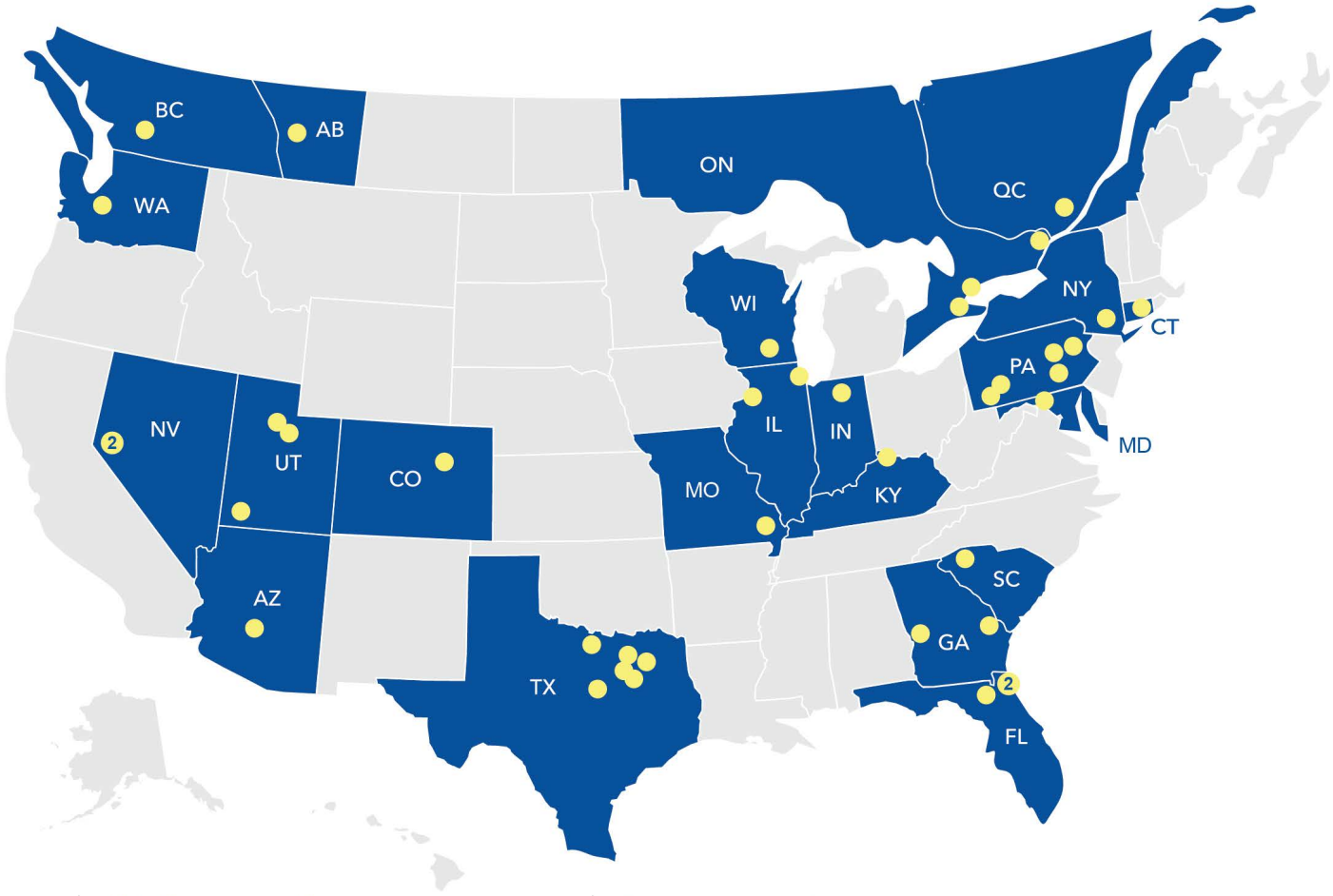
PIMA PERFORMANCE BULLETIN

How Polyiso Insulation Products are Manufactured

The manufacturing members of PIMA operate facilities in Canada and the United States that produce a variety of polyiso insulation products. An overview of the manufacturing process for polyiso products is illustrated and described below. While specific operational details can vary between manufacturers and plants, a general understanding of the steps required to manufacture polyiso can be important to industry stakeholders.



