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Potential repair techniques for automotive composites: A review

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1 **Potential repair techniques for automotive composites: A review**

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8 **Abstract**

9 Composite materials have gained popularity in automotive industries due to its lightweight potential,
10 good damping behaviour as well as high strength and stiffness properties. Based on the increase in
11 usage of composites, there is a growing interest for a repair technique in the automotive industry. Along
12 with these raise in demand there comes a need for an all-inclusive review article and the objective of
13 this article is to address this need. Two repair techniques, namely scarfing repair and injection repair,
14 have the potential to be used in automotive industry. This paper compiles the various research work
15 done in this field of repairing along with various processing steps associated with it. Further this paper
16 reviews the non-destructive technique that can be used for damage identification and repair
17 assessment.

18 **Keywords:** Automotive repair, Scarf repair, Injection repair, A. Polymer-matrix composites (PMCs)

19 **1 Composites in Automotive industry**

20 Vehicle manufacturers are encouraged by the government to produce environmentally friendly cars. For
21 example, the European Parliament and Council defines the average specific emission of CO₂ target for
22 passenger cars should be 95 g CO₂/km by 2020 [1,2]. In addition, the car safety performance assessment
23 programs require much higher standards in terms of safety. For example, Euro NCAP demands frontal
24 impact against a rigid barrier should be at 50 ± 1 km/h [3]. In side impact tests, a trolley weight of 950 ±
25 20 kg is made an impact (50 ± 1 km/h) on the driver side at 90° angle [4] . In oblique pole side impact

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