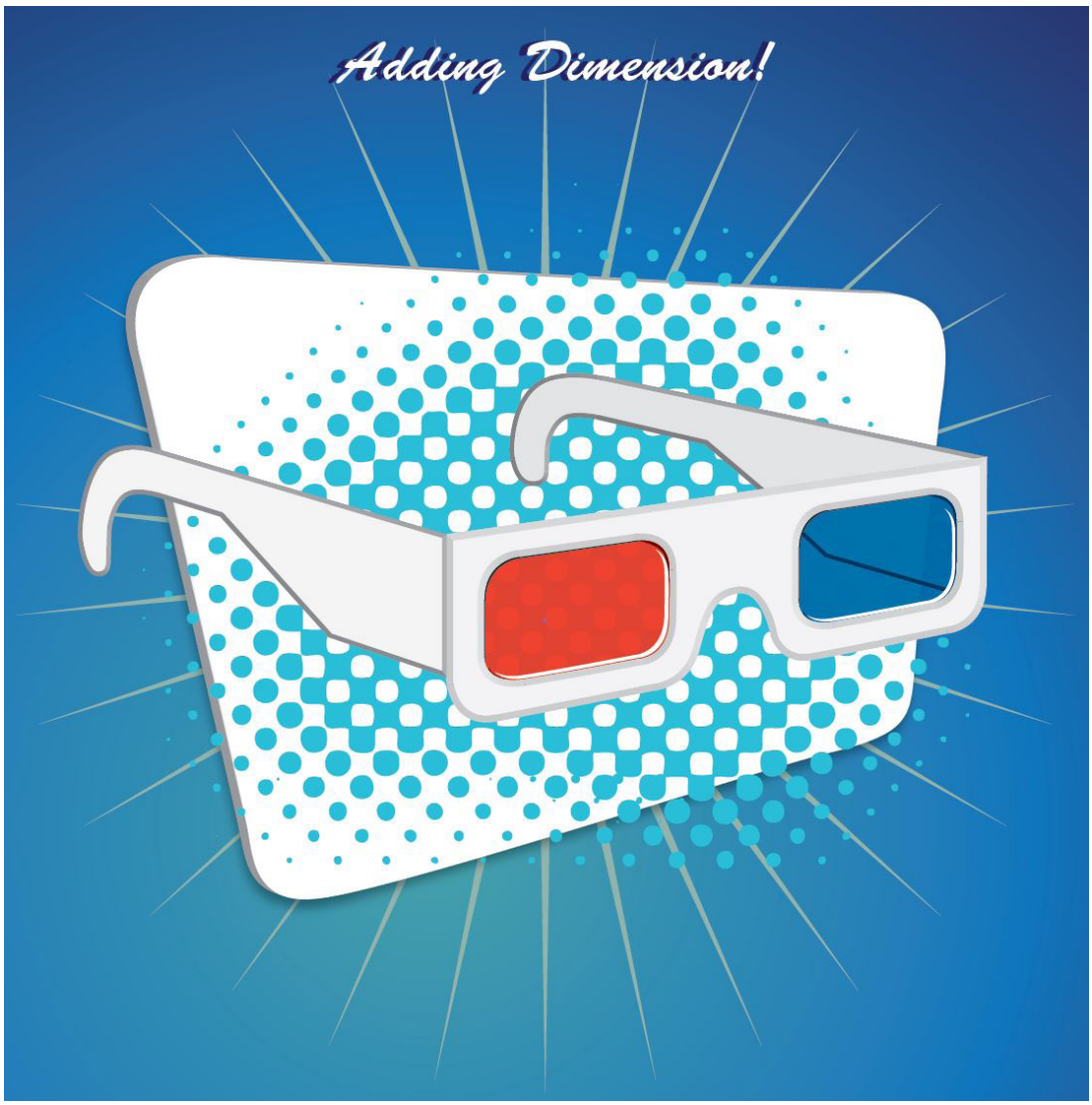
The Paper-Faced Foam Board Collection

FOME-COR®

CANVAS JETMOUNT SINGLESTEP® QUICKSTIK FOUNDATION

FOME-COR® RECOVERY

FABRICATION GUIDE



3A Composites USA

3ACOMPOSITESUSA.COM/DISPLAY / 800.626.3365

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INTRODUCTION

Thank you for choosing a 3A Composites product for your graphic display applications.

This Fabrication Guide was created to incorporate the most common fabrication methods that are used with 3A Composites' line of graphics display products. Not all fabrication methods are compatible with each product, but this format was kept for consistency purposes. The term "the substrate" is used throughout this guide and is meant to apply to all members of the substrate collection unless noted otherwise. Those fabrication methods that do not apply to a certain product are stated with a short explanation and a recommendation for an alternative product that fits that application method.

This manual also contains Appendix I which provides a Material Safety Data Sheet section. Appendix II includes an adhesives, fastening and storage guidelines section. Any unique product information will be contained in Appendix II. See Table of Contents. An Appendix III section lists products that can be used in conjunction with 3A Compositesproducts. 3A Composites is not responsible for the performance of any of these products when used independently or with any 3A Composites product.

The date of the last revision is shown on the bottom right hand corner of each page. Please make sure you have the most current version by going to 3acompositesUSA.com/display and selecting the downloads section.

If you have any further questions about our product or about how to use this manual, please feel free to contact us at 1-800-626-3365.

PLEASE NOTE:
TRIALING IS RECOMMENDED TO ENSURE SUITABILITY FOR THE PROPOSED APPLICATION AND FABRICATION BEFORE FULL-SCALE COMMERCIALIZATION.

INTRODUCTION TO FOME-COR®

The original paper-faced foam-centered graphic display boards that set the industry standard. More graphic arts ideas have appeared on legendary FOME-COR products than any other graphic arts board. FOME-COR, the original foam core graphic arts board, has been supporting your creative vision for more than 40+ years; and it's still the one you ask for by name.

FOME-COR products consist of extruded polystyrene foam bonded between various high-quality papers. It's available in a wide variety of sheet sizes and thicknesses as described below for just about any graphic display application. You can choose from white, black, or natural liners; white or black foam for various looks; recovery foam or embossable; and two types of adhesive surfaces on clay-coated liners.

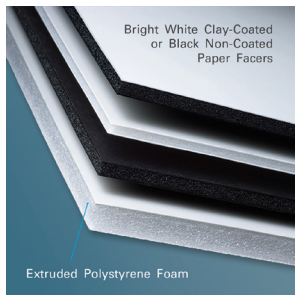
The FOME-COR collection consists of several standard products as well as a selection of specialty products:

The FOME-COR Collection:

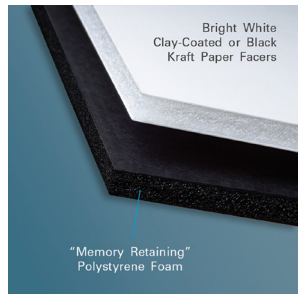
- FOME-COR
- FOME-COR JETMOUNT
- FOME-COR QUICKSTIK Self-Adhesive
- FOME-COR SINGLESTEP® Heat-Activated
- FOME-COR RECOVERY
- FOME-COR CANVAS
- FOME-COR FOUNDATION Acid-Free

The FOME-COR collection of products feature a lightweight, rigid, smooth, flat and uniform surface. These characteristics make FOME-COR suitable for a wide variety of application and fabrication methods. It can be mounted on or direct printed. It can be easily cut with knife like tools or dramatic die cutting. Die-cutting features of an open edge can be accomplished with FOME-COR RECOVERY, while pillowing edges and embossing can be accomplished with FOME-COR. FOME-COR board products are available as thin as 1/8", progressing to 3/16", 1/4", 3/8" and 1/2". Consult the 3A Composites website for the most current products and sizes at **3acompositesUSA.com/display.**

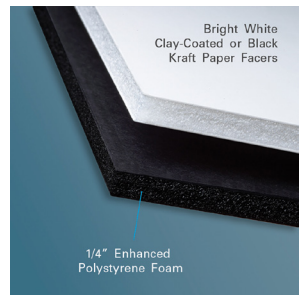
The FOME-COR adhesive products provide two methods for adhering artwork with either a peel and stick self-adhesive in a repositional low-tack or quick set high-tack, or a heat-activated surface. For those conservation framing jobs we provide an acid-free board.



