

Plastic Identification and Systems

Description

The use of plastics for automotive parts is ever increasing. On average, plastic parts can make up approximately 10% to 15% of the total exterior surface area of a vehicle. The wide range of plastics and plastic alloys makes the correct refinishing paint system selection very important. This method summary for choosing the system should help the painter in making those decisions and offer the ability to create a reliable, long-lasting finish.

Bare Plastic Identification

Plastic Code Search

Common plastics used by the automotive industry can normally be identified by markings on the back of the part. These codes are based on ISO (International Standardization Organization) codes. ISO codes are a uniform set of letter combinations that identify plastics and plastic alloys. Normally, a plastic ISO code can be found on the back of plastic parts. The position of the code on the part varies by manufacturer and/or part so careful examination of the part may be required to find the code. Repair situations may likely require part removal from the vehicle to access the code.

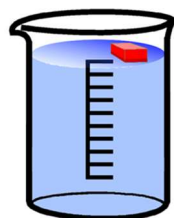
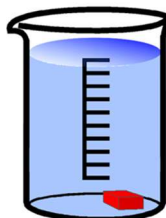
Popular Polyolefin Plastic Codes	
• PP	• PP+EP
• PO	• PP/EPM
• TPE	• PP/EPDM
• TPO	• PPE/EPDM



- Plastics that are coded with the letter combinations above, or contain within them these letter combinations, are considered polyolefin-type plastics. These plastics require the use of an approved plastic adhesion promoter/primer.
- Plastics that do not contain letters designating polyolefin type plastics, with the exception of polyethylene (PE), are non-polyolefin plastic and require no adhesion promoter. Polyethylene (PE) plastics are difficult, if not impossible, to paint.
- If no code can be found on the part, or the back is inaccessible, it may be necessary to obtain the information from the part supplier. Plastic information is available from OEM repair or service manuals. The OEM information includes codes or plastic types for exterior parts as well as interior pieces.

Bare Plastic Identification – Cont'd**Float Test**

As an alternate method for identification, carefully cut a matchstick-sized piece of bare plastic from the back side of the part. Ensure that the sample piece is free of paint, mold release agent or any other coating. Submerge the sample in a container of clean water. If the sample floats, it indicates that the part is a polyolefin-type plastic. All plastics that float require the use of an approved plastic adhesion promoter/primer. If the sample sinks, further investigation is required. Remember, that plastic information is available from OEM repair or service manuals.

**Polyolefin Plastic****Further Investigation Required****Best Practices for Prepping and Sanding Uncoated and Coated Plastics**

- Preclean uncoated (raw) plastic with Autoprep Ultraprep in regulated areas and both Autoprep Ultraprep and Antistatic Surface Cleaner in national rule markets.
- Prior to painting uncoated polyolefin plastics, abrade with a gray or white scuffing pad and quality scuffing paste.
- Before painting uncoated non-polyolefin plastic, sand with #P400 grit dry or abrade with a red scuffing pad and quality scuffing paste.
- When prepping plastic parts primed with reversible, solvent-soluble primers, sand with P400 grit dry or abrade with a gray scuffing pad and quality scuffing paste. Avoid breaking through the coating, if possible.
- When prepping primed or painted plastic parts with non-reversible coating sand with #P400 grit dry or abrade with a red scuffing pad and quality scuffing paste.

