











## Polycarbonate Headlamp Surface Repair



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Headlamp glasses are typically made of the synthetic material polycarbonate (PC), since this material is lighter and more resistant to breaks and impacts than mineral glass. In addition, the requirements of pedestrian protection and styling can be met with the polycarbonate.

Polycarbonate without an adequate coating is very sensitive towards UV radiation and mechanical scratches, thus has to be protected with a specific clear coat. This coating gets already applied in production with a paint or flood method. However, one problem is an increasing yellowing of the coated surface, the longer these headlamps are exposed to UV light.

Yellowing headlamps have an adverse effect on the light intensity. The loss of light can be so strong that vehicles with yellowed headlamps do not pass a general periodical inspection.

If headlamp shields are yellowed or have scratches, the headlamps had to be completely replaced with a new service part in the past. In order to avoid such a costly replacement (also with regard to modern headlamp systems with LED or laser technology) a repair concept has been developed in conjunction with a suitable coating process.

This repair concept is being introduced on the following pages.

Opel / Vauxhall has tested several repair sets from different manufacturers. The products from Kwasny and Würth meet the optical and technical standards of Opel / Vauxhall.\*

The following pictures show the result of a successful headlamp surface repair using the example of Vectra-C:



polycarbonate headlamp  
with scratches and yellowing

▪ **before repair**



polycarbonate headlamp

▪ **after repair**

\*OPEL/Vauxhall assumes no liability for products of third parties.  
It is merely a product recommendation.



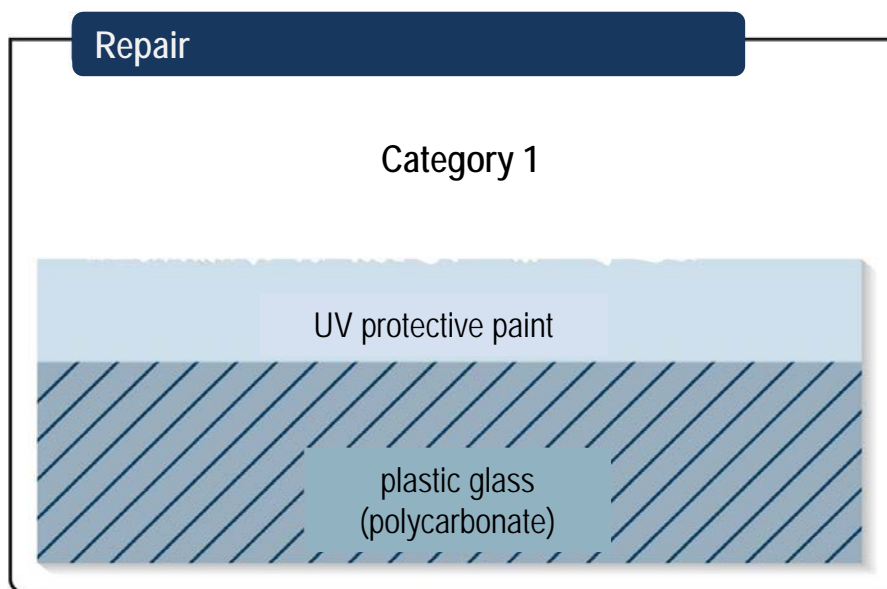
# Damage categories



Damages on PC glass are divided into 3 categories.

## Category 1:

Surface yellowed or matted due to environmental influence and sunlight



Yellowing



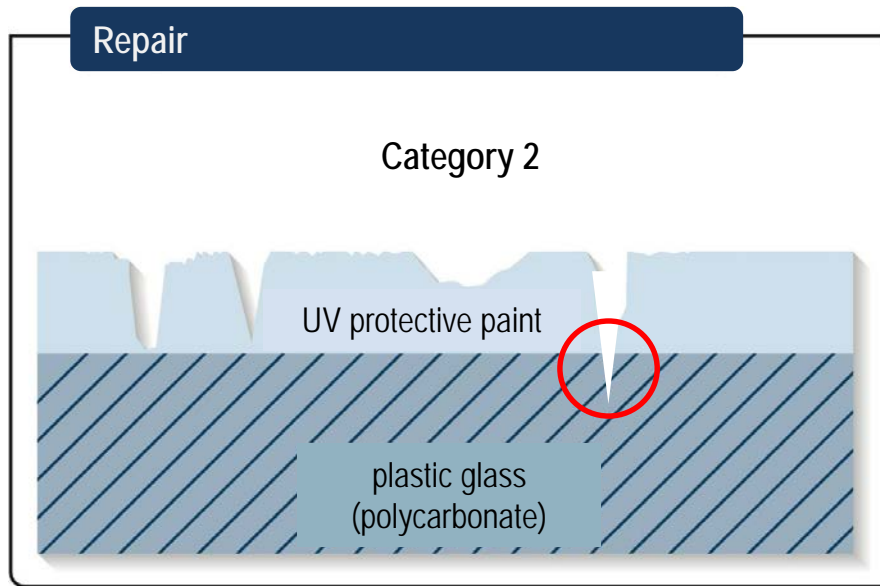
## Repair path:

Completely remove the UV protective paint by sanding and re-coat according to repair set handling instruction.