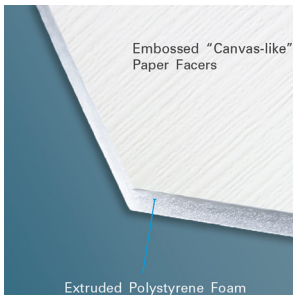
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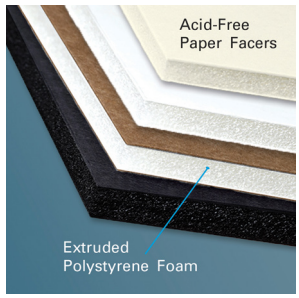
FOME-COR RECOVERY



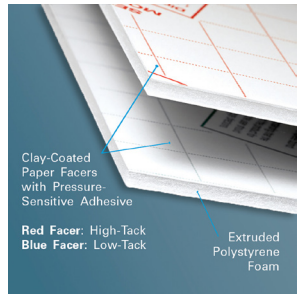
FOME-COR JETMOUNT



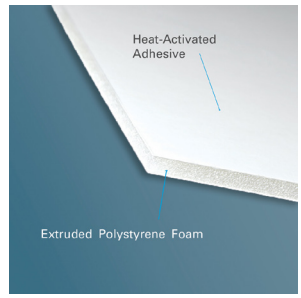
FOME-COR CANVAS



FOME-COR FOUNDATION



FOME-COR QUICKSTIK
Self-Adhesive



FOME-COR SINGLESTEP
Heat-Activated

FOME-COR®

WHY CHOOSE FOME-COR?

The Paper-Faced Foam Board Collection

FOME-COR has been the industry's leading paper-faced foam board for more than 60 years. It is comprised of extruded polystyrene foam with premium bright white, double clay-coated or black uncoated paper facers.

- The original graphic arts foam boards with a great reputation for performance
- Excellent for screen or direct digital printing applications
- Perfect for die cutting with a compressed, pillowing edge that stays closed
- Quick service on cut-to-size orders including large sheets up to 8'x10'
- Uniquely embossable for 3-D effect displays
- Extremely lightweight and cuts easily & cleanly, even by hand

FOME-COR RECOVERY is comprised of specially formulated **memory** polystyrene foam with bright white, double clay-coated or black uncoated paper facers.

- Bright white, clay-coated paper facers provide excellent printing results
- Edges remain open when die cut
- Surface is more resilient to denting

FOME-COR FOUNDATION is comprised of extruded polystyrene foam with high-quality, **acid-free paper facers**.

- Provides a flat, smooth surface for superior mounting & framing with no read-through lines
- Facers ensure a flat and rigid backer material used for framing applications
- Perfect for the archival preservation of valuable art and photographs
- A cost-effective alternative to corrugated cardboard for non-printing applications
- Antique white paper facers meet Library of Congress standards for conservation framing

FOME-COR JETMOUNT is comprised of an **enhanced, densely extruded polystyrene foam** with bright white, double clay-coated or black uncoated paper facers.

- The denser foam core provides increased rigidity and warp resistance
- Great for more demanding mounting jobs such as free-standing display, signage and framing
- Prints and cuts with the same quality as standard FOME-COR

FOME-COR CANVAS is comprised of polystyrene foam with **embossed "canvas like" clay-coated paper** facers on both sides.

- Deep embossed texture creates a more artistic look
- Prints and cuts with the same quality as standard FOME-COR
- Economical alternative to competitive canvas-like products

FOME-COR QUICKSTIK is comprised of extruded polystyrene foam with coated paper facers, one of which is covered with **pressure sensitive adhesive**. Simply peel back the release facer as you position the graphic on the sticky surface.

- Eliminates the use of pressure-sensitive adhesive stock
- Repositionable Low-Tack (LT) is well suited for hand-mounting methods (blue release facer)
- Permanent bonding High-Tack (HT) is pressure-activated and ideal for high volume, automated mounting methods (red release facer)

FOME-COR SINGLESTEP is comprised of extruded polystyrene foam with coated paper facers, one of which is covered with **heat-activated adhesive**.

- Adhesive is activated with low temperature settings for a quick, damage-free mount
- Eliminates the use of hot melt tissue stock
- Can be used on a heated mechanical or vacuum dry mount press, or with a heated roller laminator
- Release papers are included in cartons and can be used more than once

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APPLICATION GUIDE

	POP Displays	Exhibits & Fixtures	Framing	Interior Signage	Exterior Signage	Structural Signage	Interior Design	Packaging	Poster Glazing	Mechanical Assembly
$ **FOME-COR FOUNDATION** Acid-Free	O	O	■[0]	O						
FOME-COR	O	O	■	O						
FOME-COR RECOVERY	O	O	■	O						
FOME-COR SINGLESTEP Heat-Activated	O	O	■	O						
FOME-COR CANVAS	O	O	■	●			●			
FOME-COR JETMOUNT	O	O	■	O						
FOME-COR QUICKSTIK Self-Adhesive	O	O	■	O						
DISPA	O	O	■	O			O	O		
POLAR	●	●	●	●		●	●			
$$ **SINTRA CONSTRUCT**		●	■			●				■
SINTRA VERS	●	●	■	●	●					
SINTRA	●	●	■	●	●		●			
SINTRA ECLIPSE	●	●	■	●	●		●			
SINTRA XT										
GATORBLANKS	●	●		●	●					
GP APEX	●	●	■	●	●					
GATORFOAM	●	●	■	●	●[1]					
GATORFOAM SELF-ADHESIVE	●	●	■	●						
LUMEX G	●	●	■	●				●	●	●
SWEDBOARD FIBRE	■	■		■	■	■				■
$$$ **DIBOND**	■	■	■	■	■	■[2]	■			■

Trialing is recommended to ensure suitability for the proposed application before full-scale commercialization.

- O Short term application
- ● Medium term application
- ■ Long term application
- 0 Archival mounting applications
- 1 Black GATORFOAM is not recommended for outdoor usage
- 2 Applications such as workzone signage, canopies, pylons, and column covers

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FABRICATION GUIDE

		Mounting	Repositioning Vinyl	Digital Printing	Screen Printing	Painting	Knife Cutting	Saw Cutting	Routing	Die Cutting / Punching	Embossing	Forming Curves	Creasing
$	**FOME-COR FOUNDATION** Acid-Free	◊[0]					◊			◊	◊		
	FOME-COR	◊		◊	◊	◊[3]	◊			◊	◊		◊
	FOME-COR RECOVERY	◊		◊	◊	◊[3]	◊			◊			
	FOME-COR SINGLESTEP Heat-Activated	◊					◊			◊	◊		◊
	FOME-COR CANVAS			◊	◊	◊	◊			◊	◊		
	FOME-COR JETMOUNT	◊		◊	◊	◊[3]	◊	◊	◊	◊	◊		
	FOME-COR QUICKSTIK Self-Adhesive	◊					◊			◊	◊		◊
	DISPA	◊		◊	◊	◊	◊		◊	◊		◊[7]	◊
	POLAR	◊		◊	◊	◊	◊					◊[7]	
$$	**SINTRA CONSTRUCT**	◊[1]	◊			◊	◊[4]	◊	◊	◊[5]		◊	
	SINTRA VERS	◊[1]	◊	◊	◊	◊	◊[4]	◊	◊	◊[5]		◊	
	SINTRA	◊[1]	◊	◊	◊	◊	◊[4]	◊	◊	◊[5]		◊	
	SINTRA ECLIPSE	◊[1]	◊	◊	◊	◊	◊[4]	◊	◊	◊[5]		◊	
	SINTRA XT	◊[1]	◊	◊	◊	◊	◊[4]	◊	◊	◊[5]		◊	
	GATORBLANKS	◊				◊	◊	◊	◊				
	GP APEX	◊	◊	◊	◊	◊[3]	◊	◊	◊[8]	◊[5]		◊[7]	
	GATORFOAM	◊		◊	◊[2]	◊[3]		◊	◊				
	GATORFOAM SELF-ADHESIVE	◊	◊					◊	◊				
	LUMEX G	◊	◊	◊	◊	◊		◊	◊	◊		◊	
	SWEDBOARD FIBRE	◊		◊	◊	◊	◊					◊[7]	
$$$	**DIBOND**	◊[1]	◊	◊	◊	◊		◊	◊	◊[6]		◊	

