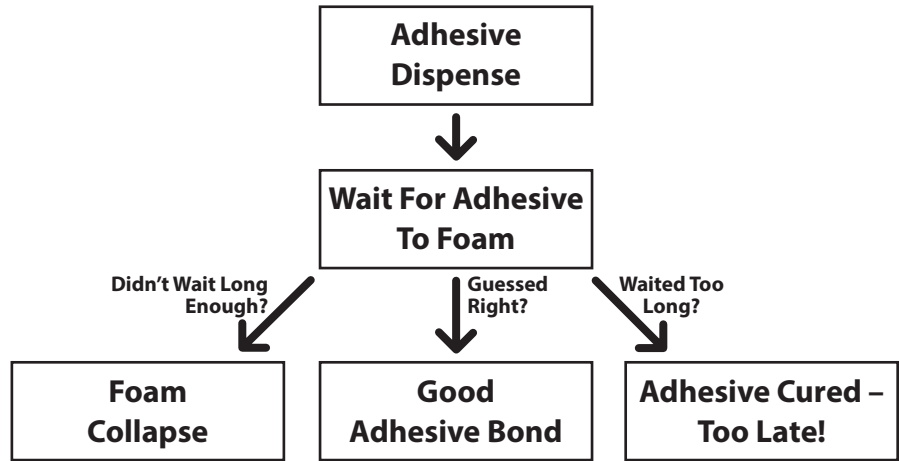
# THE PRODUCTIVITY ADVANTAGE

One Step Foamable Adhesive® is designed for immediate board placement upon application of the adhesive. There is no need to wait for the foam to rise or change color. There is no need to guess at the time between proper foam build and over-cured adhesive, a task that can be difficult considering the ever-changing rooftop conditions. One Step Foamable Adhesive's® prepolymer based formula increases contractor productivity, removes the need for tricky judgment calls, and in turn produces a more consistent adhesive every time. The bottom line is: using One Step Foamable Adhesive® results in a reduction in warranty claims.

## One Step Foamable Adhesive®



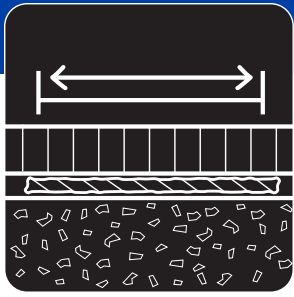
## Other Adhesives



### ADVANTAGE SUMMARY:

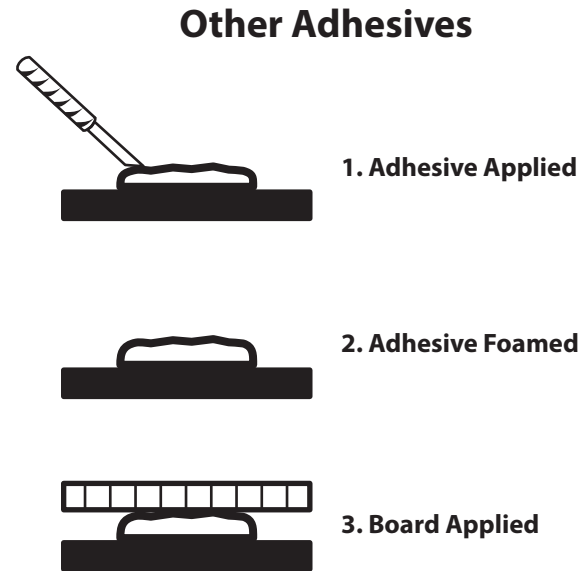
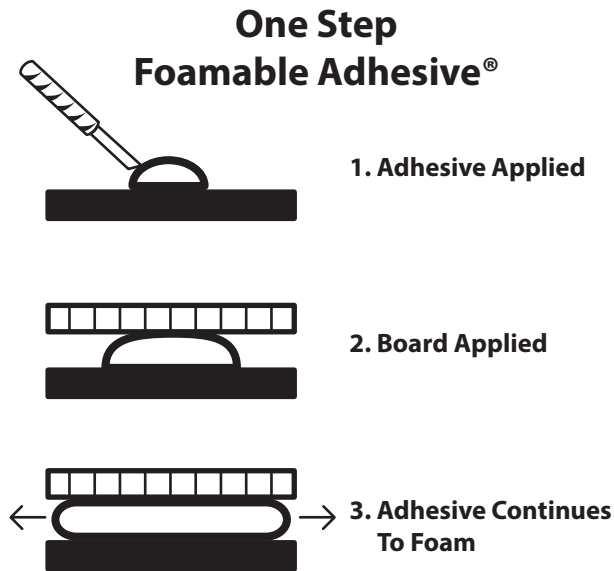
- Insulation boards are placed immediately into wet adhesive increasing contractor productivity and reducing labor costs
- Eliminates the need for judgment calls on "when" to place the insulation
- One Step Foamable Adhesives® consistent bond formation can lead to fewer warranty claims