High River	Alberta
Phoenix	Arizona
Vancouver	British Columbia
Northglenn	Colorado
Bristol	Connecticut
Jacksonville (2)	Florida
Lake City	Florida
LaGrange	Georgia
Statesboro	Georgia
East Moline	Illinois
Franklin Park	Illinois
Bremen	Indiana
Florence	Kentucky
Hagerstown	Maryland
Sikeston	Missouri (future plant location)
Fernley (2)	Nevada
Montgomery	New York
Brampton	Ontario
Cornwall	Ontario
Toronto	Ontario
Camp Hill	Pennsylvania
Hazleton	Pennsylvania
New Columbia	Pennsylvania
Smithfield	Pennsylvania
Youngwood	Pennsylvania
Drummondville	Quebec
Greer	South Carolina
Cedar City	Utah
Salt Lake City	Utah
Tooele	Utah
Corsicana	Texas
Dallas	Texas
Diboll	Texas
Gainesville	Texas
Hillsboro	Texas
Terrell	Texas
Puyallup	Washington
DeForest	Wisconsin

POLYISO

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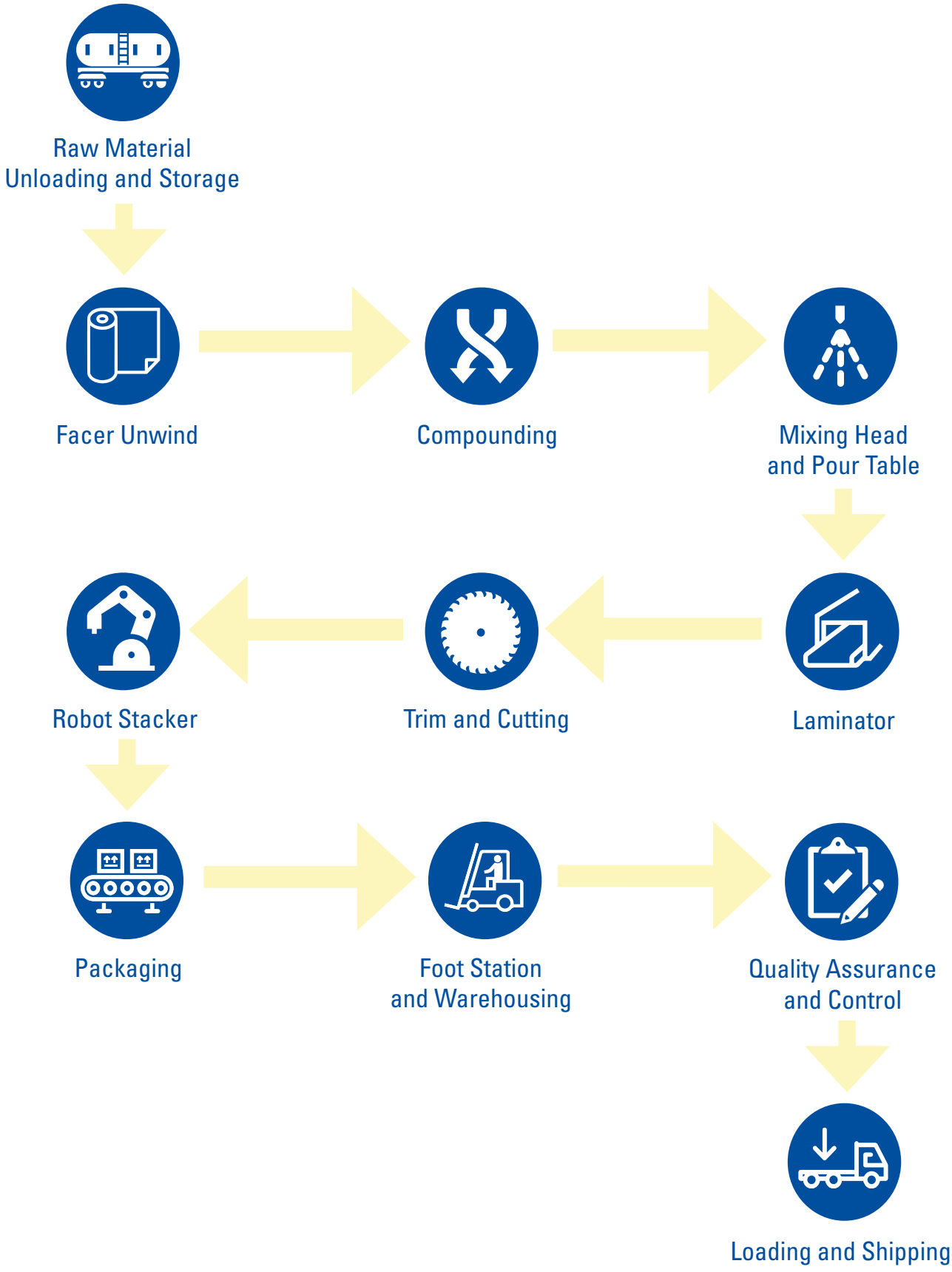
Manufacturing Process Overview:



Raw Material Unloading and Storage

Raw materials are delivered to the manufacturing plant via bulk shipment methods like rail cars or large totes. After unloading, certain materials are transferred and stored in large on-site tanks or totes.

Facer Unwind

Rolls of facer material are loaded on the front end of the lamination line. Two rolls of material are unwound and fed toward the laminator. The material will become the top and bottom of the finished product.

Compounding

Raw materials are compounded and heated to form the polyol or B-side component of the product formulation. The isocyanate or A-side of the product formulation is heated and transferred through a separate line.

Mixing Head and Pour Table

The A-side and B-side components are mixed with the blowing agent at the mixing head. At the pour table, the mixture is applied through the mixing head applicator and laid onto one layer of the facer material. The chemical reaction begins at this point in the process and the second layer of the facer material is brought into contact with the foam mixture as it enters the laminator.

Laminator

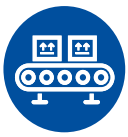
The chemical reaction transforms the liquid mixture to the rigid foam core as the product moves through the laminator. The laminator is used to control the thickness of the finished product as well as other characteristic like cell formation, curing, and facer adhesion. The laminator can also be adjusted to form any tapered characteristics for finished polyiso boards.

Trim and Cutting

The product is manufactured in a continuous process and must be trimmed and cut after exiting the laminator. A cross-cut saw and gang saw are used to cut the material down to either 4′ or 8′ finished lengths.

Robot Stacker

A conveyor system moves the polyiso boards through the trimming and cutting process to the robot stacker. An initial quality check is performed as the boards are stacked in bundles.



Packaging

The stacked bundles are transferred to a hooding machine where each bundle is individually wrapped with a plastic film. The factory packaging secures the product for warehouse storage and transport.

Foot Station and Warehousing

The product identification labels are applied to each bundle. A forklift transfers the bundles from the end of the line to warehouse storage. Polyiso boards complete the curing process while stored in the warehouse.

Quality Assurance and Control

Product samples are selected and subjected to various quality assurance and quality control (QA/QC) testing. The QA/QC is performed against applicable standards and internal controls for physical properties like initial R-value, compressive strength, and dimensional stability.

Loading and Shipping

After QA/QC testing and storage in the warehouse, bundles are transferred to the loading dock. Bundles are loaded onto flatbed trucks and secured for transport to jobsites or distribution locations.

PIMA

For more than 30 years, the Polyisocyanurate Insulation Manufacturers Association (PIMA) has served as the voice of the rigid polyiso industry, proactively advocating for safe, cost-effective, sustainable, and energy-efficient construction. Organized in 1987, PIMA is an association of polyiso manufacturers and industry suppliers. Polyiso is one of North America's most widely-used and cost-effective insulation products.

PIMA produces performance bulletins to provide technical and industry information on key topics related to insulation performance. The resources provide the public with information that can be used to evaluate polyiso insulation products and compare their performance to other common insulation types. Industry professionals should review individual polyiso manufacturer resources for product-specific information.

For more information on polyisocyanurate insulation, visit www.polyiso.org

PIMA
POLYISOCYANURATE INSULATION MANUFACTURERS ASSOCIATION

ATLAS CONNECTING FUNCTION WITH FACILITY™ CARLISLE CONSTRUCTION MATERIALS Firestone Firestone Building Products

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