

## **Introduction to and description of the Allianz Center for Technology's paint calculation system**

The Allianz Center for Technology's paint calculation system is a calculation aid which uses the outer surface area of vehicle components to determine the material expenditure and time required for painting vehicles, tailored for the repair and model in question, independent of vehicle and paint manufacturer.

The materials and methods currently used for repair paint jobs form the basis of the paint calculation system. New vehicle models are regularly added to the system, and values are updated frequently. New materials and methods are examined, and are taken into account in accordance with their market importance.

The users of this system receive:

- all necessary information relating to time and expenditure, quickly and simply
- calculation values for passenger vehicles, off-road vehicles and transport vehicles included in the system
- an idea of the amount of time needed to complete the paint repair, in hours
- the current paint costs for the repair, in the appropriate national currency
- Specific calculation values for
  - Standard partial paint repairs, tailored to the vehicle (passenger vehicle, off-road vehicle, transport vehicle)
  - individual external bodywork elements (zones) for bodywork and attachment parts
  - plastic and metal parts (see Appendix a)

All repair times in the Allianz Center for Technology's paint calculation system are based on average values from time studies carried out by the Allianz Center for Technology in accordance with REFA methodology, and analyzed by repair level. The surface area capable of being painted (see Appendix b) forms the basis of the repair times given by the Allianz Center for Technology. The repair times given in the Allianz Center for Technology's paint calculation system include all normal paint processes giving a perfect, high-quality paint job.

The type and quantity of the paint and auxiliary materials required is calculated based on repair studies, looking at repair level and substrate, and is tailored to the area to be covered in each individual case. The Allianz Center for Technology's Index 100 contains details of material costs, listed by the national currency. It reflects the average sales prices, as paid by workshops, of a predetermined selection of materials (see Appendices c and d) from various manufacturers, according to their price lists (excluding VAT), without supplements or reductions (e.g. discounts). Where required, the value indicated can be altered by the user (see Appendix e).

## Appendix

### a. **Painting metal and plastic components**

Specialist studies examining the painting of plastic components give calculation values which differ from those for metal components.

As painting plastic components involves particular paint stages, a different scope of work and additional paint materials, it is split as follows:

- Painting metal components
- Painting plastic components

## **b. Condition of vehicle before painting**

The surface area capable of being painted forms the basis of the paint times given by the Allianz Center for Technology's system.

This surface area can be maintained if:

1. The surfaces and components repaired by the bodywork specialist are shaped/shrink-wrapped to the vehicle's contours and edges.  
This can be achieved, of necessary, through additional specialized application of body fillers in accordance with current standards. Surfaces are to be repaired (not with an angle grinder) so that the paint technician can start with the first step (smoothing joins with a disk-type sander and e.g. P 120 grit paper).
2. The vehicle paint technician can prepare the surfaces to be repaired (c.f.point1) in a maximum of three stages, for example:
  - Polyester body fillers, fine fillers, abrasive fillers, or
  - Polyester body fillers, polyester spray fillers, abrasive fillers, or
  - Polyester spray fillers, abrasive fillers as a base for the top coat

### c. Paints for metal components

<b>Paints: VOC-compliant systems</b>	
<ul style="list-style-type: none"> <li><b>- Abrasive material</b></li> <li>- Manual sandpaper</li> <li>- Machine sandpaper</li> <li>- Glue disks</li> <li>- Abrasive fiberglass disks</li> <li>- Abrasive pad</li> </ul>	<ul style="list-style-type: none"> <li><b>- Hardening agent</b></li> <li>- Hardening agent for foundation, primer</li> <li>- Hardening agent for 2-K filler, top coat</li> </ul>
<ul style="list-style-type: none"> <li><b>- Filler material</b></li> <li>- Polyester spreading filler</li> <li>- Polyester spray filler</li> <li>- Fine plastic filler</li> </ul>	<ul style="list-style-type: none"> <li><b>- Thinners, cleaning products</b></li> <li>- Spray thinner 2-K / adjustment material / demineralized water</li> <li>- Silicone remover / degreaser</li> <li>- Cleaning thinner</li> </ul>
<ul style="list-style-type: none"> <li><b>- Foundation/filler</b></li> <li>- Foundation, primer</li> <li>- 2-K HS filler</li> </ul>	<ul style="list-style-type: none"> <li><b>- Materials for particular uses</b></li> <li>- Protection against stone chips</li> </ul>
<ul style="list-style-type: none"> <li><b>- Top coat</b></li> <li>- Top coat 2-K one color/metallic</li> <li>- Top coat waterbased one color/metallic (inc. mica, pearl, xirallic etc.)</li> <li>- Top coat 2-K clear paint HS</li> <li>- Top coat 2-K matt black</li> </ul>	<ul style="list-style-type: none"> <li><b>- Auxiliary material</b></li> <li>- 20 cm cover paper</li> <li>- 90 cm cover paper</li> <li>- 19 cm cover tape</li> <li>- 6 mm edging material</li> <li>- Filter mask against fine dust</li> </ul>