Trialing is recommended to ensure suitability for the proposed fabrication before full-scale commercialization.

0 Archival conservation mounting
1 Cold mounting techniques only
2 Face priming will provide better results
3 Do not expose polystyrene foam to solvent-based paints
4 1-3mm may be cut with a knife or blade
5 May be die cut in gauges up to 5mm or 3/16”
6 Punch press die set is required
7 Can be V-cut & folded to form shapes
8 Recommended for thicknesses >1/2” only

SECTION I: MOUNTING

General Notes

Mounting, laminating and bonding are terms that are often times interchanged. For this document, mounting is defined as the attachment of the graphic to the substrate. Lamination is the application of a covering (film or liquid) over the mounted item to either protect the graphic or provide a certain appearance i.e. matte or glossy finish. Bonding also conveys affixing one thing to another. This can involve a graphic to a substrate or one substrate to another. This document uses the term "mounting" to convey affixing as opposed to bonding. A paper, foil, plastic or fabric graphic can be mounted to the substrate.

With regard to adhesive, mounting consideration should follow the adhesive manufacturer's instructions. In general, determine the minimum amount of adhesive lay down to attain the desired adhesion level. It is advisable to leave the boards for a period of time to setup. Consult the adhesive manufacturer's instructions to see what specific times are recommended. Please refer to Appendix I for additional adhesive information.

Archival Mounting (Conservation Framing)

- Only FOME-COR FOUNDATION Acid Free is suitable for Archival Mounting.

Conservation or archival mounting requires the selection of materials that are pH neutral to use in conjunction with the substrate and the artwork. This includes matting material, hinges, and adhesives. Matboards, particularly those in contact with the art, should meet the Library of Congress specifications. Art must never be mounted in contact with the glass. If long-term preservation is the goal, only UV protection glass should be used. Finally, it is a good practice to seal the back of the frame with a dust cover or barrier paper.

Methods for Mounting

There are a variety of methods (adhesive, pressure, etc.) for mounting a graphic to a substrate. For this document, mounting will be broken into two groupings; hot or cold mounting, with discussion on the various methods of applying pressure.

- Hot mounting provides a heat source to activate the adhesive. Typically, this is accomplished with a heat source associated with either a vacuum press or a roller press.
- Cold mounting typically utilizes a spray or pressure-sensitive film or coating in combination with a roller press.

Printed papers, foils, and fabrics can all be mounted to the substrate provided that the proper types of adhesives are selected. Mounting can be accomplished on most standard equipment capable of applying adhesive and laminating sheets or roll stock to rigid boards.

Surface Preparation

Surface should be cleaned and free of any surface contaminates (i.e. oils, dust particles, etc.) prior to commencing.

Other Considerations

- Care should be taken when using laminate films on only one side of the mounted graphic. Moisture pickup will be sealed on one side while the other side in not protected from moisture pickup. Bowing may occur because of moisture imbalance.
- Additionally, care should be taken when mounting only one side with spray adhesives. As the mount cures out, tensile forces within the adhesive may cause the substrate to bow. It may be necessary to apply a counter-mount of comparable strength on the backside.
- Finally, one must use the minimum amount of tension when mounting with film or pressure sensitive adhesives as too much tension will cause the substrate to bow; too little will cause the graphic to wrinkle.

Hot Mounting - General Notes

The substrate can be hot mounted utilizing dry mount tissues or FOME-COR SINGLESTEP® Heat-Activated can be used. The following settings are recommendations; trialing is necessary before commercialization:

- Maximum temperature not to exceed 190°F.
- Maximum time not to exceed two-to-three minutes
- Panels in excess of 3/16" should be placed in the press and pre-heated prior to mounting
- Be sure to follow the adhesive supplier's recommendations.

FOME-COR SINGLESTEP Heat-Activated

FOME-COR SINGLESTEP Heat-Activated has a low activation temperature that is designed to protect the artwork/graphic from heat damage, so one does not need to increase heat to achieve proper adhesion. With this material, the heat and dwell times should remain at the recommended levels to get the best results. Too often, operators increase heat and boil out the adhesive. Increasing the temperature can damage the graphic, the laminate, or the FOME-COR material.

Conditions can vary depending on: the thickness of the graphic, the type of graphic (paper, vinyl, cloth, etc.) to be mounted and the use of a laminate film over the graphic. Trialing FOME-COR SINGLESTEP Heat-Activated with various types and thicknesses of graphic material and laminating film is recommended.

TYPE OF DRY MOUNT EQUIPMENT	TEMPERATURE & TIME DURATION*
Vacuum Press	165° to 170°F 2 to 2½ minutes
Roll Laminator	Roller Temperature 225°to 230°F Roll Speed 2-3 feet/minute

*Trialing graphic material and any laminating film is recommended for best results. Temperatures and speeds may vary depending on equipment.

Six Steps for Mounting with FOME-COR SINGLESTEP Heat-Activated

1. Preheat equipment – keep your equipment calibrated to ensure proper temperature control.
2. Align the graphic to the Heat-Activated substrate. The adhesive faces the underside of the graphic.
3. Protect the graphic and press with the provided release liner. The release liner may be used more than once.
4. Set the temperature and determine dwell time before running the project. (Trialing the graphic material and any laminating film is recommended for best results.)
5. Run the mount.
6. For best results, allow the mounted graphic to cool approximately 30 seconds to enhance the bond. Place weight on the mounted panel during the cooling period to ensure the panel will lie flat as it stabilizes to room temperature.

Cold Mounting - General Notes

Getting Good Adhesion

• To cold mount pressure-sensitive adhesives, you need sufficient pressure. You also must make sure that proper spacers are used. Because effective mounting depends on equal force exerted across the entire width of the substrate being mounted, the top roll must move down evenly left and right. Even contact between the top and the bottom mounting rolls is essential. It is recommended that the clearance of the mounting rolls be adjusted so that the substrate is compressed slightly (0.010" – 0.020") to assure a good bond.

• Adequate pressure helps squeeze out air from between the adhesive, the substrate and the print.

• The mount obtained after 3 hours will generally allow for processing. Maximum mount is usually obtained within 24 hours after mounting.

• To test adhesion, flex the finished mount. It should not come loose in the center.

• Moisture can become trapped between layers of porous material (such as paper) and cause blisters. The level of moisture in the atmosphere should be reduced before press work. Prints may even have to be pre-dried.

• When tacking prints to the substrate, some shops will hang a number of tacked pieces in an upside-down position until they are ready to pass them through. As a precaution, it is advisable not to hold them any longer than 10 minutes or the prints may absorb moisture, change in dimension and cause bubbles and wrinkles.

