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ANALYSIS OF PAINTING DEFECT

<sup>1</sup>Patel Malav Suresh Bhai, <sup>2</sup>Chauhan Chirag Bipinbhai, <sup>3</sup>Bharambe Manish Pitambar, <sup>4</sup>Koshti AtishkumarRajendrabhai and <sup>5</sup>Pankaj Prajapati

<sup>1,2,3&4</sup>Student Name and <sup>5</sup>Guide

Gujarat Technological University, Gujarat, India

**Abstract** Our final year Project work completion with Tata motors Ltd. This Industrial Project about in Paint shop defects and cost saving in Process.

Paintshop vital role Play in Automobile industry. Because The car painting industry has undergone incredible changes by way of materials and processes development following the general progress of manufacturing technology from the start of the twentieth century until today Also the coating technology in automotive paint system has improved rapidly So, we decided that The purpose of this study is to investigate the quality students grade by improvement of painting Process in Automobile industry.

assignments for using PDCA (PLAN, DO, CHECK, ACT.), Fishbone diagram Gemba method etc. to develop effective & efficient improvement in Painting Process quality.

**Keywords:** Electro Deposition, Sealer Application, Different Kind Coating, Sanding & Polishing, Analysis of Painting Defect

**1.INTRODUCTION** Painting process is a critical procedure in automotive industry. The reasons for the process are to give more appealing appearance to the vehicles and to give the layer of security against consumption and weathering. The composition procedure is incorporate a

hardly any different procedure, which are Pre-Treatment and Electro-deposition (ED) Process, ED sanding, process, sealant and PVC process, groundwork process, and best coat process.

After painting done many defects appears on body it can't reduce easily. and so that directly impact on cars delivery. Some like Touch mark, lint, sealer contamination, black dust, jig dust, crating, orange peel. Which defects vital role for decrease DRR & RSP, Productivity, Quality, etc.

The study was done at TATA MOTORS SANAND AHMEDABAD. The techniques used to distinguish the issues depend on the four M technique, which are Manpower, Machine, Method, and Materials

**1.1 Working process**

Stopper jig fitment process start with door at ED inspection. After that body transferring to sealer line for further sealer application apply on body. In sealer line stopper jig provide required gap between door and body. So, that door beed not damaged and make good finishing in beed.

Next for further backing process body pass to sealer oven. Their sealer beed steady at 160C.



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After backing process body pass to sanding line their full transform rough body to smooth surface finish.

After completion Sanding process body send to topcoat booth their door stopper jig Provide good angle 1.40 to 1.68. Required due to body don't hit to primer robots, base coat robot and clear coat robots.

And after painting provide perfectly required shade on door body.

After final process body pass to topcoat oven for drying body inside oven at 180c to 195c. Next further process body pass from quality inspection area. For a physically check painting defects and door after observation found ok condition door stopper jig removed.

### 3. CONCLUSIONS

We saw that old Stopper jig different type of variation found. Like that, variation in size, required small portion twisted and loose stopper jig for sealer line in front door for applying 'L' type sealer bead, fitments process very complicated due to separately tightening of nut and bolt. So that fitment timing process very high.

For a new stopper jig machining process and made easy Construction for working. While using new stopper jig not required in middle of process stopper loose for 'L' type sealer application. and one Operation reduced. During fitment process only nut and stopper jig required so that overall cycle time reduced.

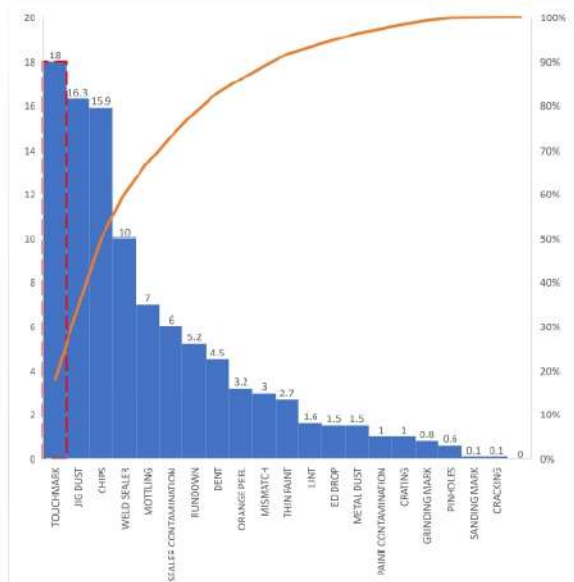
## 2. PAINTING DEFECT ANALYSIS FOR QUALITY IMPROVEMENT.

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### PAINTING DEFECT ANALYSIS FOR QUALITY IMPROVEMENT.

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## 4.PROBLEM DEFINATION

This project most useful for reduction of paint defects. Like chips, dust, touch mark, lint, sealer contamination etc. Generally, all paint shop face low DRR & RSP ratio. Painting process is very critical and rework time very high.

## 5.PURPOSE

- Improvement of painting Process in Automobile industry.
- Quality improvement
- Cost reduction
- Time saving
- Increase DRR & RSP Ratio

## 6.Different type of paint defects

**TOUCH MARK:** It is manually defect & It can be defined as any mark on the surface of the car body that remain visible after Paint Coating. It can be generated by any Physical touch in wet condition of painting bodies.

**RUNDOWN:** Tear or curtains of paint on vertical or inclined areas excessive flow of paint on vertical surfaces causing imperfection with thick lower edges in the paint film.







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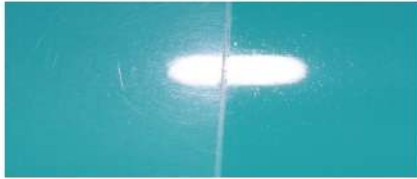
**CRATERING:** The recession of a wet paint film from a surface leaving small area uncoated.



**MOTTLING:** Uneven location of aluminum particles produces different partial reflection. Spotty, uniform blotchy appearance of metallic paint.



**PIN HOLES POPPING:** Small holes like pinholes appear on the paint film



**Mismatch:** Initial colour fades during exposure. Colour difference appeared on different parts.



**CRACKING:** Formation of breaks in the paint film that expose the underlying surface. This is most class of defects which include checking, crocodiling and embrittlement.



## 7. LITRETURE REVIEW

### Method of minimizing defects in painted composite material products

Patent no. - US5654037A

Inventor Name: John H Moore and Mark J Marentic

**Abstract:** A process for painting a fiber reinforced composite plastic member. Prolonged pre-heating of the composite member is used to minimize defects in a subsequently applied clear resin finish coating. The finish coating is applied and curing of it commenced before the composite member has substantially cooled, effective to inhibit formation of pits and blisters in the clear finish coating, and delamination in pore areas beneath said clear finish coating.

## ACKNOWLEDGEMENT

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## REFERENCES

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