

TPO SINGLE-PLY SYSTEM SUMMARY

This is a generic summary of **IPC's** more detailed **TPO SINGLE-PLY SYSTEM SPECIFICATION**. For warranty purposes, Approved Applicators are responsible for studying, understanding, and following the specification. As always, contact **IPC** for technical assistance.

I. Surface Preparation

1. Make sure membrane has reasonable integrity and is secured to roof deck.
2. Pressure wash surface to be coated using TSP or other suitable cleaner and rinse with water.
3. Prime all non-painted or galvanized metal that will be coated (e.g., flashings, counterflashing, air handlers, penetrations, and the like).
4. Seal all gaps around roof deck, flashings, and holes with either two inch or four-inch-wide **FleeceBite™** tape. Firmly press the material into place to ensure proper adhesion. With a weighted roller, roll out any air bubbles in surface to eliminate air entrapment. For Penetrations use the Alternate Detailing below
5. **Alternate Detailing** method used instead of **FleeceBite™** tape.
6. Bridge all gaps around roof deck, penetrations, flashings, holes, etc. with the following method to make sure that the **ACRYLINK G™** membrane will be continuous:
 - a. Brush a coat of **ACRYCAULK™** along either side of gap.
 - b. Embed a strip of non-woven polyester fabric in **ACRYCAULK™**.
 - c. Brush heavy coat of **ACRYCAULK™** over polyester, making sure that there are no wrinkles or fishmouths.
 - d. Allow to cure overnight. Inspect and repair as necessary.
7. Apply **ISOTACK™** Primer for TPO

II. Coating Application

1. The surface to be coated must be clean and dry.
2. Apply **ACRYLINK G™** elastomeric roof coating with an airless sprayer or roller, giving special attention to bridged and repaired areas.
3. Use an appropriate number of coats to achieve the correct millage. For **IPC** purposes, "pitched" refers to a roof with at least 1 in 12 pitch.
 - a. 5-year: 3.0 gallons of **ACRYLINK G™** per square total.
 - b. 10-year (pitched): 3.5 gallons of **ACRYLINK G™** per square total.
 - c. 10-year (flat): 4.0 gallons of **ACRYLINK G™** per square total.
 - d. 15-year (pitched): 4.0 gallons of **ACRYLINK G™** per square total.
 - e. 15-year (pitched): 4.5 gallons of **ACRYLINK G™** per square total.
 - f. 20-year (pitched): 5.0 gallons of **ACRYLINK G™** per square total.
 - g. 20-year (flat) 6.0 gallons of **ACRYLINK G™** per square total.
4. Back roll the basecoat as it is being applied.
5. Allow each coat to dry, inspect and repair as necessary before applying next coat.

III. Limitations

1. This procedure is to be used only in conjunction with commonly accepted roofing and waterproofing standards.
2. No material shall be applied to wet, dirty, or frozen surfaces, or to areas of gross ponding water.
3. **ACRYLINK G™**, **ACRYCAULK™** and **ISOPRIME™** shall not be applied during inclement weather, when a precipitation appears imminent, when the temperature is below 45 °F, when the relative humidity exceeds 85%, or within 4 hours of sundown.
4. In order to qualify for factory warranty, applicator must have Approved Applicator status, the roof must meet the square foot minimum, the **ACRYLINK G™** membrane must be continuous, and the membrane must meet the TDM minimum.
5. In conjunction with the final inspection, all debris, material, and equipment are to be removed from the job site, leaving the area in an undamaged and acceptable condition.

TPO Single-Ply System Specification

Section 1.0 Scope

The intention of this specification is to outline procedures for the application of an **ACRYLINK G™** elastomeric coating membrane for the purposes of waterproofing, protecting, extending the life, and/or renewing an existing TPO (thermoplastic polyolefin) single-ply substrate. This specification describes materials, methods, and conditions necessary for the proper installation of this membrane.

- 1.1 This integrated system complies with all model building codes for roofing. Additionally, it constitutes one of the most cost-effective methods of waterproofing, protecting, extending the life, and/or renewing commercial and industrial roofs.
- 1.2 This system is only to be used in conjunction with commonly accepted roofing and waterproofing standards.
- 1.3 Any substantial deviation from these specifications shall be referred to an authorized representative of **Isothermal Protective Coatings, Inc. (IPC)**.

