



## Spray-In Bedliners –The Truth!

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### Introduction

During the last decade, spray-in bedliners have increased dramatically in popularity. The advent of reliable application equipment and stable formulations has made the spray-in bedliner industry a hot commodity. While the potential for profits is high, any person that is considering entering this business should be aware of the truth concerning application equipment, formulations, application issues, health and safety issues, and potential problems that can plague a new bedliner business. This article will review in-depth the aforementioned issues without bias.

### Protected Territories and Dealership Fees...Are They Worth It?

Some spray-in bedliner manufacturers offer specific territories for a fee. It is debatable whether the protected territory fees are worth it. A protected territory can provide some security in a large populated area; however, this does not protect you from “other company” competitive bedliner applicators entering your territory. Therefore, the competition may always be present and it is questionable whether it is worth capital investment to secure a protected territory. Some automobile dealers can justify this fee if they choose to apply their own bedliners. This would protect other dealers from applying the same bedliners and taking advantage of the marketing and advertising supplied by another dealer.

### Advertising and Marketing Assistance is Crucial to the Success of Your Business

Most manufacturers offer some marketing and advertising assistance. This is vital to the dealers’ success. Obviously, advertising and marketing cannot be provided free of charge. Some bedliner manufacturers charge by the pound of material purchased, and some by a percentage of materials purchased for advertising. The most effective method is cooperative advertising that is paid by both the manufacturer and the dealer on a 50:50 basis.

Furthermore, brand name recognition is the key to the dealers and the manufacturer’s success. A successful advertising and marketing campaign is based around brand name recognition. It has been proven repeatedly that successful advertising campaigns must be built around a single, successful product.



A spray-in bedliner is applied using high-pressure equipment and material

### Make sure your Spray-In Bedliner Manufacturer is a True “Manufacturer”.

If you are considering a spray-in bedliner dealership, you should be considering a few crucial items. Currently, there are over 50 spray-in bedliner “manufacturers.” However, approximately 75% of these “manufacturers” do not manufacture their own materials. They perform an act known in the chemical business as “private labeling.” Private labeling is defined as the purchasing of another manufacturer’s materials and placing a different brand name label on it for resale. Why would some spray-in bedliner manufacturers do this? Their overhead is very low because they are not required to perform Quality Control, they do not have to

maintain a raw material inventory (therefore, they have no lab equipment, no chemists, and sometimes no demonstration equipment). In fact, these “manufacturers” simply act as a distributor or warehouse.

Additionally, Private Label “manufacturers” are dependent on their material manufacturer for pricing. This results in the end customer paying for two “mark-ups” and shipping charges which makes it more difficult for the spray-in bedliner applicator to become profitable.

**Low-Pressure, High-Pressure...What’s the Deal?**

Generally, spray-in bedliners can be spray applied by high pressure or low pressure. A bedliner manufacturer may provide one or the other or both.

Low-pressure (in the bedliner industry) is generally defined as applications applied at less than 800 psi and is generally sprayed with equipment that utilizes gravity feed tanks and supply systems. The material is then mixed thru a static mix wand with the spray pattern being devised by air atomization at the tip (See picture below). In order for the material to mix properly, the material must be slow enough to pass thru the static mix wand, but fast enough to gel on the truck (for maximum material “hang”). The material is usually highly catalyzed to cure quickly after it is applied.



Gatorhde low-pressure polyurea hybrid applied onto a truck

High-pressure applied bedliners are generally defined as pressures greater than 500 psi. However, most spray-in bedliners are applied in the 1800-2500 psi range. The equipment usually utilizes drum transfer pumps and the equipment heats the material prior to application that is applied via high-pressure guns with the material being mixed at the tip due to high-pressure and heat atomization. No mix wand is required and no air is introduced into the material.

There are also some manufacturers that supply low pressure applied systems that are pre-mixed and applied thru “hopper” guns. This application method is usually an attractive method to enter the bedliner industry if one has limited capital to invest in equipment. However, the set-up time required for these systems is quite long and can result in some problems with humidity.

High-pressure and low-pressure bedliner systems offer distinct differences. Both systems are good for sprayed-in bedliner purposes. However, there are some distinct differences such as cure time, gel time and method of application.