All materials (see table above) required for a standard paint job are - dependent on the paint level - accounted for in the values given.

The material expenditure included in the calculation is determined by the actual material usage and the material expenditure by type, based on the average list prices (excluding VAT) from various paint and auxiliary material manufacturers.

#### d. Paints for plastic components

<b>Paints: VOC-compliant systems</b>	
<ul style="list-style-type: none"> <li><b>- Abrasive material</b></li> <li>- Manual sandpaper</li> <li>- Machine sandpaper</li> <li>- Glue disks</li> <li>- Abrasive disks</li> </ul>	<ul style="list-style-type: none"> <li><b>- Paint and additional materials</b></li> <li>- Pore filler</li> <li>- Elastic-additive</li> <li>- Impact additive</li> </ul>
<ul style="list-style-type: none"> <li><b>- Filler material</b></li> <li>- Plastic repair filler</li> <li>- Fine plastic filler</li> </ul>	<ul style="list-style-type: none"> <li><b>- Hardening agent</b></li> <li>- Hardening agent for foundation, primer</li> <li>- Hardening agent for 2-K filler, top coat</li> </ul>
<ul style="list-style-type: none"> <li><b>- Bonding agents/fillers</b></li> <li>- 1K plastic filler</li> <li>- Bonding agent</li> <li>- 2-K HS filler</li> </ul>	<ul style="list-style-type: none"> <li><b>- Thinners, cleaning products</b></li> <li>- Spray thinner 2-K / adjustment material / demineralized water</li> <li>- Silicone remover / degreaser</li> <li>- Cleaning thinner</li> </ul>
<ul style="list-style-type: none"> <li><b>- Top coat</b></li> <li>- Top coat 2-K one color/metallic</li> <li>- Top coat waterbased one color/metallic (inc. mica, pearl, xirallic etc.)</li> <li>- Top coat 2-K clear paint HS</li> </ul>	<ul style="list-style-type: none"> <li><b>- Auxiliary material</b></li> <li>- 20 cm cover paper</li> <li>- 90 cm cover paper</li> <li>- 19 cm cover tape</li> <li>- 6 mm edging material</li> <li>- Filter mask against fine dust</li> </ul>

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**e. Individual index alterations**

Every user can alter the materials costs to suit their individual circumstances.

We recommend that companies painting vehicles use the following method to calculate their company-specific paint material index:

- 1 The Allianz Center for Technology's paint calculation calculates the appropriate material costs (using Index 100) and preparation costs for painting, for at least three representative paint jobs.
- 2 For these paint jobs, and partial preparations, company-specific paint costs are taken into account with ex post calculations.
- 3 The material costs for the paint jobs are added on in each case (without VAT).
- 4 This enables company-specific adjustments to be made to material costs.
- 5 Both the total expenditure values calculated are compared and calculated in the individual index with the following formula:

$$\text{Individual index} = \frac{\text{Company material costs} \times 100}{\text{Allianz Center for Technology's paint calculation system material costs}}$$

- 6 The index should be checked by the company regularly and particularly if company-specific circumstances alter.

**NB:**

Amounts have already been added to the Allianz Center for Technology's paint calculation tool to compensate for residual amounts such as leftover paint and paint wastage. You do not need to adjust the index to account for this