• Please contact the film manufacturer for recommendations concerning the use of their respective laminating material in conjunction with the substrate as film choice is the most important consideration.

• It is advisable to use a film with a high "green tack" strength. When using pressure sensitive films, the substrate should be at room temperature to achieve optimal results.

Demounting Bad Mounts

• Pressure-sensitive adhesives may be demounted if done within 5 minutes after mounting. The print will probably be ruined, but the substrate may be reused.

• Beyond 5 minutes, the adhesive has set and other methods will have to be used, such as a hot air gun or a hair dryer to peel off the laminate. The remaining adhesive may be taken off with isopropyl alcohol or mineral spirits.

Avoiding Wrinkles & Surface Blemishes

• Wrinkles can be caused by misalignment of adhesive roll, too much pressure, or unparallel rolls.

• Small bumps, particularly visible with Cibachrome or glossy prints, are caused by trapped dirt or hardened adhesive. Good housekeeping and an ionizing static eliminator on the press are important to minimize dirt pick-up. During mounting, the back of the print should be checked and wiped down before it is processed. If bumps are caused by hardened adhesive (cut open to check), use a fresh roll or sheet of transfer adhesive. To prevent strikethrough, one might also consider using a print made with thicker paper (.007+).

• Pressure roller applicators can compress the leading edge of the mounting substrate. In order to keep the leading edge from rounding as it goes through the roller, use a plastic lead or guide of the same thickness of the mounted substrate.

Clear Overlays

• Clear high-gloss overlays enhance color and protect against fading indoors and outdoors. To avoid blistering, do not use overlays, clear coatings, or sprays which contain solvents.

Cold Mounting Procedures

There are several techniques for cold mounting to the substrate:

Cold Mounting by Hand Using Transfer Adhesive

• Take a sheet of transfer adhesive (both sides covered by release paper) and fold back release paper on one side approximately 1/2" from one edge.

• Tack on edge of print to exposed adhesive.

• Lift the print slightly, remove the rest of the release paper and use a roller or squeegee to smooth the print onto the adhesive. The back of the print is now coated with an adhesive which is protected by release paper.

• Before mounting to the substrate, remove excess air between print and adhesive. This is done by turning the print over so that the release paper is up and smoothing out from the center with a squeegee.

• Now peel off approximately 1/2"–1" of release paper from upper edge and fold back.

• Tack on to the substrate, lining up edges.

• Using a hand roller or squeegee, closely follow the removal of the liner to eliminate bubbles caused by air entrapment. Work with a small surface at a time (approximately 12"). Continue this step until the mounting is complete.

Cold Mounting by Hand or Press Using Spray Adhesive

• Select a spray mounting adhesive that is safe to use with polystyrene and the artwork to be mounted; solvent based adhesives should be used with caution.

• Spray adhesive on the back of the piece to be mounted. Spray 6"– 8" away from the surface. A double coat is best, with the second coat applied in a cross direction to the first coat. For mounting most art materials, adhesive need only be applied to one surface, preferably the print. Avoid using excessive bonding adhesive

• Before mounting, allow adhesive to dry to the touch; the adhesive must be aggressively tacky. If there are blisters due to trapped solvent, allow slightly longer than 4 minutes of drying time.

• Carefully position piece on the substrate and smooth out if possible to eliminate any wrinkles and trapped solvent.

• If using a press, simply turn on the press to complete the mount.

• If mounting is done by hand, place a clean sheet of the substrate over the laminated piece and weigh down for 15 minutes to obtain the maximum bond. Depending upon the type of adhesive, allow 24 hours for maximum cure out before exposing the laminate to sudden temperature or humidity changes.

Cold Mounting by Roller Laminator With an Adhesive-backed Graphic

• Adjust the rollers to slightly compress the substrate.

• Peel off a 1/2"–1" section of release paper from the upper edge of the preprinted adhesive backed paper.

• Tack on to the substrate, lining up edges.

• Feed tacked edge into nip of rollers keeping printed piece bent away from the substrate.

• As it passes through the rollers, strip away the release paper. (Make sure there are no wrinkles or trapped dirt.)

Cold Mounting Procedures

Cold Mounting Non-Porous Graphics

For non-porous material such as PVC, other plastics or metal, the following types of contact adhesive with solvent may be used.

- Neoprene, nitrile, polyurethane or other synthetic rubber types.
- Adhesive must be applied to both faces. Parallel beads of adhesive are often preferred because it allows evaporation of solvent providing faster cure.
- For mounting the substrate to flexible PVC sheets, only plasticizer-resistant types of adhesives should be used.

Cold Mounting Porous Graphics

For porous materials such as paper, textiles, fabrics or wood, the following adhesives may be used.

- Contact adhesive with solvent: Same systems as for non-porous materials.
- Construction mastic, structural silicone adhesives.
- Considerations such as expected temperature ranges (expansion/contraction), porous material, and size of substrate should be taken into careful consideration when deciding on a method of attachment.

Cold Mounting With Pressure Sensitive Tapes

Pressure sensitive tapes can be used for:

- Less demanding applications that are stress-free.
- Adhering parts during installation work.
- Holding parts while the primary adhesive is curing.

It is recommended to trial pressure sensitive tapes prior to use.

General Notes

The substrate is not recommended for this fabrication method. Please see the fabrication guide on page 8 for choosing the best recommended product.

SECTION III: DIRECT DIGITAL PRINTING

General Notes

Large format digital printing on flatbed printers has excellent application for the substrate. Although the substrate is available in a wide range of colors that all demonstrate excellent ink adhesion, the predominant substrate color is white when direct digital printing. However, colored variations of the substrate may provide vibrant color contrasts depending upon the availability of a white print head on the printer.

FOME-COR FOUNDATION Acid Free, FOME-COR QUICKSTIK Self-Adhesive, and FOME-COR SINGLESTEP Heat-Activated are not recommended for this fabrication method. Please see the fabrication guide on page 8 for choosing the best recommended product.

Surface Preparation

Surface should be cleaned and free of any surface contaminates (i.e. oils, dust particles, etc.) prior to commencing.

Suitable Inks

Actual ink type depends upon the printer make and model. Consult the printer owner's manual for recommendations. Trialing for ink compatibility is always recommended.

The substrate readily accepts all types of inks including:

- Aqueous
- Solvent-Based
- UV-curable

SECTION IV: DIRECT SCREEN PRINTING

General Notes

Large format screen printing has excellent application for the substrate. The substrate is available with bright white, double-clay coated facers which demonstrate excellent ink adhesion.

FOME-COR FOUNDATION Acid Free, FOME-COR QUICKSTIK Self-Adhesive, and FOME-COR SINGLESTEP Heat-Activated are not recommended for this fabrication method. Please see the fabrication guide on page 8 for choosing the best recommended product.

Surface Preparation

Surface should be cleaned and free of any surface contaminates (i.e. oils, dust particles, etc.) prior to commencing.

Suitable Inks

When screen printing with the substrate, the following inks may be suitable:

- Solvent-Based
- Vinyl/Acrylic
- UV-curable

Screen Printing inks should be tested in a manner which duplicates your printing process before initiating production. It is advised that you contact the equipment and ink supplier to provide you with specific recommendations to achieve maximum results. It is strongly recommended to consult the appropriate ink manufacturer regarding any required ink additives such as catalyst for proper adhesion and exterior use.

Ink Curing

- The ink, once applied, must be given proper time and treatment to completely adhere and cure.
- Oven temperature must be controlled to a maximum of 180°F to prevent deterioration of the foam and possible warping.

SECTION V: PAINTING

General Notes

Painting is a suitable fabrication option for the substrate, whether for artistic expression or more commercial applications. On some projects that involve the substrate, a small quantity of "custom color" may be required that is often not practical to obtain from the factory and post painting is a viable option.