The following table outlines some of the differences between high-pressure and low-pressure sprayed-in bedliners:

Characteristic	High-Pressure	Low-Pressure
Typical Application Pressures	1800-2500 psi	0 to 800 psi
Mix Technique	Atomization	Static Mix Wands
Heated or Un-Heated	Requires Heat	No Heat required
Electrical Requirements	Generally 220V	Generally 120 V
Hose Length	Up to 315 Ft	Up to 100 Ft
Material Supply	Usually 55 Gal Drums	Usually 5 Gal Pails
Cure Times	5 to 20 seconds	15 sec to 60 min
Turn Back to Customer Time	Immediately	15 minutes to 3 hours
Preparation Time	30 Min (Min.)	30 Min (Min.)
Portability	Somewhat Difficult	Very Easy
UV Stability-Aromatic (time in Oklahoma sun until fading)	Generally 6 months-1 year	Generally 6 months -1 year

**Can Your Manufacturer Handle the Challenges of Industrial Applications?**

With the popularity of spray-in bedliners growing, it is difficult to establish a solid customer base of truck bed accounts. Therefore, some applicators will probably be forced to perform industrial applications to increase cash flow. It is critical that your manufacturer be able to provide materials and technical assistance for industrial applications. Research is highly recommended to make sure that you choose the proper manufacturer to give you the correct advise. Ask for industrial job references and verify that the customer and the applicator were satisfied with the results. Secondly, ask to see written specifications for applying their products to concrete, steel, etc. Your manufacturer must be able to properly explain the correct procedures for applying their product to several different substrates. Thirdly, it is mandatory that the correct product be applied for the correct application. One product cannot be used to coat everything!



Gatohyde LP (RF85) applied as a pond liner at the Tulsa Zoo

### **Polyurea vs. Polyurethane and Hybrid Bedliners**

Why do so many people in the bedliner industry make such a big deal out for this? Some manufacturers attempt to attack other manufacturers that do not use what they recommend. For clarity purposes:

- A polyurethane is defined as the reaction between an isocyanate and a polyol
- A polyurethane/polyurea hybrid is defined as a reaction between an isocyanate and a polyol/amine in varying percentages
- A polyurea is defined as the reaction between an isocyanate and an amine

The truth is that all of the materials listed above can be applied with great success in the bedliner industry. However, the specific advantages and disadvantages of each are as follows:

- Polyurethanes were the first products used in the spray-in bedliner industry. These products have shown good durability and abrasion resistance for years. However, polyurethanes can present some application problems such as bubbling during application in high humidity. This bubbling is caused by the fact that most polyurethane catalysts (required to react a polyol and isocyanate) will also react with moisture present in the air or on the substrate surface. In addition, some polyurethanes do not show good hydrolytic stability and may deteriorate in high moisture applications. The advantage of polyurethanes is they are generally lower cost than the hybrids and pure polyureas and they can produce a hard or soft bedliner.
- Polyurethane hybrids (a mixture of polyurethane and polyurea) also provide a good, durable bedliner and are in the mid-

range for material cost. The hybrids can be applied at lower temperatures than polyurethanes and have less sensitivity to moisture. Most polyurethane hybrids will reach full properties very quickly and allow the customer a quick turnaround time. Because of the speed of cure, most polyurethane hybrids do not bubble in high humidity.

- Polyurea systems offer the best alternative for durability, application temperature extremes, humidity changes and speed of cure. A polyurea cure profile is more consistent, due to the fact that no catalyst is present, resulting in less exotherm. However, polyureas are generally more expensive.

### **Hard vs. Soft Bedliners**

Some bedliner manufacturers complain that a “hard” sprayed-in bedliner does not provide “a non-skid” surface. Generally, bedliners need to be 85 Shore A or softer to provide skid resistance. This is because a softer bedliner will “deform” or “depress” when a heavy object is placed on it. A softer bedliner needs to display good tear strength to resist this deformation. Low-pressure bedliners are generally softer than high-pressure bedliners, although, this is not always the case. The majority of the high-pressure liners are 40-50 Shore D (the shore D scale is harder than the shore A scale). This would be equivalent to approximately a 90-100 Shore A. The harder bedliners provide a finer texture, faster cure and better resistance to humidity. However, they generally do not provide excellent slip resistance.

The hardness of sprayed-in bedliners is a personal preference and will most likely be decided by the customer at the time of purchase. The best alternative is to have the equipment to apply both high and low-pressure bedliners (such as the Graco Reactor® E-10).

### **What About Colors for Bedliners?**

This is a touchy subject! Sprayed-in bedliners can be pigmented to match automobile paints. One problem associated with matching of colors is the “textured” look as compared to the “rain-drop” look. This appearance of color match is somewhat deceiving. A “textured” bedliner reflects light in a different way than a “smoother” bedliner. This results in a visual difference in color. Additionally, a standard black aromatic sprayed-in bedliner will begin to fade from a glossy black to a flat charcoal

after several years. In other words, the bedliner will begin to lose its luster in less than six months.

The majority of spray-in bedliner manufacturers provide black-colored liners only. This is the simplest and easiest color to install. Black will eventually fade to a dark gray. This fading usually begins in 4-6 months after application. An aliphatic (i.e. Color Stable) topcoat can be applied immediately after application. These color stable topcoats usually provide at least double the time until fading. These products are generally waterborne and become “scuffed” rather easily. It should be noted that any topcoat that is applied should be close in color to the base coat in case there is a cut or tear in the bedliner. A cut or tear in the bedliner would most certainly penetrate thru the topcoat and into the basecoat therefore exposing a different color liner.