## THE LARGER FOOTPRINT ADVANTAGE

Studies have shown that One Step Foamable Adhesive® produces an average ribbon width or “footprint” that is up to 16% wider than certain competitive low-viscosity adhesives<sup>1</sup>. Unlike One Step Foamable Adhesive®, low-viscosity adhesives spread first, and then begin to foam. Low-viscosity adhesives have already reached their maximum footprint when they begin to foam. In contrast, insulation boards are placed immediately into wet One Step Foamable Adhesive® causing the adhesive foam to expand laterally. This lateral expansion ultimately produces a larger adhesive footprint.



### ADVANTAGE SUMMARY:

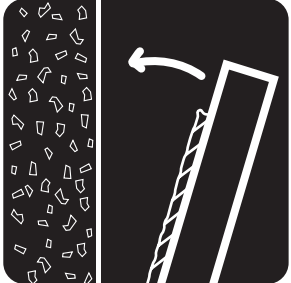
- One Step Foamable Adhesive® produces a footprint up to 16% larger which provides a more secure roof assembly, and ultimately a more secure roof

## THE VISCOSITY ADVANTAGE (PART 2)



### SLOPED AND VERTICAL SURFACES

The higher viscosity formula of One Step Foamable Adhesive® allows for cleaner use with tools and makes the adhesive useful in applications where other adhesives simply are too difficult to use. For example, One Step Foamable Adhesive® is designed to hold its position upon application to metal roof deck flutes. Low-viscosity adhesives can quickly run off of metal flutes and through a vented deck into the building's interior creating a mess.



One Step Foamable Adhesive® is highly preferred on sloped roofing because it holds its position after application rather than running down the slope. One Step™ is also preferred for use on sloped roofing because One Step™ battery powered applicators are much easier to use on sloped roofing than pump systems. Finally, One Step Foamable Adhesive's® all-temperature fast lock-down time helps keep insulation boards from sliding.



For all of the same reasons stated above, One Step Foamable Adhesive® is more easily used on vertical applications than other adhesives. Contractors typically will dispense the adhesive onto a flat lying board, allow just a few moments for the adhesive to react, and then tilt the board onto the vertical surface and apply pressure. One Step Foamable Adhesive's® fast lock-down time limits the contractor from having to continue to press the board into the vertical surface for extended periods of time, even in low temperatures.



### ADVANTAGE SUMMARY:

- One Step Foamable Adhesive® is easier to use on sloped roofs
- With a fast lock-down time, One Step Foamable Adhesive® finds use in vertical applications where other foaming adhesives are simply too difficult
- One Step Foamable Adhesive® is easier to use on steel roof decks, especially vented steel, because One Step Foamable Adhesive® holds its position on the flute
- One Step Foamable Adhesive® is cleaner to use because it holds position better than low-viscosity adhesives

## THE SAFETY ADVANTAGE



One Step Foamable Adhesive® is a cold-applied, odorless adhesive. It can replace the noisy drilling of mechanical fasteners, the pungent odor of solventborne glues, the burn potential of hot asphalt, and the fire hazard of flame torching. Roofing contractors who use One Step™ Adhesive will benefit from reduced complaints from building occupants over excessive noise and odors, from lower insurance premiums, and from more satisfied roofing crews.