Surface Preparation

Surface should be cleaned and free of any surface contaminates (i.e. oils, dust particles, etc.) prior to commencing.

Suitable Paints

The substrate readily accepts the following:

- Poster colors
- Acrylic paints
- Tempera
- India ink
- Latex-based pigments
- Lacquers
- Vinyls
- Some water-based paints may also be suitable, depending upon the application.

Lacquers, shellacs, and solvent-based paints should be used only when not allowed to penetrate the liner or contact the foam edge. The types of paints are likely to attack and deteriorate the polystyrene foam.

When coating the majority of one side of the substrate, the backside should also be coated to maintain more perfect long-term flatness. Place weights at the edges when allowing the substrate to dry. Heavy paint coating will warp the substrate; therefore, it is advisable to trial the paint coating to determine the proper coat thickness before proceeding to production.

Application

Paints can usually be applied with a brush or roller, although conventional air spray equipment will provide a more consistent appearance. Consult paint manufacturer's literature for recommended application technique and thinning requirements.

Drying

For drying and cure times, consult paint manufacturer's literature.
Due to the wide variety of paint products on the market, testing is recommended for the initial use of any coating system before commercialization.

SECTION VI: CUTTING

General Notes

There are many different methods in which "cutting" can be accomplished. This guide focuses on five primary cutting methods:

- Knife Cutting
- Shearing
- Saw Cutting
- Routing
- Die Cutting/Punching

When necessary, laying out a pattern on the surface of the substrate is best achieved with a soft pencil.

Knife Cutting

The substrate can be cut by hand with mat knives, utility knives, and razor blades, or automated CNC methods. Wall-mounted cutters also work well. The key to getting a smooth, clean cut is to use a very sharp thin blade held at as low an angle as possible to the board, which reduces friction and allows the foam to slice rather than tear. If a straight edge is being used as a guide, it may be practical to make the cut in more than one pass which also helps eliminate any foam tearing.

Standard straight cuts (squares, rectangles & larger circles) can be performed with a drag knife attachment on your CNC cutter, while contour cuts can be made using an oscillating tool. We recommend that you use the factory default settings in your software, usually labeled as Foam Board or Soft Foam Board. Factory settings for cutting 3/16" FOME-COR and FOME-COR RECOVERY are the following:

Esko Factory Settings:
Speed: 1000 mm/sec - acceleration: 10 mm/sec^2

Zund Factory Settings:
Speed: 40 in/sec - acceleration: 4 (this setting is using the UCT drag knife tool)

Colex Factory Settings:
Speed: 1000 in/min

**Make sure you confirm that the correct thickness has been selected to ensure a quality thru cut.

Achieving the best cuts possible will require the correct blades. We highly suggest that you use OEM blades and not an aftermarket blade. OEM blades are made from a higher quality of metal and will last longer. The suggested blades below are recommended by both the cutter manufacturer as well as by 3A Composites:

Esko: BLD-SR8140
Zund: Z-46 (Item No. 4800073)
Colex: Universal single edge blade (T00330)

> ***Tip:** When cutting laminated FOME-COR, cleaning the blade with alcohol every few boards (depending on how many cuts per board) will clean the glue build up from the lamination and will increase the amount of quality cuts.

All cutter manufacturers have stated two things:

1. The 10% rule - when 10% of your cuts have become bad, it's time to change the blade.
2. Of all the products to be cut with a drag knife, paper products such as foam boards are the most abrasive and dull the blade the fastest.

SECTION VI: CUTTING

Shearing

Large-scale straight-line cutting of the substrate can be done in several ways, including automated razor blade cutters or power shearing with guillotine cutters. Though not generally recommended because they can compress and fray the edges of the board, a guillotine cutter can be used to cut one or more sheets at a time. Caution must be observed to prevent the foot-clamp from indenting the board's edge. A stop block placed on each side of the foot-clamp may be necessary. A sheet of cardboard on top of the substrate may reduce compression. The blade must be maintained sharp and cut with a scissor-like motion.

Saw Cutting

Saw cutting is generally not recommended for paper-faced foam board cutting. However, some custom saw blades can be utilized. General Saw Company makes a blade for this use. Other manufacturers make thin-rimmed, high-speed carbide-tipped plastic cutting blades (72-80 25° alternating teeth on a 10" blade) acceptable for cutting the substrate.

Band Saws

- Band saws with a similar tooth design and a linear speed approximating 9000 ft/min can be used.
- Trialing this type of cutting is a must to ensure the cut meets the desired customer result.

Intricate Shapes

- Cutting intricate curves and shapes can be accomplished with a Cutawl model K-11 power tool.
- Cutawl 21D or 23D blades are available for cutting the substrate.

Routing

The substrate is not recommended for this fabrication method. Please see the fabrication guide on page 8 for choosing the best recommended product.

Die Cutting / Punching

Die cutting and/or Punching is a method for the rapid production of flat shapes or cutouts. Typical applications would include the die cutting of:

- Letters & shapes
- Openings in a sheet used as part of an assembly
- Puzzle pieces
- 3D assemblies - die cutting part-way through to form hinges. Hinges can be reinforced by Mylar Tape. The flat die-cut piece can be folded into a three-dimensional shape such as a picture frame or display.

Die cutting and punching processes are similar in that they both can provide a curved shape by cutting through a substrate. Die cutting, however, uses one steel rule die that comes in contact with a flat platen, whereas a punch has two designed shapes; a male and a female that cut the shape when pressed together.

Die cutting is typically used with lighter weight paper or foam type materials, where punches are used for heavier materials. The die cut process can utilize one of the unique features of the substrate; edge pillowing (not including FOME-COR RECOVERY).

Prior to die cutting, the substrate can be painted or screen printed.

A Note on Punching

The substrate does not require "punching" tools, as die cutting works very well; please refer to the previous section on die cutting.

Die Cutting / Punching (cont'd.)

Steel Rule Die Cutting Process

• The key elements to consider when die cutting are: the substrate, the press, the steel rules, and the ejection rubber. Each of these elements must be selected properly to yield satisfactory results.

• Although various methods such as using punches and "high-dies" are applicable to die cutting the substrate, cutting with steel rule dies (SRD) is the most common.

• SRD work basically the same way as a cookie cutter. They are made of a 1"-wide strip steel with one pre-sharpened edge. The cut strips are called "rules." The strip steel is typically made in a thickness range of .014"–.166". The strips are bent to the shape of the design's trim line and held in place in a block called a "die body."

Steel Rule Die Cutting Process (cont'd.)

• In order to facilitate ejection of the part, strips of a compressible material such as neoprene are glued along the perimeter and protrude above the cutting edge of the rule. The strips can also be glued to the top or bottom platen to hold the substrate in position.

• During die cutting, the SRD assembly is fixed under the top platen, and the substrate is placed on a steel bottom platen. Pressure is applied to force the rules of the SRD through the substrate.

• The platens are then opened and the parts removed. In some cases, additional work such as finishing the cut edge might be required.

Substrate Considerations

• The substrate consists of top and bottom linerboard layers and a polystyrene core. This laminated structure results in some unique considerations for die cutting, as each layer of the substrate is sequentially cut.

• The paper is the critical part of the laminate, which creates challenges while die cutting. Linerboard is a rigid product, and as such, is not flexible or ductile. Linerboard does not tend to stretch easily, and as a result, the top liner can tend to crack if improperly die cut.

• All machine-produced papers have a "grain". The grain runs along the length on the paper as it is manufactured. The grain direction is often referred to as the "machine direction". The opposite direction is referred to as the "cross machine direction". The properties of the paper are different in the machine direction vs. the cross machine direction. Paper is more rigid and will stretch less in the machine direction. Paper cuts more easily along the grain rather than across the grain.