One solution to color stability is the application of a 100% aliphatic system. These aliphatic systems are very difficult to find. These are easily double the cost of an aromatic bedliner which makes this application cost prohibitive.

There are some bedliner systems on the market that utilize “Hopper Guns” and allow the use of automotive pigments. Because this is a batch mix, it is rather easy to match the automobile color. These systems are generally aliphatic and display good UV stability. However, they also display high levels of V.O.C’s and slow cure times.

#### **Equipment Issues**

One major advantage offered by low-pressure applied polyurea applications is the elimination of constant cleaning and monitoring of the application equipment. The static mixing wands utilized are disposable and inexpensive. The volume ratios can easily be verified prior to application by placement of material in containers. This material can then be poured back into the supply containers. Another method of monitoring volume ratios is by the displacement of material in the supply containers. The spray gun attachment is very easy to clean and contains few parts to replace.

High-pressure equipment offers the fastest and most widely accepted method for applying bedliners. The equipment generally functions without error if a rigorous maintenance schedule is maintained. The guns should be cleaned frequently and the equipment should be monitored to verify proper volume ratio proportioning. The material manufacturer will be able to recommend an

adequate machine that is capable of applying their systems.



A polyurea coating is applied to a secondary containment area using the Graco Reactor® E-10.

#### **Health and Safety Issues**

OSHA and other state agencies have recently scrutinized the spray-in bedliner industry. This is partially the fault of the material manufacturer for not providing the complete health situation concerning spraying methylene diisocyanate (MDI) at high-pressures and temperatures. It is also the ignorance of the bedliner applicators for not acting responsibly and with common sense when applying coatings. Low-pressure or high-pressure health and safety precautions are the same:

*Full Body Protection-* It should be noted that anyone spraying MDI should be wearing full body protection while spraying MDI. This applies to anyone in the spray booth during application. Why? If a hose were to burst or a gun to accidentally discharge bedliner materials at 2000 psi and 160F, it would burn any part of the body it touches. Additionally, the material would attempt to adhere to the skin as it does truck beds. Low-pressure systems are a bit safer when it comes to a burn threat, but would still attempt to adhere to open skin areas.

Repeated testing has shown that sprayed-in bedliner material overspray generally does not register as hazardous material on air sampling tubes. That is because they react so fast that the tubes cannot absorb the free MDI. It is generally reacted by the time it reaches the sampling tubes. The reacted bedliner material is inert and poses no health threat in this form. ESI considers the safe zone (the area in which no Personal Protective Equipment (PPE) is required) to be about 25 feet from the spray. Consider that the person actually doing the spraying and anyone within the "material set time zone" should be fully suited with PPE. The "overspray" of sprayed-in bedliner material should not be breathed and a proper evacuation booth is required to properly vent the fumes and particulates.

*Forced-Air Respirators-* A sprayed-in bedliner applicator should always wear full-faced forced air respirators that are supplied from a different breathing air source. Most respirator manufacturers can recommend several different systems. However, before using a forced air respirator, one should have a mask fit test and a pulmonary function test. This should be performed at least once per year.

*Allergic Reactions-* It is well documented that MDI can cause allergic reactions in some individuals. However, this is usually limited to skin irritation and constricted breathing. In some cases, generally after several repeated severe exposures, a person becomes "sensitized" to MDI and cannot be around it under any circumstance. This is uncommon, but can happen.

*Spray Booth Construction-* Proper spray booths for bedliner applicators can be simply built. They require proper airflow, proper lighting and easily replaceable particulate filters. Contractors should follow all state, local, and federal regulations while constructing the booth. Most bedliners materials manufactured by Gatorhyde) have flash points above 230F. However, there may be some automotive paints and primers that a dealer could potentially use that would warrant the need for an explosion proof spray booth. It is advisable to construct a large spray booth (minimum 15 x 30 foot) capable of housing large trucks and equipment. The ideal spray booth size is generally 20 x 40 feet. Contact your bedliner manufacturer for specific recommendations.

### **Conclusion**

The ideal application equipment (for beginners) would be a machine that could apply polyurea high-

pressure but utilize 120 volts. Graco recently solved this dilemma and introduced the Reactor® E-10 which can spray high-pressure or low-pressure, utilizes 120 volts and is completely portable. This machine can spray up to 14 gallons at one time. The Graco Reactor E-10 is truly an ideal starter package for a new bedliner dealership. The machine can spray truck-beds, small coatings jobs, insulation foam, and low-pressure systems and even caulk joints. Additionally, the material is supplied in five-gallon pails and can be disposed of without regulation (if your bedliner material is non-regulated). If a bedliner dealer is planning on spraying more than two trucks per day, they should consider purchasing a larger spray machine that is supplied by drums or totes.

There is ample information to consider when starting a sprayed-in bed liner business. If all the aforementioned items are taken into consideration, the start-up phases of the bedliner business should be smooth and should provide years of satisfaction that is truly rewarding.