One Step Foamable Adhesive® is designed for ribbon application, meaning the product is dispensed through a static mixing tip and not sprayed. Ribbon applied urethanes do not produce atomized diisocyanate and studies have shown ribbon applied One Step Foamable Adhesive® to be well below the OSHA limits for exposure to MDI<sup>ii</sup>. Unlike sprayed urethanes, ribbon applied urethanes do not require the use of respirators and other undesirable PPE. Another advantage of ribbon applied systems vs. spray applied urethane is the elimination of over-spray. On windy days over-spray can drift beyond the roof and damage parked cars and other property, something that will never occur with One Step Foamable Adhesive®.



*Ribbon-applied low rise foam adhesives like One Step Foamable Adhesive® are simply cleaner, easier and safer to install. With few PPE requirements, no risk of burns, and no odor both the roofing contractor and the building occupants are more satisfied.*



### ADVANTAGE SUMMARY:

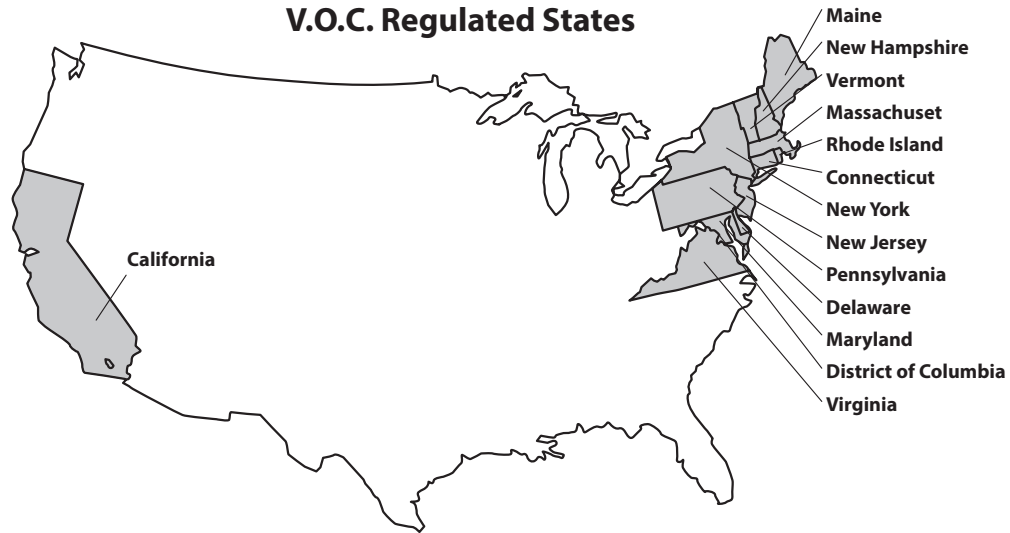
- Reduces noise pollution
- Reduces complaints from building occupants due to solvent and asphalt odors
- Lowers insurance premiums due to the removal of flame torching
- Eliminates roofing crew exposure to asphalt fumes and atomized MDI
- Roofing crew is more comfortable due to reduced PPE requirements leading to higher labor productivity
- Eliminates concerns of over-spray





## THE ENVIRONMENTAL ADVANTAGE

One Step Foamable Adhesive® is ultra-low in V.O.C. content<sup>iii</sup>. That means that One Step™ Adhesives are useful in air quality managed jurisdictions such as on the West Coast or in the O.T.C. States. Especially in the winter months when waterborne and V.O.C.-exempt solvent based adhesives can be difficult to use, One Step™ Adhesive's all temperature formula is relied upon for consistent, fast, insulation lock-down.