## Category 2:

Slight scratches / stone-chipping in the UV protective paint, deep scratches infiltrating the polycarbonate



Scratches infiltrating the polycarbonate



## Repair path:

Completely remove the UV protective paint by sanding and inspect the damaged spot. Deep scratches and stone-chipping have to be grinded extensively and steadily. Re-coat according to repair set handling instruction.

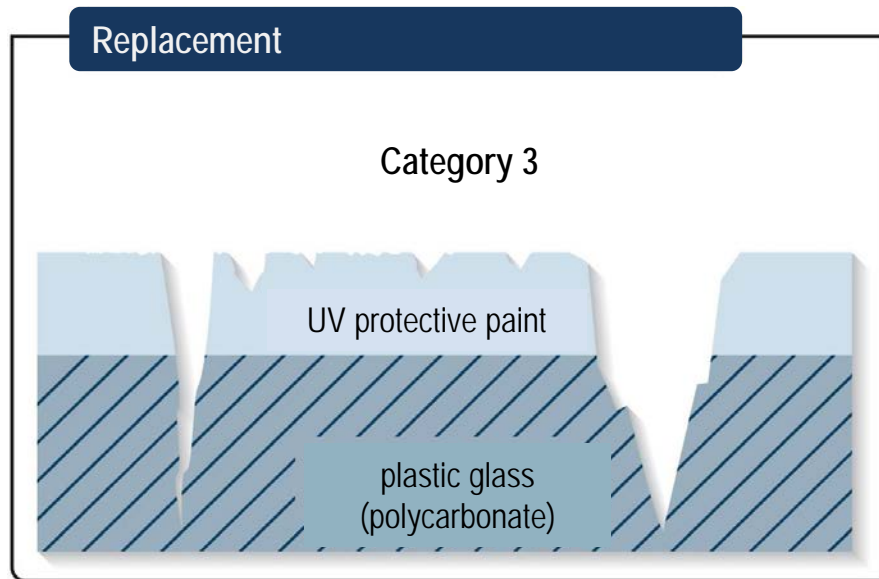


# Damage categories



## Category 3:

Deformation, cracks, holes, fracture in the plastic glass



Fracture of the glass



## Repair path:

These damages are not repairable.

**The complete headlamp has to be replaced.**



# Repair set from Kwasny



Opel / Vauxhall recommends the repair set “SprayMax” from the Peter Kwasny corporate group.

**Primer and Clearcoat are only to be used in combination.**

Description / Article number for <u>D / EU</u>	Description / Product number for <u>USA / CAN</u>
<b>1K SprayMax Aqua Silicone Remover</b> Art.-No. 680 094	<b>1K Aqua Wax &amp; Grease Remover</b> Prod.no. 3 680 094
<b>1K SprayMax Headlight Primer</b> Art.-No. 684 098	- not available-
<b>2K SprayMax Headlight Clearcoat</b> Art.-No. 684 066	- not available -
<b>SprayMax Set (Headlight Primer &amp; Clearcoat)</b> Art.-No. 684 099	<b>Headlight Repair Set (Headlight Primer &amp; Clearcoat)</b> Prod.no. 3 684 099

Information regarding the repair set and application details can be found on [www.spraymax.de](http://www.spraymax.de) and on the following link:  
<http://scheinwerfer-oberflaechenreparatur.spraymax.com/>





# Repair set from Würth



Opel / Vauxhall recommends the repair set from the Adolf Würth GmbH & Co. KG.

**Primer and Clearcoat are only to be used in combination.**

Description / Article number for <u>D / EU</u>
<b>Würth Silicone Remover Aqua</b> Art.-No. 5867 000 120
<b>Würth PC Primer</b> Art.-No. 5867 000 150
<b>Würth 2K Clearcoat Rapid</b> Art.-No. 5867 000124

Information regarding the repair set and application details can be found on [www.wuerth.de](http://www.wuerth.de).



## Note:

A complete, current handling instruction can be found attached to the repair set.

This document only shows a short overview of the repair procedure.

### 1. Preparation / Cleaning the surface

Clean the headlamp surface thoroughly with **Aqua Silicone Remover**. Mask / alternatively remove the headlamp.



Details can be found in the manufacturers handling instruction.

## 2. Sanding / cleaning

Sand in steps until the old coating / yellowing is completely removed. Between the sanding steps clean with **Aqua Silicone Remover**.