Section 2.0 Materials

All materials shall be manufactured or approved by **IPC**, and shall meet the following minimum specifications:

- 2.1 **ACRYLINK G™** Elastomeric Coating

Vehicle Type.....	Crosslinking Acrylic
Pigment to Vehicle Ratio	1.5 to 1
Solids (Volume).....	63%
Elongation	360%
Tensile Strength.....	304 psi
Permeance @ 45 mils	2.21 perms
Reflectivity (White)	79%
- 2.2 **ACRYCAULK™** Brush or Trowel Grade Sealant

Vehicle Type.....	100% Acrylic
Pigment to Vehicle Ratio	1.97 to 1
Solids (Volume).....	70%
Elongation	325%
- 2.3 **ISOPRIME™** Corrosion Inhibiting Primer

Vehicle Type.....	Phenolic Modified Alkyd
Solids (Weight)	57.5%
Weight (per gallon)	11.25 lbs.
Color	White
- 2.4 **ISOPHOS™** Phosphating Solution

Active Ingredient	Phosphoric Acid (H ₃ PO ₄)
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- 2.5 **Isotack TPO Primer**

Vehicle Type.....	Resin Modified Rubber
Solids (Weight).....	21%
Weight (per gallon)	10.3 lbs.
- 2.6 Delivery and Storage
 - 2.6.1 Materials shall be delivered in their original, tightly sealed containers or unopened packages, clearly labeled with the manufacturer's name, Underwriter's Laboratories file number, and—where appropriate—product identification and lot numbers.
 - 2.6.2 Materials shall be kept from freezing, and shall be stored out of the weather, in their original tightly sealed containers or unopened packages, as recommended by the manufacturer.

Section 3.0 Contractor

- 3.1 The **ACRYLINK G™** elastomeric coating membrane shall be applied by a single, experienced, and competent contractor or applicator, approved by **IPC**.
- 3.2 Contractor or applicator shall be responsible for selecting and supplying all labor and supervision and shall be responsible for furnishing all materials required to complete the job satisfactorily, in accordance with manufacturer's specifications.
- 3.3 Contractor or applicator shall be responsible for assessing and determining the integrity of the existing substrate. All structural repairs (including, but not limited to, the installation or repair of insulation, crickets, scuppers, roof drains, one-way vents, and the like) as well as the elimination of areas of gross ponding water, shall be the exclusive responsibility of the contractor or applicator.

- 3.3.1 All installations or repairs shall be completed before coating application commences.
- 3.3.2 The industry standard definition of gross ponding water is ½ inch or more of water, standing on a 100 square foot or more area, 24 hours or more after a precipitation. Contractor shall be responsible to address and eliminate all such areas before coating application commences.
- 3.3.3 All installations or repairs shall be performed in accordance with commonly accepted roofing and waterproofing standards and practices.
- 3.3.4 An authorized representative of **IPC** may be consulted for technical assistance in such matters.

Section 4.0 Surface Preparation—Cleaning

Preparations shall include all requirements specified by **IPC** to ensure adequate adhesion of the **ACRYLINK G™** elastomeric coating membrane to the substrate surface. Preparation shall include, but shall not be limited to, the following:

- 4.1 All unnecessary and non-functional equipment, conduit, and debris shall be removed from the roof.
- 4.2 All structural repairs or installations shall be completed before coating application commences.
 - 4.2.1 Crickets, roof drains, insulation, one-way vents, scuppers, roof deck, and the like, shall all be installed or repaired before coating application commences.
 - 4.2.2 Areas of gross ponding water shall have been addressed and eliminated before coating application commences. Consult section 3.3.2 of this specification for further details.
- 4.3 Contractor shall ensure that the TPO membrane, whether fully adhered or mechanically fastened, is adequately secured to the roof deck before commencing with coating application. An authorized representative of **IPC** may be consulted for technical assistance in such matters.
- 4.4 **PLEASE NOTE:** During coating application procedures, **ACRYLINK G™** shall be applied a minimum of three (3) inches above the termination of all flashings, repairs, and bridges. That is, coating shall be applied to sections of parapet walls, the bases of air handling equipment, penetrations, and the like. Section 7.0 of this specification should be consulted for details. These surfaces must be adequately prepared in order to ensure adhesion of the **ACRYLINK G™** membrane.
 - 4.4.1 All masonry surfaces to be coated shall be wire-brushed before pressure washing in order to remove all dust.
 - 4.4.2 All oxidized metallic surfaces to be coated shall be wire-brushed or otherwise abraded before pressure washing in order to remove as much rust and scale as possible.
- 4.5 The entire surface to be coated—including, but not limited to, sections of parapet walls, penetrations, air handling equipment, and the like—shall be pressure washed in order to remove all dust, dirt, debris, chalk, oil, tar, and the like from the substrate surface. A suitable cleaner, such as TSP, and a broom shall be used as necessary. If a cleaner is required, the surface shall be rinsed with water to remove residue.
- 4.6 Special care shall be taken with surfaces coated with aluminized asphalt. All poorly adhered leafed aluminum shall be removed by vigorous brushing in addition to pressure washing.

Section 5.0 Surface Preparation—Priming

Preparations shall include all requirements specified by **IPC** to ensure adequate adhesion of the **ACRYLINK G™** elastomeric coating membrane to the substrate surface. Preparations shall include, but shall not be limited to, the following:

- All TPO surfaces must be primed with **ISOTACK™**TPO Primer at the rate of approximately 400 square feet per gallon.
- PLEASE NOTE:** During coating application procedures, **ACRYLINK G™** shall be applied a minimum of three (3) inches above the termination of all flashings, repairs, and bridges. That is, coating shall be applied to sections of parapet walls, the bases of air handling equipment, penetrations, and the like. Section 7.0 of this specification should be consulted for details.

These surfaces must be adequately prepared in order to ensure adhesion of the **ACRYLINK G™** membrane.

Metallic Surfaces:

- 5.1 All metal flashings, expansion joints, penetrations, and other metallic surfaces that are to be coated shall be prepared according to the following procedure:
 - 5.1.1 As much loose rust and scale as possible shall already have been removed by abrasion (wire brush or other suitable instrument) from oxidized areas that are to be coated.
 - 5.1.2 All oxidized areas shall be pre-treated with **ISOPHOS™** phosphating solution, or equal, according to the following procedure:
 - 5.1.2.1 **ISOPHOS™** may be applied by brush, mop, low-pressure hand pump sprayer, or another suitable instrument.
 - 5.1.2.2 **ISOPHOS™** shall be applied to all oxidized areas and these surfaces shall be kept wet with **ISOPHOS™** until the reddish color of the rust turns grayish in color. The amount of time required to complete this procedure will vary as the amount and degree of oxidization varies.
 - 5.1.2.3 After the reaction has been completed, the areas treated with **ISOPHOS™** shall be rinsed clean with water.
 - 5.1.3 Phosphated surfaces shall be allowed adequate time to dry before primer application commences.
- 5.2 Primer application shall not commence during inclement weather, when a precipitation appears imminent, when the temperature is below 45°F, or when the relative humidity exceeds 85%. To provide adequate curing time, primer application shall terminate a minimum of two (2) hours before sundown.
- 5.3 All surfaces to be primed with **ISOPRIME™** corrosion inhibiting primer shall be free of dust, dirt, tar, oil, moisture, frost, or any other material that would impair the adhesion of the primer to the substrate surface.
- 5.4 Using conventional airless spray equipment or a brush, all galvanized, phosphated, and non-painted metallic surfaces that are to be coated—including, but not limited to, metal flashings, expansion joints, air handling equipment, penetrations, and the like—shall be primed with **ISOPRIME™** at a rate of 250 to 400 square feet per gallon.
- 5.5 Primer shall be allowed to cure for approximately two (2) hours, depending upon temperature and relative humidity, after which an inspection shall be performed. Additional **ISOPRIME™** shall be applied to any areas where there are voids in the primer coat, in order to make the coat continuous.

