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OPTIMIZING PLASTIC BUMPER REPAIRS

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As vehicles change and the industry becomes more versatile, collision repair techniques are evolving as well. The use of two-component (2K) adhesives is becoming increasingly prevalent in the shop. 2K adhesives and seam sealers provide strong and quick repairs for metal body panels and plastic bumpers. Steve Bach has worked for Seymour Paint for 8 years, serving as Product Specialist since (2017). Below, Bach will answer some important questions about 2K seam sealers and adhesives and the current benefits they offer to collision centers.

How do 2K cartridge adhesives differ from 1K adhesives?

There are several key differences between 1K and 2K adhesives. 1K adhesives air-cure, have longer drying times, and are sensitive to humidity. Due to these factors, 1K adhesives should not be used for structural repairs (and only OEM-specified 2K structural adhesives should be). On the other hand, 2K adhesives cure through a chemical process, allowing for sanding and painting in 20 minutes or less. Other benefits of 2K adhesives include improved consistency and OEM-level strength to the repair, as well as reduced material shrinking and pinhole formation.

Seymour Paint offers multiple 2K adhesives in the Duramix® line, such as the Duramix® 1440 Rigid Plastic Repair Material. These are part of a comprehensive 1K and 2K sealer and 2K adhesive product series. Seymour's Duramix® 2K adhesives and seam sealers mix resin and hardener in a 1:1 ratio through a static nozzle. This system creates a chemical cure that is fast and predictable, while also forming a strong bond.

How are 2K cartridge systems being used to make collision repair more efficient?

The use of 2K cartridge systems is creating opportunities for collision centers by improving speed and reliability, which ultimately improves cycle times and overall repair confidence. There are a few ways these adhesives are improving the industry, starting with fast turnaround times. Duramix® 1440 can be sanded, primed, and

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painted within 20 minutes, which can drastically reduce downtime and area occupied in the shop.

2K adhesives are versatile and can bond to different types of general plastic, sheet molding compound (SMC), fiber reinforced plastic (FRP), and even metal without the need to add other adhesive/sealer products. The Duramix® self-mixing cartridge system is designed to eliminate mixing errors and leftover waste from manual mixing.

It is also important to remember that Duramix® 2K adhesives are designed to work with backside reinforcement, when needed. This allows Duramix® products to be used for both cosmetic and structural repairs, making the repair process even more efficient. This gives collision repair technicians the greatest flexibility when performing plastic bumper repairs.

What extra safety precautions should be taken when using 2K adhesives and seam sealers?

General automotive manufacturer collision repair safety guidelines should always be followed to ensure all shop personnel in the work area are protected from potential exposures or hazards. It is important to always wear gloves and eye protection when handling 2K adhesives and sealers, and to wear a respirator whenever sanding, painting, or priming over them. When purging old material and cleaning the cartridge system, remember to reference the technical data sheet (TDS) and safety data sheet (SDS). This can help prevent accidental cross-contamination and give a base understanding of the chemicals involved in the repair process.

What specific preparation procedures need to be followed when using 2K adhesives to repair plastic bumpers?

When using 2K adhesives to repair plastic bumpers, make sure to first wash the bumper with soap and water. Then, use Seymour Universal Plastic Cleaner to ensure the work area is thoroughly and properly cleaned. Using P80-grit sandpaper, sand the area in need of repair, along with an additional 3 to 4 inches around it. Sand the bumper at low speeds to avoid heat damage and to ensure all paint is removed from the affected area. Low-speed, low-heat sanding promotes better adhesion by allowing the plastic surface to develop both a chemical and mechanical bond.

After the bumper's damaged area is free of paint, use P36-grit sandpaper to "dish" the repair area. This will maximize the adhesive bonding area. Failure to use a dish pattern or attempting to sand a sharp "V-grove" on the repair area could affect the final finish. Once the area is completely sanded, apply Seymour Universal Plastic Adhesion Promoter to low-energy plastics such as Thermoplastic Polyolefin (TPO), Polypropylene (PP), or Polyurethane (PUR), and let it dry for at least 15 minutes. At this point, the bumper is ready for final preparation and primer.

Using the 2K cartridge applicator, the cartridge can now be purged of air and mix the contents in the static nozzle per the individual Duramix® product instructions, using

either Duramix® 1430 Flexible Plastic Repair Material or 1440 Rigid Plastic Repair Material, depending on the substrate If needed, the bumper can be reinforced with nylon tape on the backside. Following this procedure creates maximum adhesion and a long-lasting repair.

When painting body panels that have been repaired with 2K adhesives, what are the best practices to follow to ensure a high-quality finish?

When using 2K adhesives, there are a few steps that can be taken to guarantee the best finish possible. Start by sanding the repaired bumper or panel, making sure to finish with a P320-grit sandpaper, and feather the edges to prevent a visible transition within the body lines of the vehicle. A flexible polyester finishing glaze can also be applied as needed.

After the bumper/panel is properly prepared, primer can be applied. The flexible Seymour 3-in-1 primer or a compatible urethane primer surfacer may be used. OEM paint procedures for both basecoat and clearcoat must be followed for best results. When following these procedures and using Duramix® 1430 Flexible Plastic Repair Material or 1440 Rigid Plastic Repair Material, the finished repair will be invisible once paint is applied.