

# In-Flight Aerospace Packaging

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## The Evolution of SEMKIT® Mixing

Semkit® packages have been used in the aerospace industry for the last 7 decades and are most commonly used to mix sealants and adhesives. Semkit® packages are an ideal solution for storing, mixing, and applying two-component, ratio-sensitive chemicals. There are several different methods for mixing Semkit® packages to ensure a thorough and consistent mix. During the early use of Semkit® packages, workers mixed the two-component materials by hand in most instances, which required manually moving the dasher rod and dasher up and down, and in a circle. This method provided better consistency and improved the quality of the mixed material as compared to mixing can kits.

Through the years, PPG's aerospace business has introduced new technology that has contributed to continuous process improvements and greater productivity. In particular, PPG has been a leader in advanced mixing solutions of two-component materials. One of PPG's first technological innovations was the SEMCO® 285 mixer. This mixer provided an alternative to manual mixing by offering a semi-automatic approach to mix filled Semkit® packages. Benefits of the mixer included reduced worker fatigue, better consistency, and more uniformly mixed product. Later, PPG introduced the Semco® 388 mixer. It offered automatic mixing of filled Semkit® packages and included a timer to automatically shut off the mixer at pre-selected mix times. The benefits included easy operation, lower mixing labor, reduced worker fatigue, and improved productivity. These mixers have made significant contributions to the manufacturing processes.

PPG continues to be a leader of mixing equipment for two-component materials. Within the last 18 months, PPG has launched a portfolio of new mixers to address the changing needs of the aerospace industry for customers who are looking for the most robust and consistent methods to mix Semkit® packages. In 2015, PPG introduced the Semco® 1088 mixer, a product based on several decades of research.

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Semco® 1088 Mixer



*Evolution of Semkit® continued from page 1*

The Semco® 1088 mixer is designed to address the most common issues that customers have in mixing Semkit® packages, such as: improper injection of catalyst, adjusting for different Semkit® types, insufficient stroke-count, and consistency. To address these issues, the Semco® 1088 mixer:

- Automatically injects catalyst
- Has a one touch adjustment for different Semkit® types
- Utilizes a Semkit® ruler to determine Semkit® type
- Operates exclusively based on stroke count for more consistency
- Is fully pneumatic, requiring only one power source
- Has a safety guard which is CE approved (European conformity).

PPG continues to bring innovation in mixing to the aerospace industry. We have launched several derivatives of existing and new technologies to address emerging needs such as: light-weight solutions (Semco® 488 LW Mixer), heavy-duty mixers (Semco® 588 HD & Semco® 1088 HD mixers), and even intrinsically-safe alternatives (Semco® 1188 Mixer) to manage the changing environment of aircraft OEMs and maintenance facilities.

For a brief video on how to operate the Semco 1088® mixer from start to finish and for additional product information please visit our website at: [ppgaerospace.com](http://ppgaerospace.com)

As the aerospace industry looks for ways to improve product flow, productivity, manufacturing costs, product quality, and worker safety, PPG will continue to introduce innovative mixing solutions. We look forward to working with you to identify mixing solutions. All of PPG's Semkit® package mixers are available through our global Application Support Center network.

***To determine which model is ideal for your environment, please contact your local PPG account manager.***



**Semco® 1088 Mixer in operation at the MRO Americas 2016 Aerospace Maintenance Competition**

# Chemical Packaging Services

**M**anufacturing processes continue to advance as customer value drivers evolve and the competitive business environment changes. Manufacturing is no longer driven only by quality and manufacturing throughput. Today, manufacturers focus on process efficiency and reducing costs while meeting high quality standards and implementing lean manufacturing flow. PPG understands the challenges faced by manufacturers and offers customized chemical packaging services to support our customers. Our services focusing on right sizing packages for adhesives and chemicals aim to achieve manufacturing efficiencies, cost savings, improved manufacturing flow, and higher quality levels.

We develop product solutions that deliver the right amount of material in a customized package for a specific use. Our Packaging team meets with customers to understand the current manufacturing processes. We identify packaging solutions that provide the right amount of material in the optimal package for the manufacturing operation. PPG's Packaging team then develops customized packaging solutions in pre-measured, contaminant free, and ready-to-use packages.

We work closely with our customers to trial the customized packaging and verify that the packages meet the manufacturing objectives. After completing all production validation tests, PPG supplies the new packages to our customer for manufacturing; and we continue to track the performance and provide support to the manufacturing teams. When the manufacturing team has the material in a right-sized package, production flow is improved.

Recently, PPG teamed with an aircraft engine manufacturer to custom package three materials they were buying in bulk. PPG packaged the materials into different right-sized and ready-to-use kits and the customer was able to document a 30% reduction in process time and a 65% saving in ma-

terial waste. Additionally, the customer further streamlined their process by staging the material at the work stations to eliminate worker travel to retrieve the material.