Aluminized Surfaces:

- 5.6 If aluminized asphalt cannot be completely removed by pressure washing and vigorous scrubbing, the area coated with aluminized asphalt shall be primed with a cutback asphalt or an asphalt primer, according to the following procedure:
 - 5.6.1 Primer application shall not commence during inclement weather, when a precipitation appears imminent, or when the temperature is below 45°F.
 - 5.6.2 All surfaces to be primed with cutback asphalt or asphalt primer shall be free of dust, dirt, debris, degraded asphalt, moisture, or any other material that would impair the adhesion of the cutback asphalt or asphalt primer to the substrate surface.
 - 5.6.3 Using conventional airless spray equipment, brushes, mops, or other suitable equipment, the entire aluminized asphalt surface shall be primed with cutback asphalt or asphalt primer at an approximate rate of 300 to 400 square feet per gallon.
 - 5.6.4 Primer shall be allowed to cure for at least 24 hours. Primer must be dry before coating application commences.
- 5.7 In order to minimize color bleed-through into the top coat, the following procedure should be followed (bleed-through will only affect the appearance, and not the integrity, the performance, nor any other physical property of the **ACRYLINK G™** membrane):
 - 5.7.1 If the entire surface to be coated has been primed, all surface preparation procedures (sections 4.0-6.0) shall be completed before starting this procedure. However, if only part of the entire surface to be coated has been primed, it may be desirable to complete this procedure before completing the rest of the surface preparations to allow additional time for curing.
 - 5.7.2 Using conventional airless spray equipment or rollers, apply a base coat of **ACRYLINK G™** to the surfaces primed with cutback asphalt at an approximate application rate of 1 gallon per 100 square feet. **IPC** recommends that a darker color, like gray, be used for this procedure, since this accelerates the curing process.
 - 5.7.3 It is possible that bleed-through will occur in this base coat, producing discoloration (“coffee stains”). Allowing the base coat sufficient extra curing time tends to lock the bleed into the base coat, preventing the bleed-through from continuing into the topcoats.
 - 5.7.4 The base coat should be allowed to cure for at least ten (10) days, longer if possible, before a subsequent coat is applied.

Section 6.0 Surface Preparation—Detailing

Preparations shall include all requirements specified by **IPC** to ensure adequate adhesion of the **ACRYLINK G™** elastomeric coating membrane to the substrate surface. Preparation shall include, but shall not be limited to, the following:

- 6.1 All structural repairs (including, but not limited to, the installation or repair of insulation, crickets, scuppers, roof drains, one-way vents, and the like) shall have been completed prior to detail work commencement. Areas of gross ponding water shall have been addressed and eliminated prior to detail work commencement.
- 6.2 Detail work shall not commence during inclement weather, when a precipitation appears imminent, when the temperature is below 45 °F, or when relative humidity exceeds 85%. To provide adequate curing time, detail work shall terminate a minimum of four (4) hours before sundown.
- 6.3 All asphaltic surfaces to be coated shall have already been primed, if necessary, with cutback asphalt or asphalt primer and shall have been allowed adequate curing time before detail work commences. Refer to section 5.0 of this specification for further details.
- 6.4 All galvanized, phosphated, and non-painted metallic surfaces to be coated—including, but not limited to, metal flashings, expansion joints, air handling equipment, penetrations, and the like—shall have already been primed with **ISOPRIME™** corrosion inhibiting primer, or equal, and shall have been allowed adequate curing time before detail work commences. Refer to section 5.0 of this specification for further details.
- 6.5 The entire surface to be coated shall be free of dust, dirt, tar, oil, moisture, frost, or any other material that would impair the adhesion of **ACRYLINK G™** or **ACRYCAULK™** to the substrate surface.
- 6.6 All penetrations, expansion joints, transitions, gaps on or adjacent to the roof deck, small holes, and the like, shall be flashed, bridged, or repaired according to the following procedure:
 - 6.6.1 On a clean, dry surface use the appropriate size **FleeceBite™** tape to achieve an overlap or bridge over the above areas. Using a weighted roller to eliminate entrapped air
 - 6.6.2 On a clean, dry surface, a light coat of **ACRYCAULK™** shall be applied to both sides of the area to be flashed, bridged, or repaired
 - 6.6.3 A strip of non-woven or spun polyester roofing cloth, of an appropriate width, shall be pressed down into the caulk, thus bridging the gap. It is important to ensure that there are no fishmouths or wrinkles in the polyester.
 - 6.6.4 The polyester cloth shall then be completely covered with a second coat of **ACRYCAULK™**. This second coat shall completely cover the polyester cloth and shall be applied within the same working day as the application of the polyester cloth.
 - 6.6.5 Narrow gaps and small holes may be sealed with **ACRYCAULK™** alone, without the use of polyester cloth.