Refinishing Vehicles Equipped with ADAS / RADAR

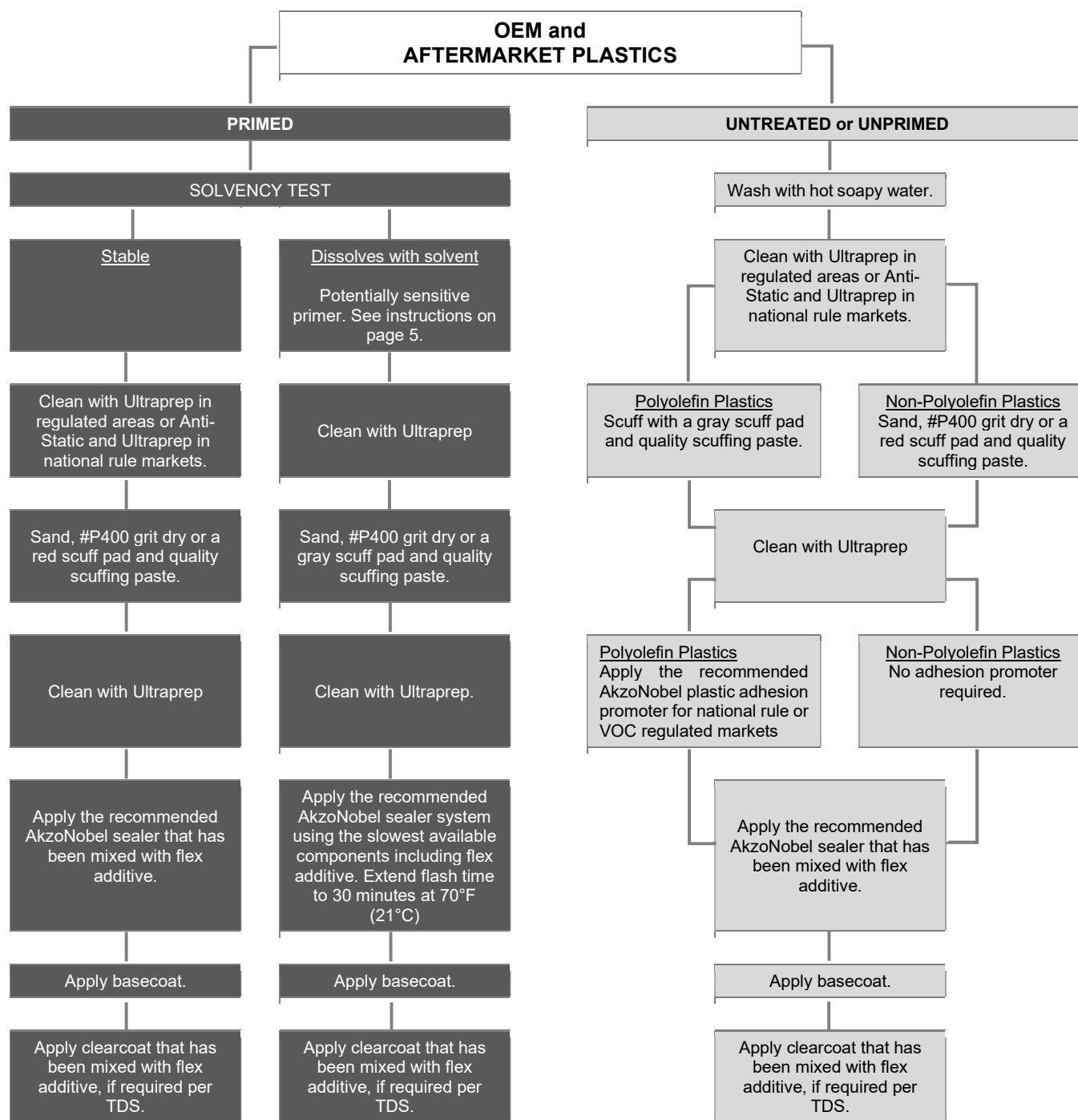
IMPORTANT: Vehicles equipped with Advanced Driver Assistance Systems (ADAS), including radar sensors, may require special considerations. Always strictly follow the original equipment manufacturer (OEM) procedures provided for radar-equipped vehicles as well as any specific instructions or color formulas provided by AkzoNobel. If there is a discrepancy, the OEM procedure takes precedence.

- Repairs to and around the area of the sensors must be performed utilizing the manufacturer's specifications and methods to ensure sensors retain their full functionality and integrity.
- Bumper covers may only be repainted if the repair specifications provided by the OEM allow.
- "Radar transparent" color formulas have been developed by AkzoNobel to meet OEM specifications on permittivity and attenuation. These color formulas have been tested and approved by the relevant OEM and must be used as specified when performing radar-affected repairs.