One Step Foamable Adhesive® is also solvent-free. Solvent-free products are simply better for the jobsite air quality and the environment. Additionally, solvent-free One Step™ Adhesives are compatible with all insulation types including extruded and expanded polystyrene. One Step™ Adhesive will not melt, etch, or destroy any insulation and has wide ranging compatibility with almost all commercial roofing materials.

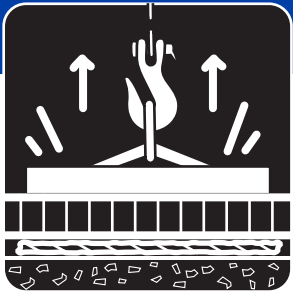
Adhering rooftop insulation with One Step Foamable Adhesive® rather than mechanically fixing insulation with fastener plates or induction welding plates eliminates thermal bridging between the roof deck and the outside environment. This can significantly reduce energy consumption over the expected 20-30 year life of a low-slope roof and it maintains the insulating integrity of the roof system design.

*Whether it is melting snow or evaporating morning dew, every roofing contractor has observed the thermal bridging problem associated with fastener and induction welding plates.*



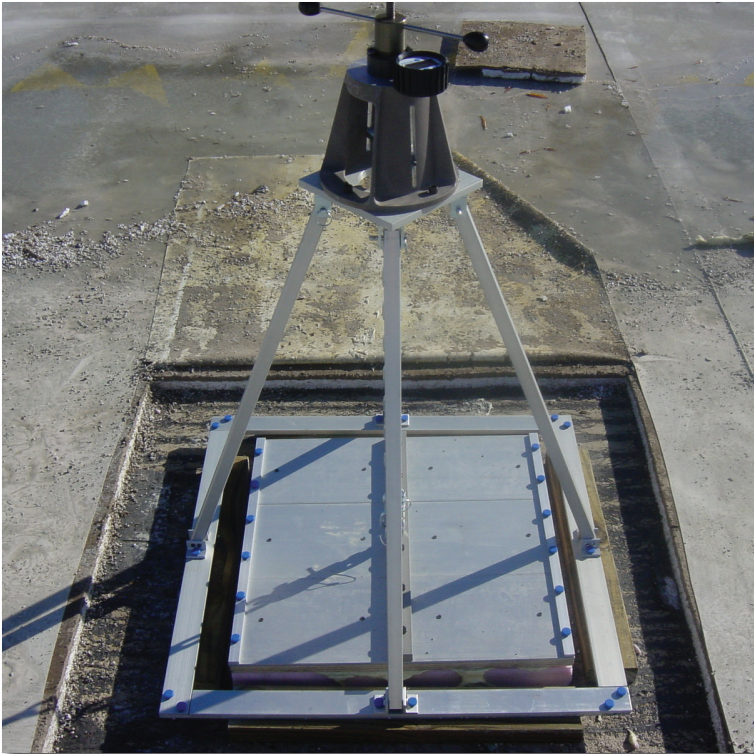
### ADVANTAGE SUMMARY:

- One Step Foamable Adhesive® is useful in V.O.C. regulated markets such as California and the O.T.C. States
- One Step Foamable Adhesive® is compatible with all insulation types including extruded and expanded polystyrene
- One Step Foamable Adhesive® eliminates thermal bridging from mechanical fasteners and induction welded fastener plates



## THE SERVICE ADVANTAGE

Royal's well trained, professionally equipped and experienced Field Sales & Service Representatives are readily accessible and are eager to assist Commercial Roofing Contractors with the application of One Step Foamable Adhesives®. Prior to beginning any commercial roof job, Royal's expert Technical Representatives are available to evaluate the structural integrity of a roof deck utilizing a bonded pull test in accordance with ANSI/SPRI IA-1 2010. All of Royal's Technical Field Sales Representatives are equipped with calibrated pull test units and can normally respond within days to requests for pull tests from Professional Roofing Contractors, Roof Consultants, or OEM Systems Manufacturers. Within hours following the test, Royal's Technical Field Sales Representative will issue a professional report outlining the test results including photo documentation.