• The foam core of FOME-COR compresses during die cutting. The substrate has the unique property that the crushed foam will remain crushed. The foam does not tend to assume its original thickness. This results in the die cut edges remaining closed (about 40 to 60 mil residual foam thickness). This provides an asymmetrically pleasing rounded effect at the die cut edges, called pillowing. This process can also be utilized to produce alternating raised and lowered areas (embossed or debossed). The specially formulated recovery foam core of FOME-COR RECOVERY will not remain crushed when die cut, instead recovering to assume its original thickness and reveal open, clean cut edges.

Press Considerations

• The substrate is typically die cut on flat bed presses, which can be either a "moving platen" type or a "clam shell" type. Either type may be utilized without affecting the quality of the die cut.

• The key press consideration is proper "make ready", or preparing the press bed (anvil) to assure that the steel rule cuts evenly through the substrate without dulling the steel rules.

• Typically, the substrate is cut on a "hard anvil." Make ready for this type of die cutting utilizes carbon paper. The press is lowered to the point where the steel rule just touches the anvil. The places where the rule fails to touch the anvil are built up with one-mil thick shim-tape. This process is repeated until a complete imprint of the steel rule is apparent.

Die Cutting / Punching (cont'd.)

Press Considerations (cont'd.)

• Make ready is very important because the platen of the press does not necessarily close evenly. This can be caused by misalignment, uneven cutting loads or by deflection of the platen. As a rule of thumb, a four-post press will deflect one mil per foot. Steel rules that have been dulled by improper make ready will cut poorly, have increased cutting loads and can contribute to cracking problems.

• Back-Up Plate

One problem with steel plates is that the die might not completely penetrate the substrate which can result in fracturing at the base of the cut. An alternative to a steel plate would be to use additional substrate or chipboard as a back-up. This would allow the die to penetrate beyond the thickness of the substrate so that a cleaner cut could be obtained.

Steel Rule Considerations

Steel rules are flat strips of steel with a very uniform height. One edge of the steel rule is honed to yield a cutting surface. The key properties of cutting rules are hardness, flexibility, bevel type, thickness, uniformity of height and edge preparation.

1. STEEL RULES THAT APPLY TO THIS SUBSTRATE ARE LISTED BELOW:

Cutting Rules

• Cutting rules are the most common when die cutting the substrate. These rules are used to cut and pillow the edge. Cutting rules are either center bevel or side bevel, which indicates where the cutting edge is located.

- **o** Center bevel rules result in equal forces being placed on both sides of the piece to be cut and are used when both the inside and the outside of a cut needs to be saved, e.g., as in a puzzle. This distribution of forces can be important when attempting to minimize cracking
- **o** Side bevel rules have one side that is essentially flat and the opposite side is sloped or beveled. The flat side should be placed toward the substrate that will be kept, with the bevel facing the scrap piece. This results in additional compressive force being placed on the scrap side. Cracking tends to be directed in this direction.

Scoring or Creasing Rules

• Scoring or creasing rules are used to create a fold line in paper-faced substrates. Scoring rules are shorter than standard rules. These rules cut through the top liner, but leave the bottom liner intact. This technique is also referred to as slit scoring or "short knifing". This method is often used when additional materials are laminated to the substrate.

• Unique to the substrate, because of its foam structure, is the ability to crease cleanly. Creasing rules create a crease line on the top of the liner. Creasing rules should have curved edges and be shorter than cutting rules. The substrate is generally creased without the use of a matrix. Wider creasing rules make folding the substrate easier. Creasing rules can be used to emboss patterns in the substrate (see Section VII: Embossing).

Serrated & Perforating Rules

• Serrated and Perforating rules have "teeth", much like saw. The points of the teeth puncture the substrate, whereas the lower points of the teeth do not. This leaves a perforated edge in the substrate that can easily be torn by hand.

Die Cutting / Punching

Steel Rule Considerations (cont'd.)

2. THE EDGE OF THE STEEL RULE CAN BE PREPARED IN EITHER TWO METHODS:

Grinding

- Ground edge rules have micro-scratches on the cutting edge. This can result in a blade that has a reduced cutting force.
- The disadvantage of this type of rule is that it is difficult to maintain the uniform blade height.

Drawn Edges

- Drawn edge blades are made by drawing the blade through a die.
- This produces a uniform blade height and a smooth blade surface.

Although the knife has been hardened to 57-59 RC (Rockwell), after numerous die cuts, the cutting edge will become dull and may result in rough and/or incomplete cuts. Generally, it is not a good idea to resharpen the knives. Resharpening will often result in an uneven knife length. This in turn can cause uneven penetration or no penetration when the cut is made.

3. LENGTH OF BEVEL:

A long bevel will result in less deformation as the substrate is sheared. The length of the bevel is defined as the distance from the tip to the point where the honed (beveled) portion ends. The bevel should be 3/16"–1/4" in length.

Strippers / Ejectors

- Ejection and stripping rubber is essential when cutting the substrate. It serves two purposes. The first purpose is to eject the part from the die after the press opens. The second purpose is to assist edge pillowing and to prevent cracking. Liner cracking problems need to be considered whenever coated products are die cut.
- When designing the figure to be die cut into FOME-COR, it is best to avoid sharp corners and narrow spaces. A minimum distance of 1 inch is recommended between pieces. When sharp corners cannot be avoided, additional, very soft, foam rubber should be added on top of the ejection rubber to avoid localized cracking.

SECTION VII: EMBOSSING

General Notes

• The substrate (excluding FOME-COR RECOVERY) can be embossed to create attractive 3-dimensional effects. Embossing is done by using an embossing die on a flat bed die cutting press such as a clam shell, clicker or a fixed platen press. Sections of the substrate that are raised or higher than the rest of the surface are referred to as "embossed"; compressed or lowered sections are referred to as "debossed." However, for this document, embossing is defined as any designed deformation of the substrate achieved through the use of scoring bars or embossing dies.

• Embossing utilizes the same substrate characteristics that allow edges to be closed or "pillowed" when die cutting. When compressed beyond a certain critical point, the substrate will retain the pattern of the compression, resulting in displays that are both unique and eye-catching. The effect is amplified for highly reflective finishes such as: foil laminates, glossy lithographs or high gloss screen prints. Posters and displays that have been laminated or screen printed can indeed utilize embossing as the next step in the fabrication process.

• The embossing can be done as part of the die cutting step or if desired, as a separate operation. The decision to separate the operations may depend on the capability of the press to provide the required cutting power. If the press cannot provide sufficient power, the bottom edges of the substrate may not be cut through completely. This problem would require die cutting and embossing in separate operations.

Scoring Bars

• Small, straight line areas can be embossed by using a scoring bar mounted in a standard dieboard. Simple "line shapes" can also be produced by bending the scoring bars. The score bars will produce pillowed sections in the center of the board.

• It is best to use score bars with rounded edges to avoid liner cracking. The score bar should also be lined with soft ejection rubber if cracking is an issue. Straight score lines are easier to emboss in the grain direction than across the grain when this is an option. Score bars located less than 3/4 inches apart will compress the substrate area between the score bars slightly. Score bars should be at least 3/4" from the edge of the board.

• Score bars should extend to the die cut, pillowed edge if possible. If this is not possible, the score bars should gradually taper off (less depth of compression) to avoid a sharp edge that would puncture the liner.

Embossing Dies

• Embossing or compressing of large areas can be done by utilizing an embossing die. The embossing die is a plate, attached to die board that will compress additional areas of the substrate. The pattern of the embossing die is often matched to the screen print or lithograph. The depth of embossing can be varied; though, a typical embossing die would compress to a residual thickness of at least 60 - 80 mils.

• The force required would be about 100 lbs. per square inch compressed. The embossing depth can be less if desired. The embossing force will vary depending on the configuration of the piece and the depth of compression.