Another benefit of chemical packaging is improved quality of materials used in manufacturing. Using a right sized package, the customer knows that materials are packaged in the correct ratio and are contaminant-free every time, yielding higher quality of the production work. We recently began packaging a high volume adhesive for a major aerospace interiors manufacturer who previously purchased the adhesive in large drums. By right-sizing the packages, the customer reduced their total cost by 17% and improved the quality of the product as measured by less defects and product rework. Chemical packaging services also offers more environmentally sustainable solutions by reducing the volume of material disposed into landfills. When custom-

ers make the decision to implement chemical packaging, many benefits are realized.

PPG is a leader in contract packaging for adhesives and chemicals and provides a wide range of customized packaging options. Let us help you identify opportunities to save money, reduce waste, improve manufacturing throughput, and increase quality by right sizing your adhesives and chemicals. Our customized packaging business is directly supported by our global network of 16 Application Support Centers (ASCs). Having an ASC near you minimizes product lead times, reduces shipping costs, and provides local sales and technical support.

**Contact a PPG Packaging representative or your local ASC to discuss how partnering with PPG will save money and provide a more environmentally sustainable option for your manufacturing operations. Or visit [www.ppgaerospace.com](http://www.ppgaerospace.com) to learn more about PPG's customized packaging services.**



**Custom Packaging at PPG's ASC Los Angeles**





# En Route

- New technologies specifically designed to improve our customers' processes
- PPG's new tools engineered for diverse material removal applications
- Full line of glow-in-the-dark (GID) application and removal tools
- Innovative technology to improve efficiencies in your processes

**By Sam Millikin**  
**Global Business Manager, Aerospace Packaging**

“Reduce cost. Minimize waste. Get the job done faster while improving quality.” If these goals sound familiar, then you are not alone. Whether your organization is a MRO, airline, or you are directly involved in aircraft manufacturing, lowering overall costs and improving process efficiencies are critical to succeed in today's highly competitive aerospace industry. Our Aerospace Packaging business has been built around assisting our customers to meet these goals. PPG designs and produces right sized packaging, innovative tools and equipment, and we package critical materials for the aerospace industry. Our products and services enable the aerospace industry to lower overall costs for chemical use by saving time, reducing waste, and minimizing process errors.

Our mission of helping our customers remain competitive has required PPG to remain at the forefront of innovation in aerospace packaging. Over the last 2 years, PPG has introduced a host of new technologies specifically designed to improve our customers' processes. These include:

**Sealant and Adhesive Application Tools** - PPG offers a wide variety of specialty nozzles and application tools designed specifically to improve the efficiency of sealing and adhesive application processes. Industry professionals have been able to demonstrate results that include an average of 54% reduction in process time and labor and 21% reduction in quantity of errors. (Data derived directly from the 2014 MRO Americas Aerospace Maintenance Competition.)

**Sealant Removal Tools** - PPG conducted an 18-month study on aerospace sealant removal processes. Results from that study led directly to the introduction of eleven new sealant removal tools. PPG's new tools have been engineered for diverse material removal applications, can be sharpened after initial use, and are available in both Celcon® polyoxymethylene and glass-filled nylon. No attachment is required as an ergonomic handle is designed into the tool. During the 2015 MRO Americas Aerospace Maintenance Competition, professional MRO teams were able to demonstrate labor savings of 33% compared to conventional methods.

**Glow-In-The-Dark (GID) Material Technology** - Foreign Object Damage (FOD) is estimated to cost the aerospace industry over \$4 billion a year\* and eliminating FOD is a key initiative across all aerospace manufacturing and service organizations. Concerned about FOD in fuel tanks, our customers challenged PPG to develop a technology to easily identify sealant application and removal tools if they are inadvertently left behind, even in completely dark environments. PPG accepted this challenge, and we have introduced a full line of glow-in-the-dark (GID) application and removal tools that utilize the same plastic materials that are already approved in industry specifications. These tools are available in either green or orange, glow up to 10 hours, and are rechargeable. \*Source: *Insight SRI*

**Semkit® Package Mixing Innovations** - PPG has introduced a full line of new mixers with specific design characteristics to address industry needs including:

- Simplification of the mixing process and reducing operator intervention
- Improved durability
- Lighter weight
- CE Approval
- ATEX Certification

In the hands of a professional, the right package and right tools will help your organization reduce process costs, improve quality, and minimize waste. PPG is fully committed to driving innovation in aerospace packaging to ensure that you have the latest and best technology to improve efficiencies in your processes.

**Contact a PPG Packaging representative or your local ASC to find out how PPG can assist you. We look forward to talking with you about PPG's innovative solutions or problems you need assistance to solve.**