Preparation and Paint Systems for Plastics

As the refinishing of plastic parts requires the highest consideration from the technician, it is necessary to carefully assess any related vehicle technology and the plastic part to be refinished. Refer to the previous sections to determine the type of plastic that is to be refinished and any other repair considerations. After determining no OEM repair conflict, address the process using the flow charts on the next two pages.

Finishing of New Replacement Plastic Parts



Repair of Plastic Parts

**DAMAGED OEM and
AFTERMARKET PLASTICS**

Ensure any required OEM procedures are followed. If allowed, repair plastic as needed to return it to the original shape. If filling is required, use a 2-component plastic repair material following the instructions supplied by the material manufacturer. Finish the repair with #P220 to #P240 grit dry sandpaper.

Feather edge repair area. Final sand the feather edge and primer surfacer application area with #P320 to P400 grit paper dry.

Good Feather Edge

Clean with Ultraprep

Apply the recommended AkzoNobel plastic adhesion promoter for national rule or VOC regulated markets to polyolefin plastics only.

Apply the recommended AkzoNobel surfacer that has been mixed with flex additive.

Sand the cured surfacer finishing with #P500 to #P600 dry or #P600 to #P800 wet paper.

Apply basecoat.

Apply clearcoat that has been mixed with flex additive, if required per TDS.

Peeling Feather Edge

Remove existing finish to a point where a good feather edge can be achieved. Final sand the feather edge and primer surfacer application area with #P320 to P400 grit paper dry.

Clean with Ultraprep.

Apply the recommended AkzoNobel plastic adhesion promoter for national rule or VOC regulated markets to polyolefin plastic only.

Apply the recommended AkzoNobel surfacer that has been mixed with flex additive.

Sand the cured surfacer finishing with #P500 to #P600 dry or #P600 to #P800 wet paper.

Apply basecoat.

Apply clearcoat that has been mixed with flex additive, if required per TDS.

OEM and After Market Primed Sensitive Substrates	
Problem	When painting over sensitive primed substrates, the factory applied primer may wrinkle or lift.
Occurrence	This problem occurs over primed OEM and aftermarket replacement bumper covers.
Preparation Tips	<ul style="list-style-type: none"> Check for adhesion <ul style="list-style-type: none"> Using masking tape on an inconspicuous portion of the part, firmly adhere the tape then rapidly remove it. If the tape removes the primer, consider removing the primer or replacing the part. Use only water based cleaners such as Autoprep Ultraprep. Solvent based cleaners may soften the primer and/or soak into the plastic substrate causing additional sensitivity. Use the finest sanding grits allowed for the undercoat / topcoat system. Nothing coarser than P1000 on an interface pad is recommended. If possible, avoid sanding through the primer. After final surface cleaning, allow the part to flash for 10 to 15 minutes prior to application of subsequent product.
System Selection	<ul style="list-style-type: none"> Autosealer WB is recommended for use. Refer to the product TDS for mixing instructions. When using solvent based undercoats, use the recommended amount of flex additive according to the product TDS and use the slowest system the environment will allow. When using solvent basecoats, also use slower reducers and the proper amount of hardener. See the product TDS for specific mixing instructions.
Application	<p>Primer Sealer Application</p> <ul style="list-style-type: none"> First, apply a thin open coat avoiding overapplication. The application should be transparent and smooth. Allow this coat to flash 5 minutes then apply a thin, full-flowing coat of sealer. The second coat should provide coverage and be smooth in appearance. Do not apply too heavy. A heavy or thick application will result in very long flash times and will be more likely to cause wrinkling or lifting of the existing factory primer. Allow this final coat of sealer to flash 30 minutes prior to application of basecoat. <p>Basecoat Application</p> <ul style="list-style-type: none"> Basecoat applications should not be too wet/thick. If the basecoat is not flashed in 3-5 minutes, a lighter application should be considered. Continue application using proper flash times until covered and color control is achieved. <p>Clearcoat Application</p> <ul style="list-style-type: none"> After proper flash time, apply the clearcoat with the recommended amount of flex additive, if required.

Detailed information on the use of AkzoNobel basecoats, clearcoats and other products can be found on the web at <https://my.anaac.net/>