

# 3M 05900 / 05901

## Flexible Parts Repair Material

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### I- PART NUMBER - PRESENTATION

3M 05900	:	2 x 150 ml tubes
3M 05901	:	50 ml (1/1 ratio by volume) Duo Pack cartridge.

### II- DESCRIPTION AND END-USES

3M 05900/05901 are two component epoxy materials designed to repair all types of plastic parts: PP, EP, TPO, PP/EPDM, PC, PUR, ABS, etc.

3M 05900/05901 have been especially formulated to allow fast and easy repair of damaged automotive plastic parts such as bumpers, body panels, interior trims, etc.

### III- PHYSICAL PROPERTIES

#### PRODUCT DESCRIPTION

	05900/05901 Part B	05900/05901 Part A
<b>Base</b>	Epoxy	Polymercaptan
<b>Consistency</b>	Thick paste	Thick paste
<b>Colour</b>	Dark grey	White
<b>Solids content</b>	100%	100%
<b>Specific gravity (g/ml)</b>	1.53	1.13
<b>Mixing ratio :</b>		
- by weight	100 parts	74 parts
- by volume	100 parts	100 parts

#### Product Performance:

The following product performance data have been obtained in the 3M Laboratory under the conditions specified. The following data show typical results obtained with

3M 05900/05901 when applied to properly prepared substrates, cured and tested according to the specifications indicated.

<b>Gel Time (work time)</b>	6.5 minutes
<b>Sandability Time</b>	20 minutes
<b>Sandability</b>	Easy and fast
<b>Hardness (Shore D)</b>	
15 min.	30
30 min.	45
60 min.	60
24 hours	70
<b>Sag Resistance</b>	Excellent
<b>Overlap shear strength on Plastics (at 23°C)</b>	
Polypropylene (PP) + primer 3M 05917	2.1 MPa
Polypropylene (PP)	1.3 MPa
ABS	4.0 MPa
Polycarbonate (PC)	4.0 MPa
Polyester	1.3 MPa

#### **Comments:**

- ➔ Please refer to the competitive evaluation (TSB n° 69) for competition results.
- ➔ **Gel time (work time):** the new FPRM has been formulated to obtain a gel time which appears to be the best compromise when compared to what is available on the market. Competition offers products with either a very short gel time about 0.5 to 2 minutes (it can sometimes reduce time before sanding but gives no time to work and smooth properly the product so that the sanding operation - and global repair time- is longer) or long gel time about 15 minutes and more (too long global repair time).
- ➔ **Sandability:** due to the epoxy chemistry the new FPRM is very easy to sand after 20 minutes. Compared with polyurethane based products (most of the competition) the FPRM is a lot easier and faster to sand with lower disc clogging, no peel off on the edges and very good final appearance.
- ➔ **Hardness:** FPRM provides a final hardness in the same range than hardness of the most used plastics (PP, PP/EPDM) for bumpers. It allows the repair area to have a similar behaviour than surrounding plastics and gives longer lasting of the repair.
- ➔ **Sag resistance:** it is checked by applying a thick bead of product on a plate and setting immediately the plate vertically, then the flow is measured. FPRM flow is about 2 mm. FPRM allows to build thick layers without sagging.

**Overlap shear strength on Plastics:** very good results on polypropylene with 3M 05917 primer. Very good on ABS and PC without any primer. Our primer can also be used for most of the plastics but ABS. *The primer should not be used on ABS* as it can lead to very poor adhesion or FPRM curing problems. On other plastics than TPO (Thermoplastic Olefin, example: PP), using the primer will generally lead to slight decrease of the adhesion level which remains good. The adhesion on Polyester is medium.

- Surface preparation : Sanding, then cleaning with 3M 08985 Plastic Part Cleaner
- Glue line : 25 x 25 mm<sup>2</sup> area  
90 to 150 microns thickness.
- Cure cycle: 7 days at 23 ± 2°C.
- Shearing speed: 2.5 mm / min.
- ABS, PC, Polyester: values without use of 3M 05917.

#### V- MAJOR FEATURES

- Easy application, especially for the FPRM 05901 in duo-pack cartridge with mixing nozzle and dispensing gun 3M 08190.
- Excellent adhesion on most of the plastics (in conjunction with 3M 05917 on some plastics like PP, TPO,...).
- Excellent sag resistance.
- Easy and fast sanding.
- Excellent overpaintability.
- FPRM 05900 and 05901 match hardness and flexibility of usual plastics used for automotive bumpers.

#### VI- DIRECTIONS FOR USE

1. Clean the damaged area with soapy water. Allow to dry completely. Clean the area again with 3M 08985 Plastic Part Cleaner to remove remaining wax, grease, etc. Allow cleaner to evaporate before starting the repair process
2. Sand the repair area, removing all existing paint from the area.  
For maximum adhesion, 'V' groove any tears and holes using a disc grade adapted to the plastic material:
  - 3M Roloc Disc grade P36 for rigid plastics (ex: PC)
  - 3M SC-DR discs, Red or Brown, for softer plastics (ex: PP and PP/EPDM)
3. Clean the area with 3M 08985 Plastic Part Cleaner. Allow cleaner to evaporate completely.
4. For all tears and holes, start the repair on the backside of the part. For small damages, follow steps 6, 8, 10 and 11.
5. Apply 3M 06945 tape, overlapping the damage, on the outside of the part to avoid FPRM to overflow through the damage.
6. On Polyolefin based plastics (PP, PP/EPDM, TPO, etc.) apply 3M 05917 Adhesion Promoter on the repair area. 3M 05917 is not necessary on rigid plastic and not recommended on ABS plastics.  
Allow to dry for 10 minutes before next step.
7. Apply 3M 03020 reinforcement tape to the back of the part, overlapping the damage.
8. Prepare and apply 3M FPRM 05900 or 05901 onto the damaged area.

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3M FPRM 05900

3M FPRM 05901

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Estimate material quantity requested      Insert the cartridges in the 3M 08190

for the repair.

application gun.

Dispense equal portions of parts A and B onto a dry and clean mixing plate.

Remove the cap and insure both Part A and B are being dispensed.

Mix the material thoroughly to an even colour using a clean spreader.

Cut the end of the mixing nozzle to the desired size and attach to the cartridge.

Apply the material to the repair area with a spreader and force it to insure a good “wet out” to the surface.

Apply directly to the repair area. Force with a spreader to insure a good “wet out” to the surface.

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The working time is about 6 minutes at normal room temperature.

Allow the FPRM 20 minutes to cure.

**Note:** working and curing time are dependent on temperature (the colder, the longer)

9. Remove the 3M 06945 tape from the outside of the part and repeat steps 6 and 8.
10. After curing (20 minutes minimum at normal room temperature) sand the repaired surface with 3M 255 P discs. Start with P180 grade then with P240 and finish with P400. Blow the surface with compressed air. Clean with 3M 08985 cleaner and Wipe dry.
11. Paint according to your paint supplier recommendations.

- To repair large damages (tears, holes) it is recommended to remove the bumper from the car to allow easy accessibility of the backside of the part.
- Although FPRM will work with 3M 05917 adhesion promoter on most of the plastics it is recommended to identify the plastic type (generally printed on the backside of the plastic part). On PC, PE, ABS and other rigid plastics, best results will be obtained when using the FPRM directly on the plastic. Using the Adhesion promoter on ABS plastics may lead to poor adhesion.
- It is recommended to wear protective glasses and gloves when doing the repair.

## **VII- SAFETY INSTRUCTIONS**

Please refer to the Material Safety Data Sheet or contact your local 3M Toxicology Department.

**Reasons for change:** New.

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