• The embossing die should be designed to avoid puncturing the top liner. To accomplish this, it is necessary to follow the same basic rules as die cutting. Sharp points or angles should be avoided and spacing should be adequate to avoid excessive liner stretch. The embossing die should be fabricated with smooth rounded edges. The angle of the edge should be no sharper than about 30 degrees.

• Embossing dies can be made from various materials including metal (copper, brass, etc), rigid plastics, hard rubber or pressed board. The construction material of the die is usually selected based on: available fabrication techniques, complexity of the design and intended life.

SECTION VII: EMBOSSING

Embossing FOME-COR in 1/8", 3/16", and 3/8"

• FOME-COR can be embossed in thicknesses of 1/8", 3/16" and 3/8", though 3/16" produces the best effects. Thicknesses of 3/8" require special considerations for embossing (see below).

• FOME-COR 3/16" can be compressed to a residual thickness of 30 - 40 mils, but will bounce back slightly from its maximum compression. The force to accomplish this maximum compression with a scoring bar is about 150 - 200 lbs. per linear inch. This force varies depending on the embossing geometry.

Embossing & Die Cutting 3/8"

• Die cutting 3/8" FOME-COR with pillowed edges can be successfully done. This type of die cutting has somewhat different requirements than for cutting thinner FOME-COR. The die board should be 1/2 inch thick and the rule 1.125" high. A 3-pt, long, side bevel, coated rule works best. The rule should be continuously lined inside and out with medium to hard ejection rubber. The ejection rubber should be placed 1/16" away from the rule on both sides rule. A continuous sheet of soft rubber can also be used in place of the strips of ejection rubber. If cracking results with the continuous rubber, the outer 1/2" of the soft continuous rubber should be replaced with strips of medium rubber. When designing the figure to be die cut, it is best to avoid sharp corners and narrow spaces. A minimum distance of 1 inch is recommended between pieces. When sharp corners cannot be avoided, additional, very soft, foam rubber should be added on top of the ejection rubber to avoid localized cracking.

SECTION VIII: FORMING CURVES

General Notes

The substrate is not recommended for this fabrication method. Please see the fabrication guide on page 8 for choosing the best recommended product.

APPENDIX I: MSDS

SECTION I - PRODUCT IDENTIFICATION

TRADENAME:
FOME-COR

SYNONYM:
Expanded polystyrene foam board

MANUFACTURER'S NAME & ADDRESS:
3A Composites USA, Inc.
205 American Avenue
Glasgow, KY 42141
(800) 872-8974

EMERGENCY TELEPHONE: Chemtrec - 1-800-424-9300
To be used only in the event of chemical emergencies involving a spill, leak, fire, and exposure accidents involving chemicals.

SECTION II - HAZARD IDENTIFICATION

PHYSICAL APPEARANCE: Polystyrene foam sheet laminated with cellulose paper

POTENTIAL HEALTH EFFECTS: This product is classified as a non-hazardous component when polymerized. Avoid breathing dust if cut, sanded, or routed.

INGESTION: Swallowing is not anticipated. If swallowed, seek immediate medical advice.

SECTION III - CHEMICAL COMPOSITION

INGREDIENTS (Common Name)	CAS Number	PERCENT (%) (By wt.)
Polystyrene	9003-53-6	31 to 33
Liner (Paper)		65 tp 67

SECTION IV - FIRST AID MEASURES

EYE CONTACT: Dust may mechanically irritate the eyes, resulting in redness or watering. Treat dust in eye as foreign object. Flush with water to remove dust particles. Get medical help if irritation persists.

SKIN CONTACT: Not anticipated for product in purchased form, wash with mild soap and water.

INHALATION: Excessive dust concentrations may cause unpleasant obstruction in the nasal passages. If inhalation causes adverse effects, respirator selection, use and maintenance should be in accordance with the requirements of OSHA Respiratory Protection Standard, 29 CFR 1920.134. Remove to fresh air. Get medical help if persistent irritation, severe coughing or breathing difficulty occurs.

NOTE TO PHYSICIAN: No special advice, treat symptomatically.

INGESTION: Not likely to occur for product in purchased form.

SKIN ABSORPTION: Product is not absorbed through the skin.

SECTION V - FIRE FIGHTING MEASURES

FIRE EXTINGUISHING MEDIA: For small fires, use water spray, foam, carbondioxide or dry chemical extinguishers. Larger fires should be extinguished immediately by drenching with water spray from fire hose.

SPECIAL FIRE FIGHTING PROCEDURES: Wear positive pressure self-contained breathing apparatus and protective turnout clothing when involved in fire fighting activities.

UNUSUAL FIRE AND EXPLOSION HAZARDS: The fire hazards associated with this product are comparable to those known to exist for normally combustible paper products. Similar to precautions for all paper products, do not smoke or use open flames, space heaters or other ignition sources near fabrication operations.

HAZARDOUS COMBUSTION PRODUCTS: During a fire, smoke may contain the originalmaterial in addition to combustion products of varying composition which may be toxic and/or irritating. In smoldering or flaming conditions, carbon monoxide, carbon dioxide and carbon are generated. Studies have shown that the products of combustion of this material are not more acutely toxic than the products of common building materials such as wood.

APPENDIX I: MSDS

SECTION VI - ACCIDENTAL RELEASE

Sweep or vacuum up for recovery and disposal. Avoid creating dusty conditions whenever feasible. Maintain good housekeeping to avoid accumulation of cellulose dust on exposed surfaces. Use NIOSH approved filtering face piece respirator ("dust mask") and goggles where ventilation is not possible and exposure limits may be exceeded or for additional worker comfort. Other Precautions: Minimize compressed air blow down or other practices that generate high dust levels.

SECTION VII - HANDLING & STORAGE

Store in well-ventilated areas. Handling and storage near open flames must be avoided. Practice good personal hygiene when handling product. Avoid blowing dust with compressed air.

SECTION VIII - EXPOSURE CONTROLS

PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY PROTECTION: Use NIOSH-approved filtering face piece respirator ("dust mask") and goggles where ventilation is limited. Use respiratory protection in accordance with regulatory requirements such as the OSHA respiratory protection standard 29 CFR 1910.134.

PROTECTIVE GLOVES: Not required. However, cloth, canvas, or leather gloves are recommended to minimize potential mechanical irritation or cuts from handling product. EYE PROTECTION –Approved goggles or tight fitting safety glasses are recommended when exposures to dust may occur (e.g. during clean up) and when eye irritation may occur.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Not applicable for product in purchased form. Outer garments may be desirable in extremely dusty areas.

WORK/HYGIENE PRACTICES: Follow good hygiene and housekeeping practices. Clean up areas where dust settles to avoid excessive accumulation. Minimize compressed air blow down or other practices that generate high airborne-dust concentrations.

VENTILATION:

LOCAL EXHAUST: Provide local exhaust as needed so that exposure limits are met. Use with adequate ventilation to ensure exposure levels are maintained below the limits provided above. Use local exhaust ventilation, and process e nclosure if necessary, to control airborne dust. Ventilation to control dust should be considered where potential explosive concentrations and ignition sources are present. The design and operation of any exhaust system should consider the possibility of explosive concentrations of cellulose dust within the system. See "SPECIAL" section below.

MECHANICAL (GENERAL): Provide general ventilation in processing and storage areas so that exposure limits are met.

SPECIAL: Ensure that exhaust ventilation and material transport systems involved in handling this product contain explosion relief vents or suppression systems designed and operated in accordance with applicable standards if the operating conditions justify their use.

Ingredient	OSHA Exposure Limit		ACGIH
	Total	Respirable	TLV
Polystyrene (as nuisance dust)	15 mg/m^3	5 mg/m^3	10 mg/m^3 inhalable particulate
			3 mg/m^3 resperable particulate

Note: Nuisance dust may be generated during certain cutting operations. OSHA considers nuisance dust as Particulates. Not otherwise regulated (PNOR).