- 6.7 After completing this procedure, the newly flashed or bridged areas shall be allowed to cure overnight. Before coating application commences, all such areas shall be inspected and repaired, as necessary, with **ACRYCAULK™** or an approved building sealant.
- 6.8 **ACRYLINK G™** coating shall be applied over these areas during normal coating operation procedures.

Section 7.0 Coating Application

- 7.1 Coating application shall not commence during inclement weather, when a precipitation appears imminent, when temperature is below 45 °F, or when relative humidity exceeds 85%. To provide adequate curing time, coating application shall terminate at least four (4) hours before sundown.
- 7.2 Entire surface to be coated shall be free of dust, dirt, tar, oil, moisture, frost or any other material that would impair the adhesion of **ACRYLINK G™** elastomeric coating to the substrate surface.
- 7.3 All metallic, asphaltic, or aluminized surfaces to be coated shall have been prepared in accordance with the procedures specified in sections 4.0-6.0 of this specification.
- 7.4 **ACRYLINK G™** elastomeric coating: Base Coat
- 7.4.1 The base coat of **ACRYLINK G™** shall be applied at 1½ gallons per 100 square feet using conventional airless spray equipment or rollers.
- 7.4.2 Coating shall be applied so as to cover the substrate uniformly. All flashed, bridged, or repaired areas (as described in section 6.0) shall be coated again at this time, and during each subsequent coat.
- 7.4.3 Wherever possible, coating shall be applied at least three (3) inches beyond the termination of polyester flashings or bridges, especially along parapet walls, penetrations, air handling equipment, and the like.
- 7.4.4 The base coat may be applied in more than one pass, if desired, to accelerate curing, provided adequate curing time has been allowed between passes to prevent damage from being done to the membrane when it is walked upon.
- 7.4.5 **IPC** recommends the use of a darker color, like gray, for the base coat, as it cures much faster than a lighter color, such as white.
- 7.4.6 If sprayed, the base coat (the first pass of the base coat if applied in multiple passes) shall be back rolled as it is being applied in order to maximize adhesion to the substrate and to eliminate voids.
- 7.4.7 The base coat shall be allowed to cure for at least two (2) hours, depending on temperature and humidity conditions, after which an inspection shall be performed. Any defects in the coating membrane shall be repaired with **ACRYLINK G™** or an approved building sealant.
- 7.5 **ACRYLINK G™** elastomeric coating: Subsequent Coats
- 7.5.1 **IPC** recommends that **ACRYLINK G™** coating be applied in contrasting color coats to improve coverage and spray pattern. Order of application shall be as contractor specifies.
- 7.5.2 The surface of the **ACRYLINK G™** base coat, and all subsequent coats, shall be free of all moisture, dirt, and debris before a subsequent coat is applied.
- 7.5.3 The second coat of **ACRYLINK G™** shall be applied as soon as practical, within 24-72 hours of the application of the base coat.
- 7.5.4 The second coat, and all subsequent coats, shall be applied at a right angle to the direction in which the previous coat was applied. For example, if the previous coat was applied with a north-south motion, the subsequent coat shall be applied with an east-west motion.
- 7.5.5 The second coat, and all subsequent coats, shall be applied by conventional airless spray or roller at the rate specified to achieve the TDM minimum in a reasonable number of coats. Each coat shall completely mask the color of the previous coat.
- 7.5.6 The second coat, and all subsequent coats, may be applied in more than one pass, if desired, to accelerate curing, provided adequate curing time has been allowed between passes to prevent damage from being done to the membrane when it is walked upon.
- 7.5.7 Subsequent coats shall be applied by conventional airless spray or roller at the rate required to achieve the TDM minimum. It is essential to realize that the true surface area may be greater than the apparent surface area because of surface texture or profile. In order to achieve the TDM minimum on such a surface, the application rate must be increased appropriately.