Your pull test should be documented with photos and summarized in a professional report. If it is not, it may not have been conducted properly.

Royal's Field Professionals are also available for Roofing Contractor Training and Job Start Assistance. With one quick call, any contractor installing insulation with a One Step Foamable Adhesive® can be assured that a responsive, knowledgeable, experienced Royal Team Member will be available for assistance. Royal's Field Professionals are experts in proper jobsite staging, equipment operation and adhesive dispense and application.



**Pull Test Result/Report**

Project Name: Any Project XYZ  
 Location: Las Vegas, NV  
 Date: October 27, 2010  
 Roof Area Location: Building 5 Upper Ambient Temp.: 85 °F  
 Building Criteria: Height: 120 ft Width: 300 ft Length: 200 ft  
 Adhesive Tested: As Specified Bead Spacing: 42"oc  
 Insulation Used: Polystyrene Thickness: 2"  
 Tester Used: ComTen DFGW2000 Max Capacity of Tester: 2000 lbs.  
 Test Performed By: Royal Roofing Products Field Representative  
 Witnessed By: Joac/NikeM/BJA/Kevim  
 Test Cut Areas Repaired By: Local Roofing Contractor

*Royal Adhesives & Sealants can not be held responsible for the water tightness of the repairs where tests were performed, nor can they be held responsible for the structural integrity of the roof deck or any material below the adhesive.*

Project Type:  New Construction  Tear Off  Retrofit

**SUBSTRATE TESTED**

Concrete  Wood  
 Lightweight Insulating Concrete  Smooth BUR  
 Structural Lightweight Concrete  Gravel Surface BUR  
 Cementitious Wood Fiber (Tectum)  Steel  
 Gypsum  Other Coal-Tar-Pitch

All work surfaces should be clean, dry, free of dirt, dust, debris, oils, loose and/or embedded gravel, un-adhered coatings, deteriorated membrane and other contaminants that may result in a surface that is not sound or is un-even.

Royal Adhesives & Sealants 4401 Page Avenue, P.O. Box 457, Michigan Center, MI 49254 royaladhesives.com

Example 1 achieved maximum uplift value of 2350psi. With failure occurring 8 seconds into 270psi.

Royal Adhesives & Sealants 4401 Page Avenue, P.O. Box 457, Michigan Center, MI 49254 royaladhesives.com



### ADVANTAGE SUMMARY:

- Knowledgeable, professional roof deck evaluations utilizing bonded pull tests according to ANSI/SPRI IA-2010 to help reduce liability
- Responsive, experienced job start assistance resulting in increased productivity
- Contractor training focused on proper adhesive applications helping contractors achieve optimum coverage rates



## THE “AVAILABLE ALMOST EVERYWHERE” ADVANTAGE

The One Step Advantage® is available more easily than you might think. Royal currently manufactures over 30 private-label roof system brands of One Step Foamable Adhesive®. So the odds are that even if you are working on a job with an OEM System Warranty or a closed specification, there is a One Step Foamable Adhesive® option available for you. All One Step™ Adhesive Brands carry UL and FM certifications extended to the brand by Royal. In addition, OEM Systems Manufacturers have built significant codes approvals around their individual system brands. Most One Step Foamable Adhesives® are Miami-Dade County and Florida Building Code approved.

It is easy to step-up to a better adhesive. If you are looking for an OEM system-specific One Step™ option simply look for the One Step Advantage® logo or call and ask your local OEM System Sales Representative.