SECTION IV - PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE:	Rigid polystyrene foam panel faced with paper
ODOR:	None
ODOR THRESHOLD:	None
PH:	NA
MELTING POINT:	> 132.22°C (> 270°F)
INITIAL BOILING POINT:	NA
FLASH POINT:	> 200°C (> 392°F)
EVAPORATION RATE:	NA
FLAMMABILITY:	NA
UPPER/LOWER EXPLOSIVE LIMIT:	NA
VAPOR PRESSURE:	NA
VAPOR DENSITY:	NA
SPECIFIC GRAVITY:	Less than water
SOLUBILITY:	Insoluble in water
PARTITION COEFFICIENT:	NA
AUTO-IGNITION:	440°C (824°F)
DECOMPOSITION TEMPERATURE:	Not available
VISCOSITY:	NA

SECTION V - STABILITY & REACTIVITY

STABILITY:	Stable
INCOMPATIBILITY:	None known
HAZARDOUS POLYMERIZATION:	Will not occur

SECTION VI - TOXICOLOGY INFORMATION

No information available at this time

SECTION VII - ECOLOGICAL INFORMATION

Material is not biodegradable. Material is not bio accumulative.

SECTION VIII - DISPOSAL INFORMATION

Dispose of waste materials in accordance with Federal, State, and local regulations.

SECTION XIV - TRANSPORTATION

DOT: Not regulated.
IMDG: Not regulated.

SECTION XV - REGULATORY INFORMATION

PROPOSITION 65: CALIFORNIA ONLY

Additional Requirements for the State of California:"**WARNING**: This product can expose you to chemicals including Styrene, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov."

We realize that this warning sounds very alarming however; we want to reassure you based on the findings of reliable research. While there is research that supports health-related risks due to exposure to the listed chemical, this research Page 4of 5 also finds that the key factor in determining the health risk is the amount of exposure to the chemical vapors and not products made as a result of its use. These hazardous exposure limits are generally found in the workplace when chemicals in liquid form are being used, and are no longer in liquid forms in the products being shipped to our retailers and customers.

SECTION XV - REGULATORY INFORMATION (cont'd)

TSCA: All ingredients of this product are either listed on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30. The GATORFOAM® and FOME-COR® collection of products areexempt from TSCA Title VI.

CERCLA: This product does not contain ingredients which are subject to the reporting requirements of CERCLA.

REACH: Pursuant to Title II article 7 of the regulation this product is exempt from registration and notification and is therefore compliant with the REACH regulation.

RoHS: The Fome-Cor®and Foam X family of products are compliant with the RoHS 3standard.

OSHA: This product, as shipped, is not regulated as an OSHA hazardous chemical, however, cellulose dust is a regulated hazard under the OSHA Hazard Communication Standard [29 CFR 1910.1200] when it becomes mechanically processed and airborne.

SARA 313 Information: This product does not contain a chemical ingredient(s) with known CAS Number to exceed the de minimis reporting levels established by SARA Title III, section 313 and 40 CFR section 372 depending upon pulp inventory.

SARA 311/312 Hazard Category: This product has been reviewed according the EPA "Hazard Categories: promulgated under SARA Title III, Sections 311 and 312 and is considered, under applicable definitions, to meet the following categories:

-An immediate acute) health hazard	No
-A delayed (chronic) health hazard	No
-A corrosive hazard	No
-A fire hazard	No
-A reactivity hazard	No
-A sudden release hazard	No

SECTION XVI - OTHER INFORMATION

IMPORTANT: The information and data contained herein are believed to be accurate and have been compiled from sources believed to be accurate. All information contained herein is offered for your consideration, information, investigation, and verification.

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Definition of Common Terms:

ACGIH = American Conference of Governmental Industrial Hygienists
CAS# = Chemical Abstracts System Number
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
DOT = U. S. Department of Transportation
DSL = Domestic Substance List
EPA = U.S. Environmental Protection Agency
IARC = International Agency for Research on Cancer
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
NA = Not Applicable
NIOSH = National Institute for Occupational Safety and Health
NTP = National Toxicology Program
OSHA = Occupational Safety and Health Administration
PEL = Permissible Exposure Limit
REACH = Registration, Evaluation, Authorization and Restriction of Chemicals
RoHS=Restriction of Hazardous Substances used in electronic equipment
STEL =Short-Term Exposure Limit (15 minutes)
TDG = Canadian Transportation of Dangerous Goods
TLV = Threshold Limit Value
TSCA = Toxic Substance Control Act

APPENDIX II: SPECIFICATIONS

Adhesives

Adhesives suitable for bonding wood-fiber will adhere to FOME-COR. Adhesives with high solids such as dextrin-based or resin-based should work well. Solvent based adhesives should not come in contact with the foam core of FOME-COR. It is always advisable to trial your potential adhesives prior to production use.

Fastening

Information is being developed.

Storage Guidelines

FOME-COR is to be stored inside in a dry and clean area. Material must be stored flat.

APPENDIX II: SPECIFICATIONS

Physical Product Specifications Chart

FOME-COR Product Specifications					
Target Thickness	**1/8″** (0.135″)	**3/16″** (0.200″)	**1/4″** (0.250″)	**3/8″** (0.375″)	**1/2″** (0.500″)
Thickness Tolerance	+/- 0.020″	+/- 0.020″	+/- 0.020″	+/- 0.020″	+/- 0.020″
Sheet Size Tolerances					
Width	0″ + 1/4″	0″ + 1/4″	0″ + 1/4″	0″ + 1/4″	0″ + 1/4″
Length	0″ + 1/4″	0″ + 1/4″	0″ + 1/4″	0″ + 1/4″	0″ + 1/4″
Diagonal	max. 1/4″	max. 1/4″	max. 1/4″	max. 1/4″	max. 1/4″
Squareness (Straight Edges)	NA	NA	NA	NA	NA
Warpage / Bow	Max. 1/8″ per foot	Max. 1/8″ per foot	Max. 1/8″ per foot	Max. 1/8″ per foot	Max. 1/8″ per foot
Color (ΔE)	NA	NA	NA	NA	NA
Opacity	NA	NA	NA	NA	NA

DEFINITIONS

Target Thickness: The gauge that is to be focused on as optimum. The Gauge Range is then used to define the limits of the thickness that can be considered “in spec”.

Thickness Tolerance: The upper and lower limits in thickness that a product can be manufactured making it “in spec”. EXAMPLE: Target of 250mils with a range of + or - 25 mils would be 225 mils to 275 mils.

Sheet Tolerances: We measure width, length and diagonal. Width is typically cross machine, length is typically machine direction and diagonal is the difference in the diagonals.

Squareness: The difference in the lengths of the machine direction sides.

Warpage/Bow: This is the measured by laying the sheet flat on a surface and measuring the amount of “smile“ or “frown“ in the center of the board in either the length or width. Should we have a problem described as “potato chip“ this is a two direction warp, which is automatically “not in spec”.

Color (E): This is measured using a standard color meter.

Opacity: This is measured using a standard opacity meter.

CONCLUSION

This Fabrication Manual has been developed to assist fabricators to work with the substrate in the most efficient and effective manner. The tips and suggestions contained in this manual are the result of many years of combined experience by fabricators in the U.S., Canada, South America, Asia and Europe.

These fabrication suggestions and product specifications are based on information which is, in our opinion, reliable. However, since skill, judgment, and quality of equipment and tools are involved, and since conditions and methods of using the substrate are beyond our control, the suggestions contained in this manual are provided without guarantee. We recommend that prospective users determine the suitability of both the material and suggestions before adopting them on a commercial scale.

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Also, normal safety and health precautions practiced in any fabricating environment should be used when fabricating the substrate.

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