- 7.5.8 Each coat shall be allowed to cure for at least four (4) hours, depending upon temperature and humidity conditions, and inspected and repaired as necessary, before a subsequent coat is applied.
- 7.6 The cured **ACRYLINK G™** elastomeric coating system membrane shall be TDM minimum in all areas and shall be free of all pinholes and defects.
- 7.7 Required spread rates for the **ACRYLINK G™** membrane are as follows:
- 7.7.1 5-year application: 3.0 gallons per 100 square feet of **ACRYLINK G™** total (30 dry mil average, 25 dry mil minimum).
- 7.7.2 10-year application (pitched): 3.5 gallons per 100 square feet of **ACRYLINK G™** total (35 dry mil average, 30 dry mil minimum).
- 7.7.3 10-year application (flat): 4.0 gallons per 100 square feet of **ACRYLINK G™** total (40 dry mil average, 35 dry mil minimum).
- 7.7.4 15-year application (pitched): 4.0 gallons per 100 square feet of **ACRYLINK G™** total (40 dry mil average, 35 dry mil minimum).
- 7.7.5 15-year application (flat): 4.0 gallons per 100 square feet of **ACRYLINK G™** total (40 dry mil average, 35 dry mil minimum).
- 7.7.6 20-year application (pitched): 5.0 gallons per 100 square feet of **ACRYLINK G™** total (50 dry mil average, 45 dry mil minimum).
- 7.7.7 20-year application (flat): 6.0 gallons per 100 square feet of **ACRYLINK G™** total (60 dry mil average, 55 dry mil minimum).
- 7.7.8 For the purposes of **IPC** specifications, "pitched" refers to a roof with a minimum slope of 1 in 12.
- 7.8 Having completed the procedures specified above, and having achieved the TDM minimum in all areas, the **ACRYLINK G™** membrane shall be given adequate time to cure.
- 7.9 For a minimum of thirty (30) days after the **ACRYLINK G™** membrane has been applied, contractor shall be responsible to inspect the membrane after every precipitation.
- 7.9.1 Contractor shall carefully remove water from small ponding areas ("birdbaths") with an air blower, without damaging the **ACRYLINK G™** membrane.
- 7.9.2 Areas of gross ponding water shall have been addressed and eliminated prior to coating application, in accordance with commonly accepted waterproofing and roofing practices.
- 7.10 **Isoclear™** shall be used on any areas susceptible to ponding water. All surfaces to be coated must be clean, dry and completely free of loose particles, grease, oil and/or any substance that would interfere with proper bond. The **Isoclear™** Hardener should be emptied into the **Isoclear™** Resin and properly mixed for 3 minutes, then allowed to sit for 10 minutes or a long as necessary for all air to escape. **Isoclear™** may be applied over **ACRYLINK G™** Acrylic Roof Coating after it has been thoroughly dry for at least 24 hours.

Section 8.0 Clean-Up

Upon completion of all work covered in this specification, and before the job is inspected, the contractor shall remove all equipment, material, and debris, leaving the area in an undamaged and acceptable condition. In no case shall the job be considered complete before the job site has been properly cleaned.

Section 9.0 Limitations

This system is to be used only in conjunction with commonly accepted waterproofing and roofing standards including but not limited to the following:

- 9.1 In order to qualify for a factory warranty, applicator must have Approved Applicator status, the roof must meet the square foot minimum, the **ACRYLINK G™** membrane must be continuous, and the membrane must meet the TDM minimum.
- 9.2 No application of component materials shall commence during inclement weather, when a precipitation appears imminent, when temperature is below 45 °F, or when relative humidity exceeds 85%.
- 9.3 No material shall be applied to wet, dirty, or frozen surfaces.
- 9.4 Coating application shall not commence until all other trades are off of the roof.
- 9.5 Coating shall not be applied to areas of gross ponding water. Contractor shall address and eliminate areas of gross ponding water prior to coating application.
- 9.6 In conjunction with the final inspection, all debris, material, and equipment are to be removed, leaving the area in an undamaged and acceptable condition.