## 3. Painting

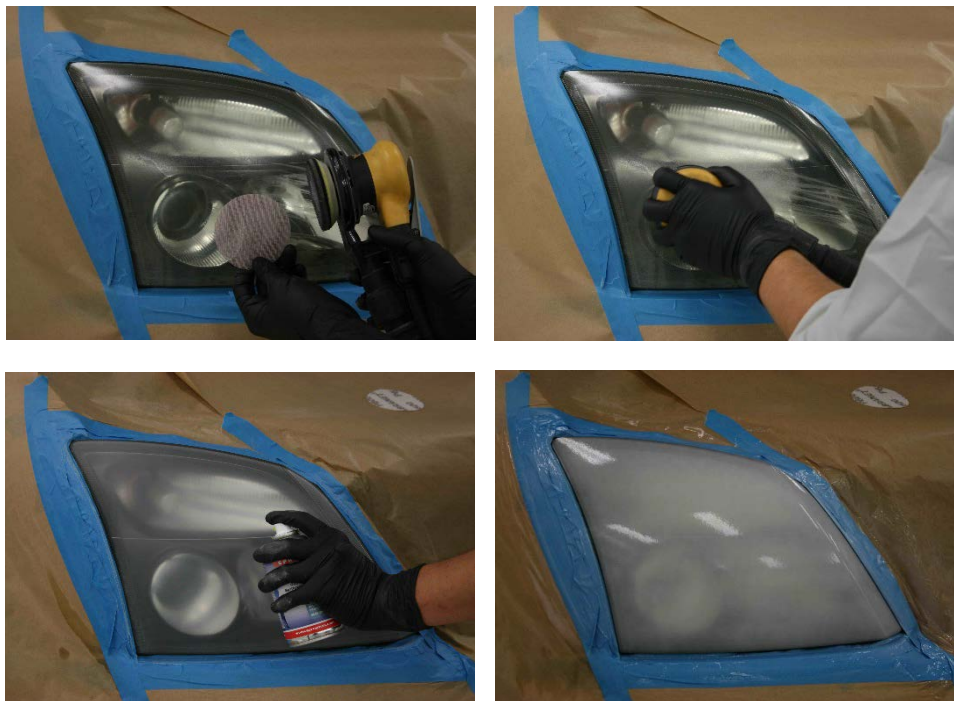
### a) Primer:

Spray the primer (spraying distance: 10 - 15 cm).

The coating has to be evenly milky (see picture 4, below on the right).

Dry approximately 30 minutes at a **room temperature of 20°C**. The drying process of the primer can be sped up by an air circulation (max. 40°C) in a professional varnishing cabin.

The primer is **completely dry** when the painted coat is slightly opaque (hazy), but **not** milky / white anymore.



Details can be found in the manufacturers handling instruction.

## 3. Painting

### b) 2K Clearcoat:

First spraying step: befogging

Second spraying step: completely film-forming

## 4. Drying of the 2K Clearcoat

Dry at a room temperature of 20°C overnight or alternatively at 60°C for approx. 30 minutes.



Details can be found in the manufacturers handling instruction.

## Requirements

For a successful and durable repair according to the Opel / Vauxhall quality standards the following requirements have to be met:

- Only a trained painter with professional equipment can conduct the repair procedure.
- The manufacturers handling instructions are to be followed.
- The sanding steps must be strictly adhered;  
Do not skip any grit steps.

## Time and effort

- The overall required time for repair and painting in the damage categories 1 and 2 averages out at 40 minutes for one headlamp and at 1,0 hour for two headlamps (incl. time for masking and sanding, without time for removal and mounting).
- Generally two headlamps can be coated with one repair set.
- **The above mentioned information regarding the time and effort are provided in the Audatex and DAT repair calculation systems.**



## Training

- Both manufacturers offer one-day trainings on the topic headlamp surface repair.

These trainings take place at the Kwasny or Würth building.  
At a minimum of six people the training can also be carried out in a local workshop.

Expenses: 100 - 120 € per person

### Contact Kwasny:

Peter Kwasny GmbH  
Heilbronner Straße 96  
D-74831 Gundelsheim  
**Tel.: +49 (0)62 69 - 95 790**  
seminar@kwasny.de

### Contact Würth:

Adolf Würth GmbH & Co. KG  
Reinhold-Würth-Straße 12-17  
74653 Künzelsau-Gaisbach  
**Tel.: +49 (0)7940 - 152623**  
Katrin.Seitzinger@wuerth.com

## Hotline

- Both manufacturers have established hotlines that offer direct technical support regarding headlamp surface repair and other topics.

### Kwasny:

#### Hotline

**+49 (0)62 69 – 95 791**

### Würth:

#### Product and application consultation

**+49 (0)79 40 – 15 2552**