### ADVANTAGE SUMMARY:

- One Step Foamable Adhesives® are UL Certified
- One Step Foamable Adhesives® carry extensive Factory Mutual approvals
- One Step Foamable Adhesives® are Miami-Dade and Florida Building Code approved
- A One Step™ brand is available for almost all OEM Commercial Roofing Systems

- i Based on a controlled study performed utilizing Millennium One Step Foamable Adhesive® and competitive materials performed on September 10, 2009 as reported in TR 2842
- ii Independent study commissioned by Royal Adhesives & Sealants and performed by Affinity Consultants on July 22, 2011 measured a MDI level of 0.0033ppm in a simulated outdoor application environment versus an OSHA permissible exposure limit (PEL) ceiling of 0.02ppm. The study concluded that exposure levels of MDI with Royal's One Step™ Adhesive were only one-seventh of the OSHA PEL.
- iii Independently tested to 18 gm per liter at American Research and Testing Inc. on June 11, 2013
- iiii One Step Foamable Adhesive®, One Step Advantage and the One Step Advantage logo are registered trademarks of Royal Adhesives & Sealants, LLC.



## About Royal's Commercial Roofing Products

Skyrocketing insurance costs, increasing wind uplift requirements, and the growing complexity of today's regulatory environment are changing the way we roof. Royal has a myriad of solutions designed to help commercial roofing contractors comply with demanding developers, building owners, and municipal building codes.

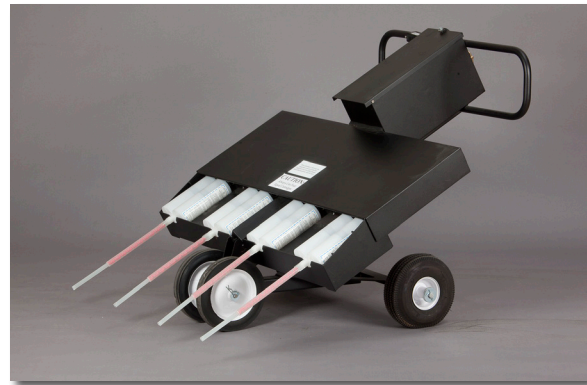
From insulation attachment to repair products, Royal's durable solutions adhere and seal commercial low-slope roofing systems. Our patented tape technologies have been applied to seam, flash, and cover more than a billion square feet of rooftop. The patented One Step™ insulation adhesive delivery system has revolutionized roofing: providing the fastest, most efficient method of insulation installation while minimizing roof deck penetrations and eliminating thermal bridging from mechanical fasteners. Royal's Hurricane Force® Membrane Adhesive Systems and Penetration

Sealing Systems are cold applied, quick setting, all-weather, essentially VOC-free adhesives & sealants. Royal is committed to developing products that improve jobsite safety, eliminate fire hazards, and reduce building disruption.

Royal Adhesives & Sealants is an ISO 9001, TS 16949 and ISO 14001 certified company. Today, Royal remains committed to the innovative spirit that has made our company successful employing over one hundred chemists and technicians to develop novel solutions for the most demanding bonding and sealing applications.



The patented One Step™ Multi-Bead (MBA) and Multi-Bead Plus (MBA Plus) are battery powered adhesive applicators designed to be used with Millennium One Step™ adhesives and sealants. The One Step™ MBA applicator is a four cartridge port adhesive applicator designed for One Step™



Foamable Adhesive cartridges. The One Step™ MBA Plus applicator is a 13 cartridge port adhesive applicator designed for One Step Foamable Adhesive® and Hurricane Force® Membrane Adhesive cartridges.

\*U.S. Patent Nos. 7,056,556; D501,855



Millennium One Step™ Battery Powered Applicator is specially designed to be used with the Millennium One Step™ family of adhesives and sealants. The unique carriage design is extremely durable and allows the user to install adhesive in an upright position eliminating back strain. The tool is powered by a 14.4 volt rechargeable battery. The motor is designed to run on lower amps than conventional cordless tools which extends overall battery life and reduces charging time.



Millennium One Step™ Pneumatic Single Bead Applicator is designed to be used with Millennium One Step™ Adhesives. The applicator uses compressed air to drive the pistons and can deliver a maximum thrust of approximately 1,500 pounds. The One Step™ Pneumatic Single Bead Applicator must be used with an air compressor (not included).